REFORM STRATEGIES AND ECONOMIC PERFORMANCE OF RUSSIA'S REGIONS

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ABSTRACT

The goal of the paper is to examine the major non-policy and policy factors that account for the varying patterns of change of output and incomes in Russia's regions. It is found that initial conditions (resource advantages) and the strength of the institutions (the ability of the authorities to contain investment risk and shadow economy and to promote business climate favourable for the emergence of small businesses) have considerable impact on output and investment. But there is no evidence that economic reforms in the regions (deregulation of prices, small privatisation) pay off in a sense that they lead to better output and investment dynamics.

In contrast, for interpreting regional differences in per capita income change, reform progress is an important explanatory variable. It turns out that the major impact of reforms was not to boost output and investment, but to redirect incomes into the pro-reform regions (also the regions with larger shadow economy, lower investment risk and better business climate for small enterprises, liberal-minded electorate and lower increases in crime rates). This "anti Robin Hood" redistribution effect of reforms could be explained by interregional transfers of business incomes by large companies (with head offices in pro-reform "liberal and shadow safe heavens"), trading companies and banks. Moscow is the most obvious example of such a region, but this effect is observed even after controlling for the capital city phenomena through the Moscow dummy variable. The intergovernmental financial flows were directed generally to poorer and worse performing regions, but they were not enough to counterweight the business transfer effect.

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1. Introduction

While the Russian economy as a whole in the 1990s was lagging behind other post communist countries in terms of performance and restructuring, there were considerable variations among 89 regions of the Russian Federation (RF). Overall, resource-oriented regions, such as the Northern Region (European North of RF), Western and Eastern Siberia, and the Central Black Soil Region (with high steel production and export) were doing better than average. On the other hand, regions with high share of defence and heavy engineering industries, and agricultural regions, such as the Central Region (around Moscow), the North-Western Region (including St.-Petersburg) and the Northern Caucasus, experienced major economic difficulties[1].

To what extent has the varying performance of Russia's regions been the result of objective factors, such as initial conditions at the start of economic reforms, and to what extent should it be attributed to good or bad economic policies of the regional administrations? Is there a uniform package of "good transition policies" that have proven to be successful in one or more regions and that can be prescribed for other regions? Or are good policies always region-specific so that they cannot easily be replicated under different conditions? There has been considerable research undertaken in recent years, both in Russia and in the West, aimed at finding the reasons for differing patterns of regional performance. This research is based on a vast and quite good pool of data, which is available from Russian official statistics and permits comparative studies of the regions. As a result, some issues have been clarified, but at the same time new puzzles requiring further study were revealed.

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[1] 89 regions of the RF are administrative subjects of the Federation, i.e. they have exactly the same status specified by the Russian 1993 constitution in terms of self-governance rights and responsibilities. For the analytical purposes RF is broken into 11 major economic-geographical regions: Northern, North-Western, Central, Volgo-Vyatsky, Central Black Soil, Volga, Northern Caucasus, Urals, Western Siberia, Eastern Siberia, Far East. The enclave Kaliningrad oblast is not considered to be part of any economic-geographical region and is shown separately.

Results of the research on Russian regions are being interpreted differently by those who advocate radical reforms of shock therapy type and those favouring a more gradual approach. The shock therapists, for instance, point out to the well known example of Nizhnii Novgorod oblast, which is traditionally perceived as a reformist region being ahead of the others in terms of price liberalisation and privatisation. Nizhnii's economy, although highly militarised and industrialised on the eve of reforms and virtually deprived of resource endowment, demonstrated better performance than other Russian regions on average.

Gradualists, however, believe that Nizhnii's reforms were not successful as compared, for instance, to the nearby Ulyanovsk oblast (also on the Volga River). In Ulyanovsk, the legacy of the Soviet industrial economy was no less substantial, but the oblast government adopted a more cautious approach to reforms which involved exercising control over prices and retail trade, using subsidies extensively and proceeding with slow privatisation. As measured by the change in industrial output, real incomes, and other indicators, Ulyanovsk's transition performance looks superior to that of Nizhnii Novgorod. The communist governor of Ulyanovsk oblast', Yuri Goryachev, is credited with being able to resist criminalisation and corruption and with implementing a strong social policy (McIntyre, 1999).

If there is a clear conclusion that emerged from the recent debates about the performance of Russia's regions, it is probably the understanding that a simple scheme dividing the regions into pro-reform and procrastinators (if not counter-reform) does not always provide a clue to explaining the performance. The real story of Russian transition in regional perspective is multi-dimensional and cannot be analysed in the categories of the speed of the liberalisation alone.

2. Initial conditions

There is considerable evidence that initial conditions have influenced greatly the results of economic transformation. A study comparing the performance of 28 transition economies revealed that the magnitude of the transformational recession depended heavily on the initial conditions before the reforms, i. e., on the distortions in industrial structure and trade patterns inherited from the era of central planning (Cornia, Popov, 1998; Popov, 1998 a, b; 1999 b; 2000). Similarly, on average, regions of the Russian Federation with heavily distorted industrial structures - particularly, a large share of non-competitive industries such as machinery and equipment, and agriculture – have done worse than other regions where competitive resource industries (fuel, electric energy, steel and non-ferrous metals) have predominated.

In 1995 the Russian resource sector employed only 3 million workers, but produced nearly as much output as machine building, light industry and agriculture together with the total employment of 17 million workers. Labour productivity in the resource sector was over five times higher than in machinery and equipment and in agriculture, and, surprisingly, even capital productivity was slightly higher (table 2.1). The actual productivity gap should be even greater than suggested by the data in current prices presented in table 2.1, because domestic fuel and energy prices in 1995 were only about 70% of world prices.

As fig. 2.1 and 2.2 suggest, there is an obvious link between industrial structure and performance: resource regions (Northern, West and East Siberia) experienced a less pronounced reduction of output in the 1990s than regions where the machinery and equipment industries accounted for over 25% of total industrial output (North-Western, Central, Volga, and Volgo-Vyatka). Not surprisingly, there seems to be a strong correlation between the share of exports in regional GRP (gross regional product) and the performance during transition, as measured by the

change in industrial output (fig. 2.3): European North, Eastern Siberia and Central Black Soil region with high export quotas were doing better than average[2].

Table 2.1. Employment, capital stock, and output in major industrial sectors, 1995

INDUSTRIES	Employment, annual average, million	Fixed capital stock, trillion rubles[*]	Gross out-put, trillion rubles	Labour productivity	Capital productivity
				% of national average	
RESOURCE (fuel, energy, metals)	3.0	2319	418	326	72
MACHINERY & EQUIPMENT + LIGHT INDUSTRY	6.7	1265	175	61	56
AGRICULTURE	9.9	1805	276	65	60
TOTAL ECONOMY	67.1	11504	2870[**]	100	100

[*] After revaluation of January 1, 1996. Breakdown by branches of industry (energy, fuel, etc.) is estimated from 1994 data.
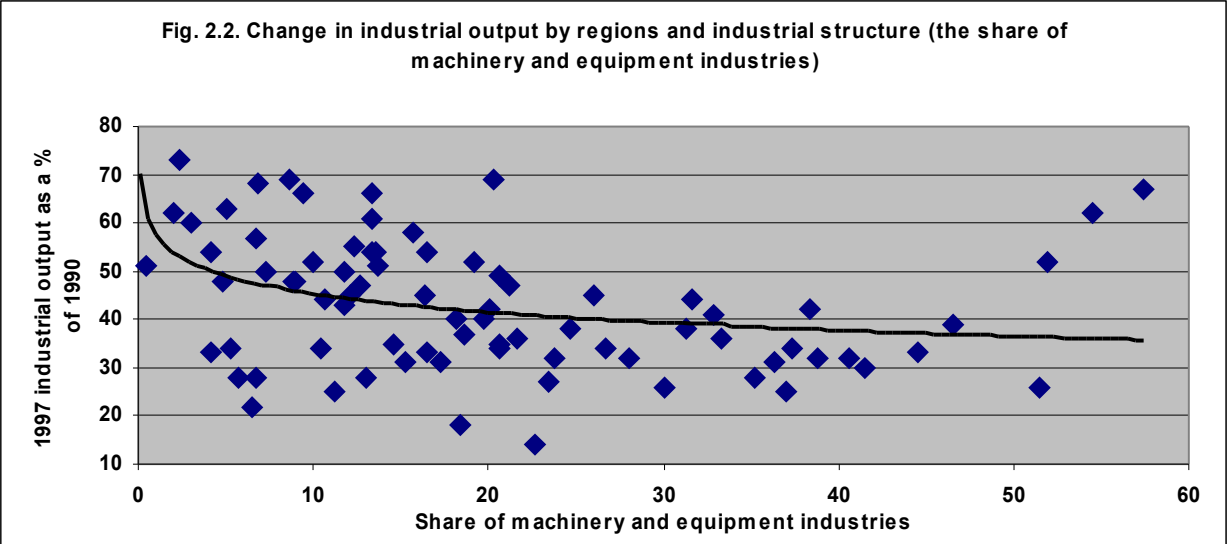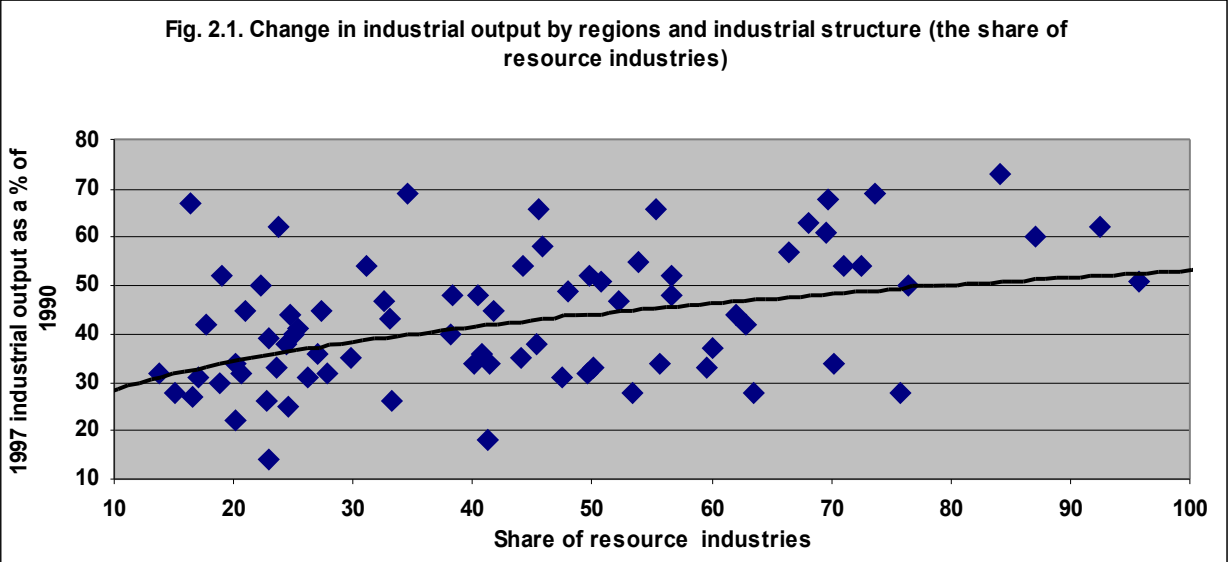[**] Estimate derived from the ratio of gross output to GDP in 1994 (1.73) and GDP for 1995 (1659 trillion R).
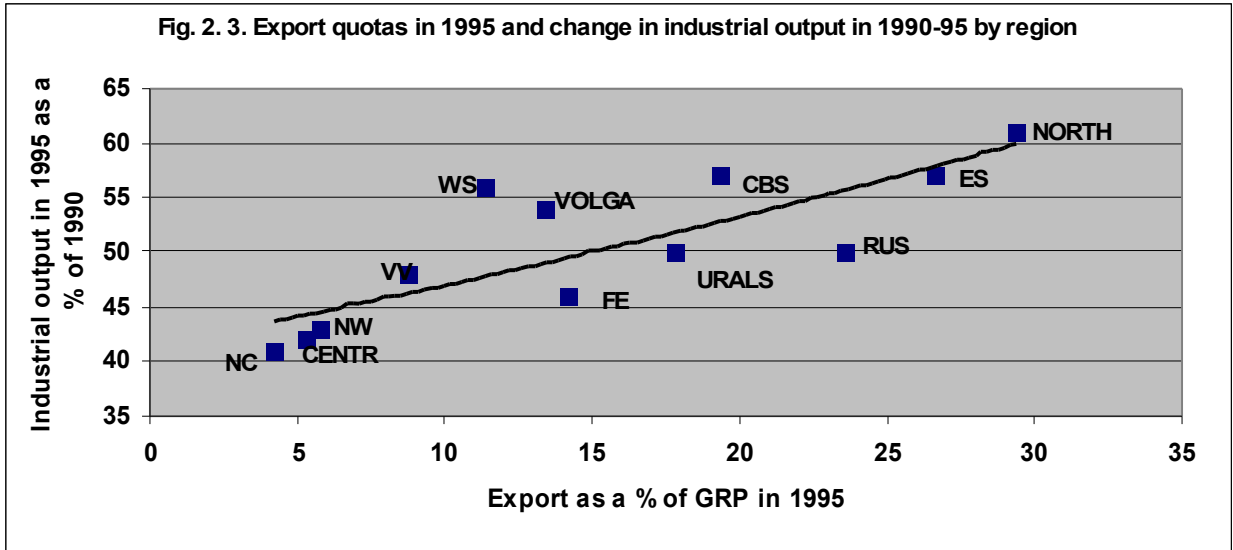Source: Goskomstat.

This conclusion about the importance of the regional industrial structure (which was basically inherited from old Soviet times, since the specialisation of the region cannot change overnight) is supported by the evidence from the statistical research on all 89 subjects of the RF. Mikheeva (1998) finds that the high share of agriculture is likely associated with a greater reduction of income during transition, whereas high share of services in GRP, on the contrary, stabilises economic performance. Berkowitz and DeJong (1998) report that efficiency of the regional economy measured by value added in the tradable goods sector in 1985 per employed worker, net of labour costs, in world prices, has significant positive impact on performance. And both studies find a positive correlation between the initial level of development (GRP per capita – in the first case, and income per capita as

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[2] The sum of regional GRPs is less than the national GDP since some economic activities (defence, public administration, external trade and financial intermediaries) are counted only at the national level and are not distributed by region. Hence, the share of export in GRPs, as well as other relative indicators (the share of industry, agriculture, etc.), are slightly overstated as compared to national averages.

compared to the cost of the basket of 19 basic food goods – in the second case) and subsequent performance. The latter means that the argument of the advantages of backwardness does not seem to work in the framework of the Russian nation state: relatively rich regions have better chances to succeed during transition than their poorer counterparts.

Fig. 2.1. Change in industrial output by regions and industrial structure (the share of resource industries)

Share of resource industries

1997 industrial output as a % of 1990

Fig. 2.2. Change in industrial output by regions and industrial structure (the share of machinery and equipment industries)

Share of machinery and equipment industries

1997 industrial output as a % of 1990

Fig. 2. 3. Export quotas in 1995 and change in industrial output in 1990-95 by region

According to Van Selm (1998), as much as 40% of the variation in the regions' rates of industrial decline in 1993-95 can be explained by the variations in their industrial structures (assuming that the rates of decline in particular industries of the region were equal to national rates of decline).

Somewhat surprising is Berkowitz's (1998) finding that the share of employees in the defence industry in total employment has a positive impact on performance. The finding may be the result of poor statistics on the defence sector employment (it is estimated as a residual that is left after summing up employment in various non-defence industries). Alternatively, it may show that the increase of exports of weapons counter-balanced the reduction of government orders for armaments and ammunition. Another study (Offer, 1998), comparing 10 cities – regional centres on the Volga River - finds that concentration of defence industries in the cities was a liability rather that an asset.

3. Institutional capacity of the regional governments

There is no clear understanding of how to measure the institutional capacity of the state in particular regions and it is difficult to find consistent evidence about how such a capacity affects performance. One possible measure – change in the expenditure of the regional governments as a % of GDP. It was shown that this indicator is a good proxy for the institutional capacity of the state in the medium run and explains a lot in the varying patterns of output change in the cross-country comparison of transition economies (Popov, 2000). Unfortunately we do not have data on the levels of expenditure of regional government before transition, whereas the levels of these expenditure in recent years seem to be negatively correlated with growth (fig. 3.1). In fact, causation here is likely to run the other way – poor performance leads to the need to support consumption through regional subsidies. In Orel oblast, where industrial output collapsed by 1998 to just about 30% of its 1990 level, regional government spending amounted to nearly 33% - one of the highest levels in the Russian Federation.

Fig. 3.1. Share of expenditure of regional governments in GRP and change in industrial output
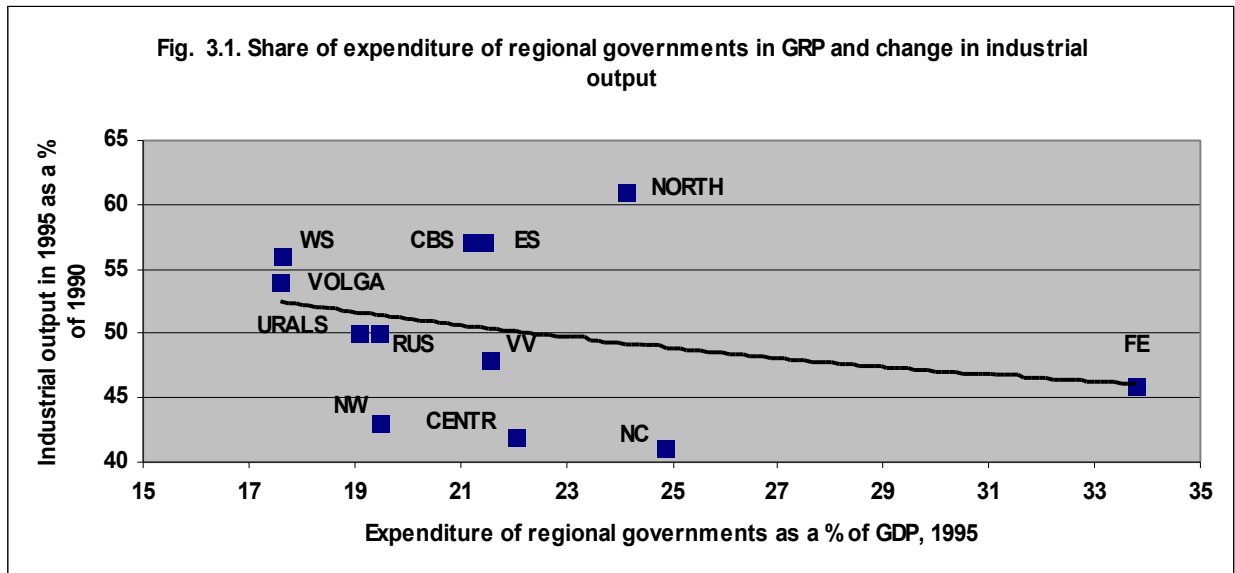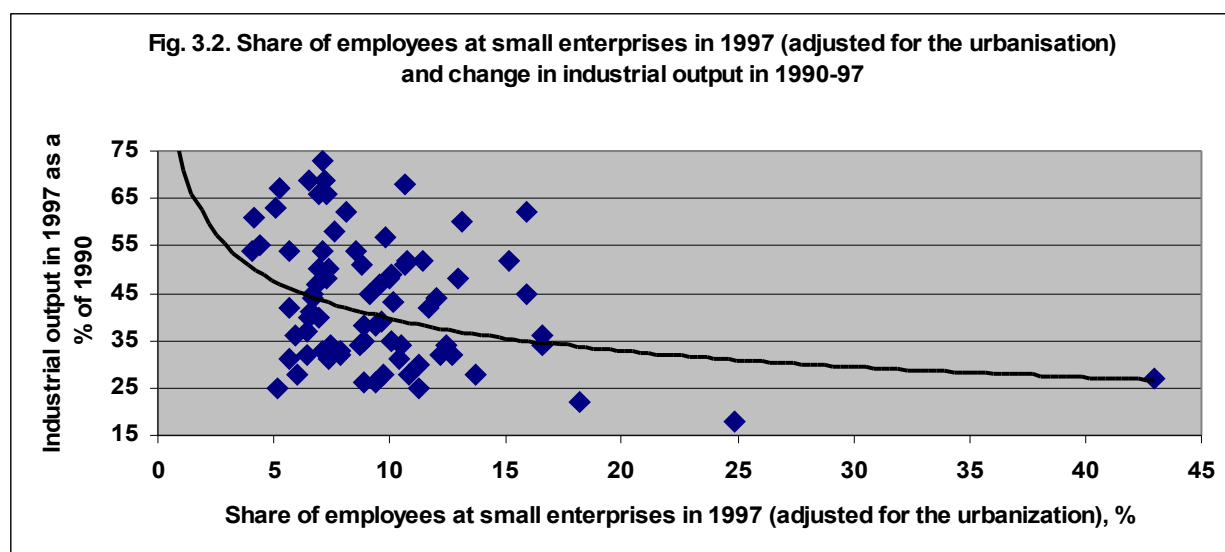
On the other hand, it was found (Mikheeva, 1998) that the levels of investment in the region (as a % of GRP), which are financed to a large extent from the regional budgets, especially in the poor regions, do matter a great deal for performance. The higher the regional investment, the less pronounced was the decline in GRP and real incomes.

Another traditional measure of the institutional capacity is the number of newly created enterprises in the region and their contribution to regional economy. The implicit assumption in this case is that stable and non-corrupt regional administrations would be more conducive to the process of new business start-ups and that new entrepreneurial activities would contribute to better economic performance.

At a first glance, there does not seem to be any relationship between economic performance and the relative size of the sector of newly emerged enterprises (virtually all small businesses did not exist before the reforms and were created from scratch during transition). In the two extreme cases (the North-Western and Central Regions) the share of employment in small enterprises in total employment is nearly two times higher than the national average due to presence of St.-Petersburg and Moscow; but without these two regions, the link between these two variables also does not show up. If we control for the urban-rural population breakdown (small businesses emerge mostly in large cities where the service sector is concentrated), the relationship looks more like a negative one (fig. 3.2), but as we show further in multiple regressions small business creation has an expected positive effect on output.

Berkowitz and DeJong (1998) demonstrated that the creation of new enterprises is a significant explanatory variable for changes in real income. It was also shown (Zhuravskaya, 1998) that at the level of municipalities the creation of small enterprises depends on the fiscal policy of the regional administration versus municipalities: if regional administrations tend to behave as

"predators" counterbalancing all changes in the own revenues of municipalities by adjusting subsidies and tax sharing procedures, than the creation of new business entities is slow; in the opposite case, when regional authorities allow the municipalities "to get rich", the formation of new enterprises is proceeding faster. The latter case fits the Chinese experience, whereas the former case – the Russian experience (Zhuravskaya, 1998).

Fig. 3.2. Share of employees at small enterprises in 1997 (adjusted for the urbanisation) and change in industrial output in 1990-97

The crime rate, or better, the murder rate (since murders are better registered than crimes) may be a good proxy for the ability of the government to maintain law and order, to protect property rights and to enforce contracts. The homicide ratio remains statistically significant in explaining the variations in the investment/GDP ratio across transition economies even after factoring in "conventional" explanatory variables (Popov, 1998b). It appears that regions which were able to contain the increase in murder and crime rates did better than average in terms of economic performance. It is quite meaningful, for instance, that in all resource regions (Northern, Eastern and Western Siberia, Far East and Central Black Soil) increases in murder rates were less pronounced than elsewhere despite greater labour mobility and income inequalities. No doubt, the causation here

runs both ways (i.e. better economic performance alleviates poverty and gives regional administrations more resources to fight crime). Nevertheless, at a disaggregated level the correlation is not at all obvious, it seems like better off regions with higher output level have similar crime rates (fig. 3.3).

Fig. 3.3. Change in crime rate and in industrial output in 1990-97
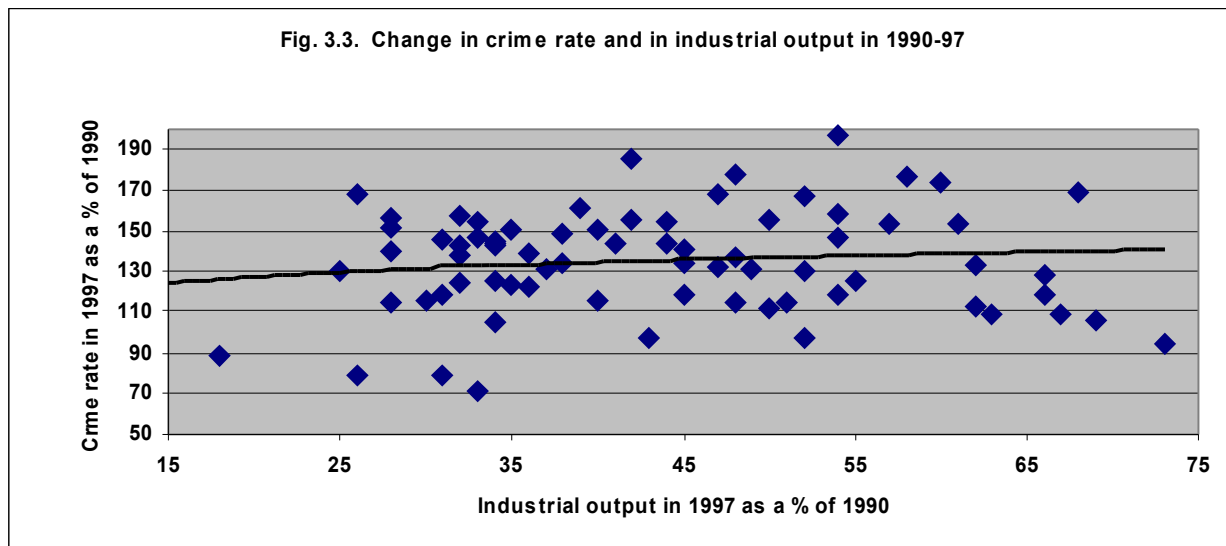
Another possible way to compare institutional capacities of the regional administrations is to use various indicators of business climate, investment attractiveness, etc., which were recently computed for the Russia's regions by a number of institutions. The three most comprehensive attempts were made by the rating agency of the "Expert" business weekly (Regiony…, 1997),[3] by the Russian Union of Industrialists and Entrepreneurs (RUIE) together with the Laboratory of the Regional Analysis and Political Geography of the Moscow State University (Predprinimatel'sky…, 1997) and by the Vienna Institute for Advanced Studies (IAS) on the request of the Bank of Austria (Russia… , 1998).

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[3] The annual results of this regional rating are published in Expert (No. 47, 1996; No. 47, 1997; No. 39, 1998; No. 39, 1999). We use the data for 1997 (Expert, No. 39, 1998), whereas the methodology is described in (Regiony…, 1997).

The Expert Rating Agency computes two aggregated indicators for each and every Russian region: (1) the index of investment potential and (2) the index of investment risk. The latter indicator (risk index) is most suited for our purposes. It is the weighted average of legal, political, economic, financial, social, criminal and ecological risks; each type of risk is computed separately based on indicators, such as the percentage of votes received by the regional governor at the last elections, number and type of crimes, atmosphere pollution per capita, etc. The weights of the factors were obtained from interviews with Russian and foreign expert: it is noteworthy that their opinions were quite uniform, except that the foreign experts put greater emphasis on such factors as the position of the regional authorities and geographical location/transportation routes and less emphasis on economic potential. The risk index does a good job in predicting changes in output and especially changes in investment (fig. 3.4).

Fig. 3.4. "Expert's" index of investment risk and actual change in investment and output in 1990-97
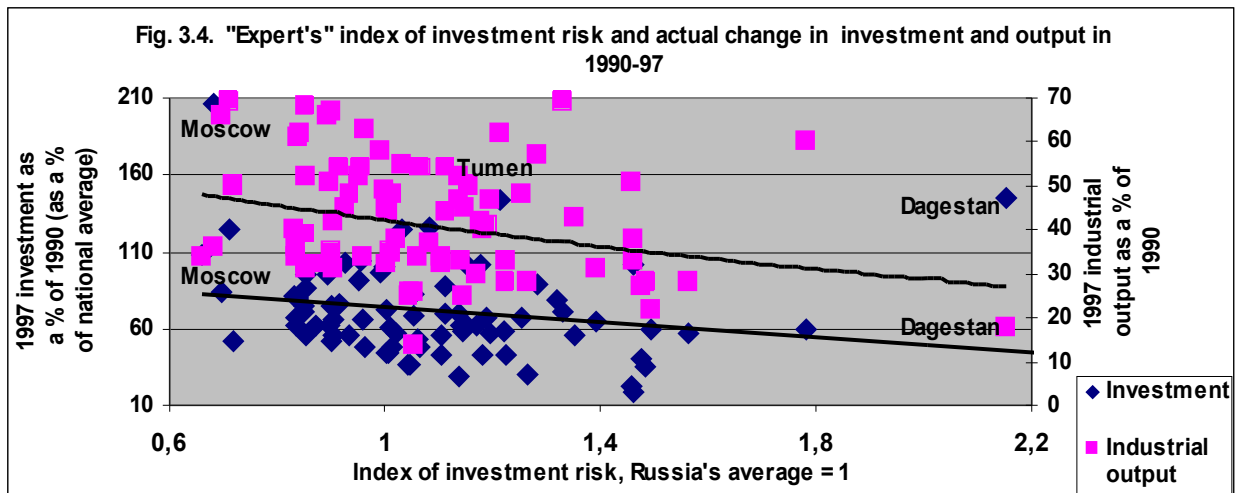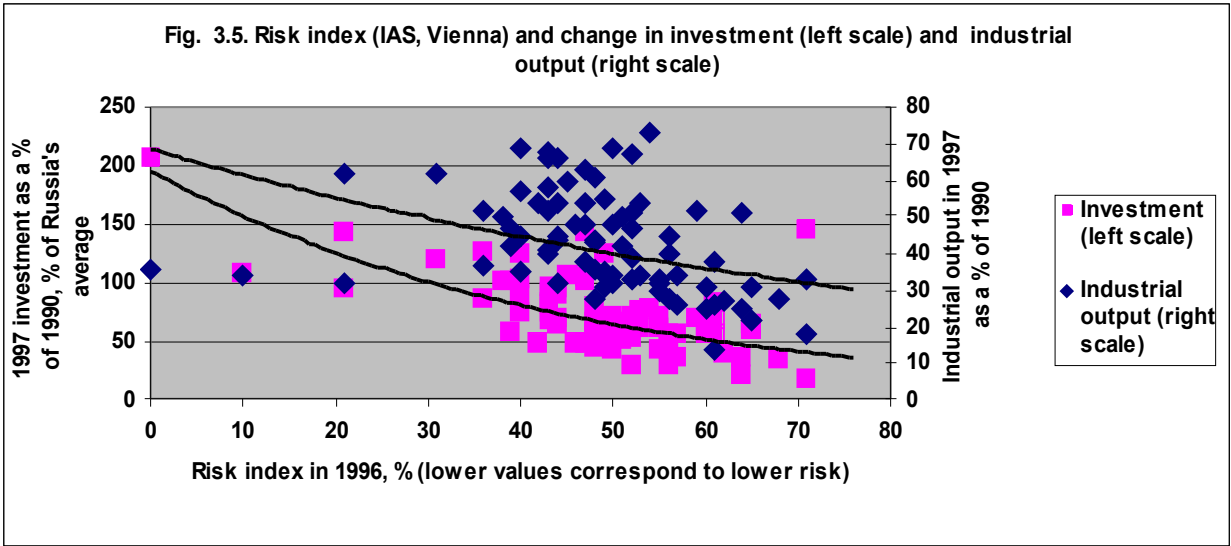
The other rating of the regions – the index of business climate ("attractiveness of the entrepreneurial climate") of the RUIE – is also computed as a weighted average of the economic, resource, financial and demographic potential. There are two major differences, though, with the "Expert" index. First, unlike "Expert" rating, the RUIE takes into account changes in economic

activity in recent years – they are incorporated through taking into account the output decline in industry, agriculture and construction in the 1990s as well as the level of unemployment in the region as compared to the Russian average. Second, it includes indicators of the progress in economic reforms (index of economic liberalisation based on the share of subsidies in total budget outlays, the share of subsidies in total agricultural output, the degree of privatisation in trade, public catering and services, the extensiveness of price controls) and also the political orientation of the electorate (voting patterns at federal and regional elections) and stability and credibility of regional authorities.

The explanatory power of the RUIE index of business climate with respect to the actual patterns of change in industrial output and especially investment is much better than that of the "Expert" index. In a sense it is not surprising, since the RUIE index includes changes in industrial output and construction output (strongly correlated with investment) as components. Due to this reason, and also because it includes measures of reform progress, it cannot be used to explain output dynamics. The reform index is discussed in the next section and is used separately in regressions afterwards. The IAS risk rating is the weighted average of ecological, political, social and economic risk, as well as indicators characterising experience of joint and foreign ventures and previous foreign investment. As the chart 3.5 suggests, these ratings of investors' risk are negatively linked to output and investment change. Sonin (1999) used this variable as a proxy for property rights protection demonstrating that it is negatively linked to output change in 1994-97 and has significant explanatory power.
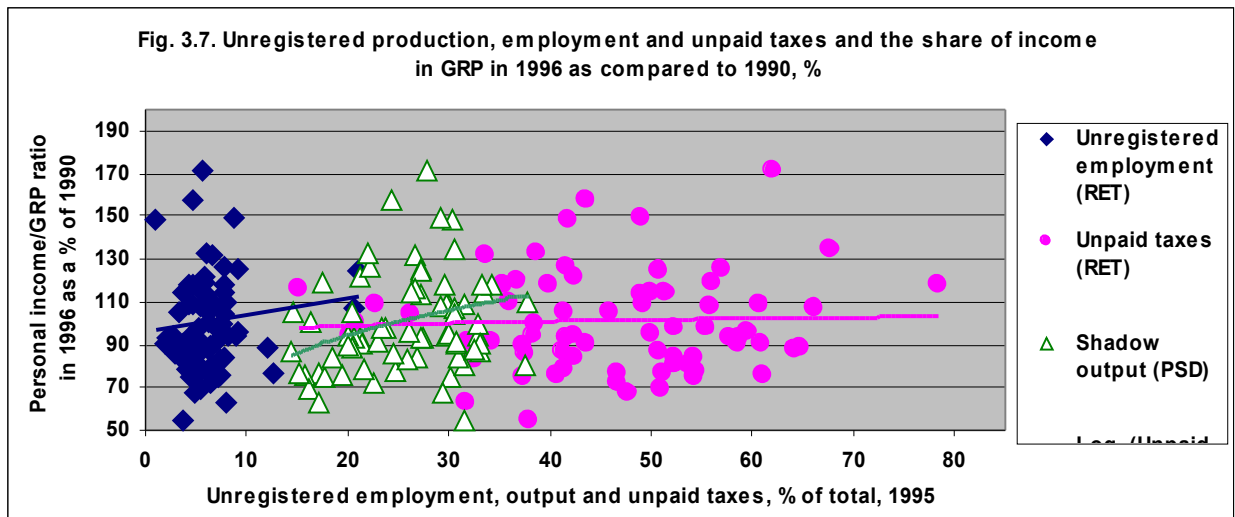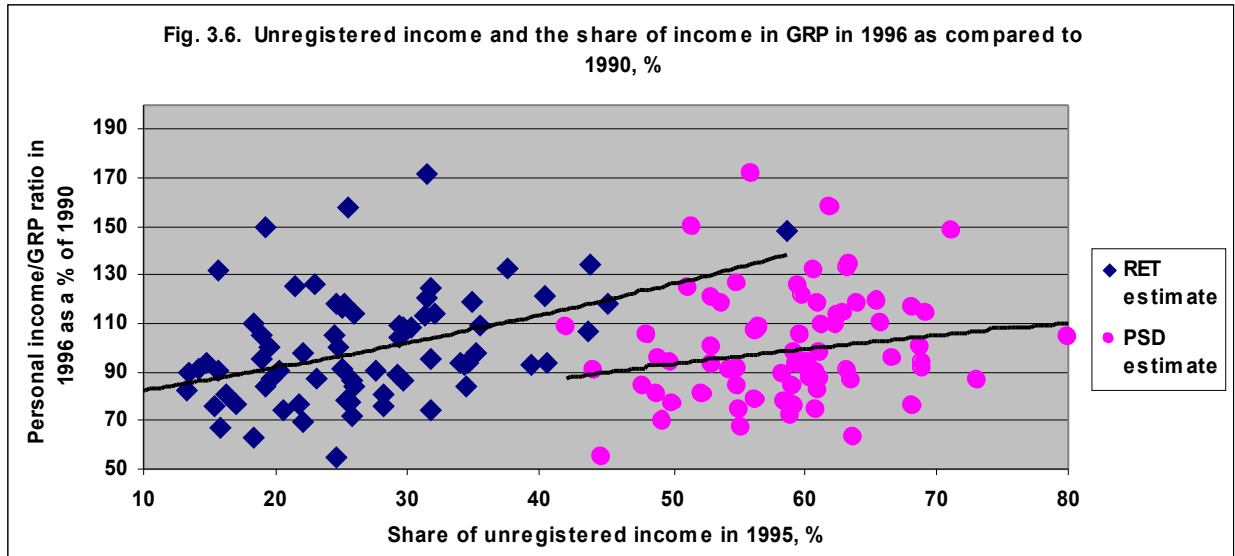
Finally, there are estimates of the size of the shadow economy in the regions, namely the share of unregistered output, employment, income and tax evasion. One is published in Russian Economic Trends (Nikolayenko, Lissovolik, MacFarquar, 1997) and is based on the differences between personal income and expenditure (for illegal income), on the difference between the

unemployment rate derived from surveys and the share of the recipients of UI benefits in the labour force (illegal employment), and on the difference between value added taxes multiplied by the regional value added and the actual budgetary receipts from VAT (tax evasion). These data are later referred to as RET estimates. The other estimate (Martynov, Artyukhov, Vinogradov, 1997) is referred to as the Practical Science Database (PSD) and is based on electricity and fuel consumption, transport load statistics and environmental pollution (for evaluation of the shadow production) and on income expenditure ratios, purchases of foreign exchange statistics, share of food goods in total purchases and share of food from individual land plots in total consumption (for evaluating unregistered income).

Fig. 3.5. Risk index (IAS, Vienna) and change in investment (left scale) and industrial output (right scale)

These various estimates of shadow economy are quite different in absolute terms and sometimes not really correlated between themselves. It is noteworthy, though, that practically all 5 estimates are positively correlated with the increase in income/GRP ratio during transition (fig. 3.6, 3.7). To put it differently, legal incomes as compared to GRP were growing faster in regions with

sizeable shadow economy. We will come back to this observation later, in the section on income change.

Fig. 3.6. Unregistered income and the share of income in GRP in 1996 as compared to 1990, %

Fig. 3.7. Unregistered production, employment and unpaid taxes and the share of income in GRP in 1996 as compared to 1990, %

4. The speed of liberalisation and privatisation

Attempts to find the correlation between "good" policies of regional administrations and economic performance of the respective regions produced mixed results. First, the judgement on what constitutes "good" policies is necessarily subjective and often fails to distinguish between

measures aimed at improving institutional capacity of the regional authorities (enforcement of contracts, protection of property rights, fighting crime and maintaining law and order in general) and liberalisation and privatisation per se. Sometimes, the same regions are classified by different scholars as being progressive and conservative in implementing economic reforms. Hanson (1995), for instance, regards Krasnodar and Stavropol (both with communist governors) as pro-reform regions, whereas Mau and Stupin (1997) consider these regions as conservative. Second, some studies report that there is no difference in performance between progressive and conservative regions, no matter how they are defined (Van Selm, 1998).

Berkowitz and DeJong (1998b) report that the "Red Belt" variable (denoting regions where the greater percentage of voters voted for Zyuganov, the communist candidate at the 1996 presidential elections) matters for explaining the new business start-ups, whereas start-ups, as was shown in the previous work (Berkowitz and DeJong, 1998a), are correlated with the growth of real incomes. No direct relationship is reported between growth and the 'redness' of the region, although it was well documented statistically (Berkowitz and DeJong, 1998a) and in case studies (Ofer, 1998; McIntyre, 1998) that ideological orientation of the regional administration matters for the degree of price control in the region and for the speed of privatisation.

Additional evidence, however, is required before strong conclusions could be made. It is known, for instance, that communist dominated regions are mostly rural, which means that there are fewer small businesses being created just because of this factor. Besides, as Berkowitz and DeJong (1998a) argue themselves, it is not clear yet which way the causation runs: it may well be that regional administrations facing disastrous outcomes of reforms can revert to traditional Soviet style policies that they better understand and that may be less ruinous for the performance.
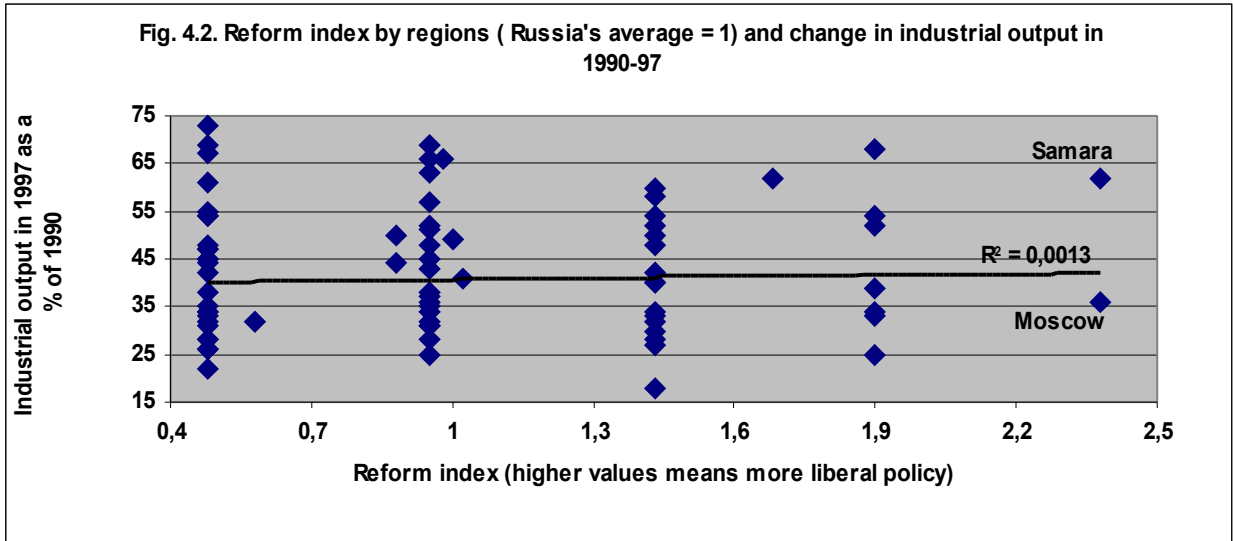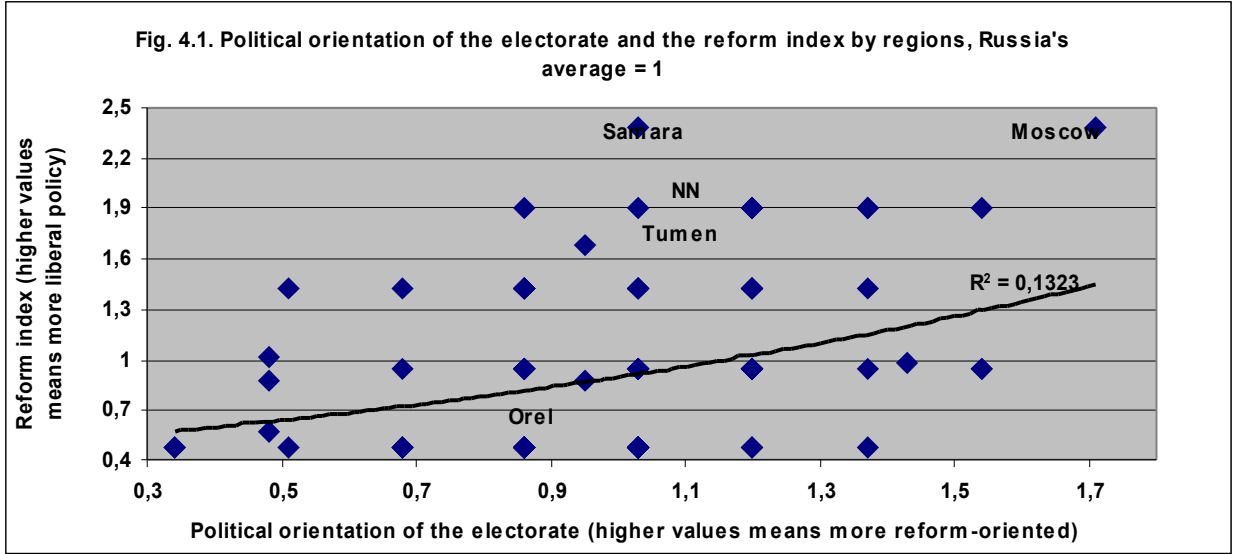
Case studies of the Russian regions seem to produce mixed evidence. McIntyre (1998) argues strongly in favour of the "Ulyanovsk model" of reforms, whereas Ofer (1998) is inclined to think that
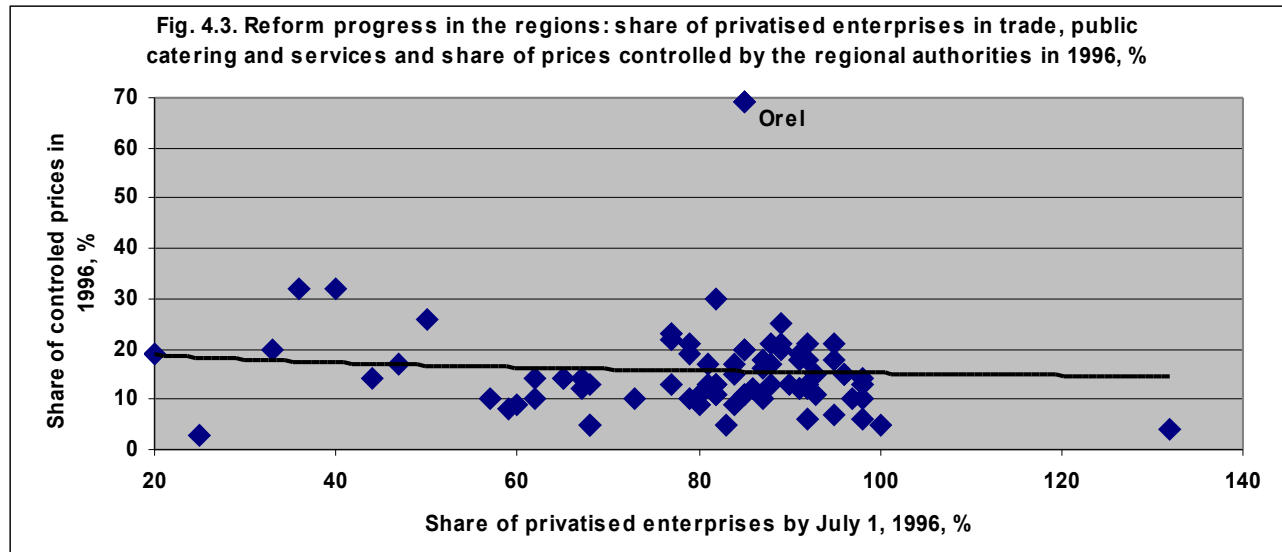
the "Red Belt" distinction makes sense, i.e. matters for economic growth. There is still a need to provide the persuasive explanation for the better than average performance of communist Ulyanovsk and worse than average performance of neighbouring reform-oriented Saratov.

There seem to be a link between the electorate preferences and reform oriented economic policies of the regional administrations, if the former is defined as the average of the results of the voting at regional and federal elections (both – of legislatures and of governors and president) and the latter – as the average of the indicators of price controls, small privatisation, and the share of subsidies in the regional budgets[4] (fig. 4.1). A study of the Russian regional voting patterns found that reform policies of the regional governments are not rejected, but supported by the voters at the polls, even when such "objective" factors as urbanisation, education levels, preceding reduction of income during reforms, wage arrears and alcohol consumption are controlled for and instrumental variable for reform efforts is used (Warner, 1997).

However, it turns out that there is not much correlation between the reform index and performance (fig. 4.2). Besides, the components of the reform index seem to be not correlated at all: the share of prices controlled by the regional administration does not depend on the share of private sector in trade, public catering and services – the major area of small privatisation, carried out mostly under the supervision of the regional governments (fig. 4.3). In other words, there is no clear evidence that reform-oriented policies contributed to the better economic performance. This most important conclusion will be discussed in a greater detail further.

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[4] These two indices are taken from (Predprinimatel'sky…, 1997) and are discussed below.

Fig. 4.1. Political orientation of the electorate and the reform index by regions, Russia's average = 1

$R^2 = 0{,}1323$

Fig. 4.2. Reform index by regions (Russia's average = 1) and change in industrial output in 1990-97

$R^2 = 0{,}0013$

Fig. 4.3. Reform progress in the regions: share of privatised enterprises in trade, public catering and services and share of prices controlled by the regional authorities in 1996, %

Share of controled prices in 1996, %

Orel

Share of privatised enterprises by July 1, 1996, %

5. What does "performance" mean? Changes in output versus changes in real incomes. Interregional government financial flows

To complicate things further, there is a difference between regional performance, as measured by the change in output, and regional performance in terms of the change in real incomes. Simplifying a bit, it could be stated that changes in real incomes result not only from the changes in regional output, but also from the redistribution of income among regions as a result of financial flows between the regions and the federal budget.

In the hypothetical example, it may mean that in the region A income per capita was lowered by, say, 10% by a disproportionately high tax burden, whereas in the region B incomes were boosted by 10% due to direct transfers from Moscow and/or disproportionately low tax burden. The 20 p.p. difference in the change of real per capita incomes in the two regions would result in this case solely from the federal redistribution activity, not from the comparative performance of the two regions in terms of output. Mikheeva (1998) finds that budgetary expenditure is a more important explanatory variable for the behaviour of real incomes in 1992-95 than for change in GRP in the same period.

Hence, when comparing changes in real incomes between regions, government redistribution activity needs to be taken into consideration.

Even just direct transfers are quite sizeable and can easily "fabricate" winners and losers: in 1994, for instance, 4.3% of Russia's GDP or 31% of federal tax revenues was transferred back to the regions from the federal budget in the form of grants (in 1995-97 these direct transfers were within 1.6 – 2.9% of GDP). Largely due to these transfers, expenditure of regional governments vary greatly as compared to GRP – from less than 18% in Volga and Western Siberia economic-geographical regions to nearly 34% in the Far East.

It was shown in the literature that these direct financial transfers from the federal budget to the regions depend mostly on the lobbying power of the regions, which in turn is determined by their ability to threaten and create trouble for the federal government. As was documented by Triesman (1996 and 1998), those regions that voted against Yeltsin in 1991 and against pro-Yeltsin Russia's Choice bloc in December 1993, that issued early sovereignty declarations, and whose governors opposed Yeltsin publicly in his conflict with the parliament in September 1993, all seem to have received larger net transfers from the centre in subsequent years.

Such a policy of appeasing the troublemakers may actually mean that the pattern of regional differences in real income change gives a distorted impression about the performance. It may well be that the regions that perform worse in terms of production, then "catch-up" with the better performers when it comes to the redistribution and consumption of a pie. Or that the relatively wealthy and better performing regions use in addition their high bargaining power to increase their incomes further. Unfortunately, limited statistics (GRP data are available only from 1994) does not allow to check this hypothesis thoroughly. However, the comparison of income, financial transfers and GRP statistics for 1996 (the last year for which GDP statistics is available) and estimates of real GRP for 1990-96 seems to suggest that this hypothesis does not hold. First, regional differences in

per capita incomes are similar to regional differences in GRP per capita – both, in terms of absolute levels and in terms of change in the 1990s. Second, there is evidence that net financial transfers between regions and the centre redistribute income from the wealthiest regions to the poorest and from the better performing regions to those that are doing worse, but this is still not enough to transform poor and lagging behind regions into wealthy and better performing.
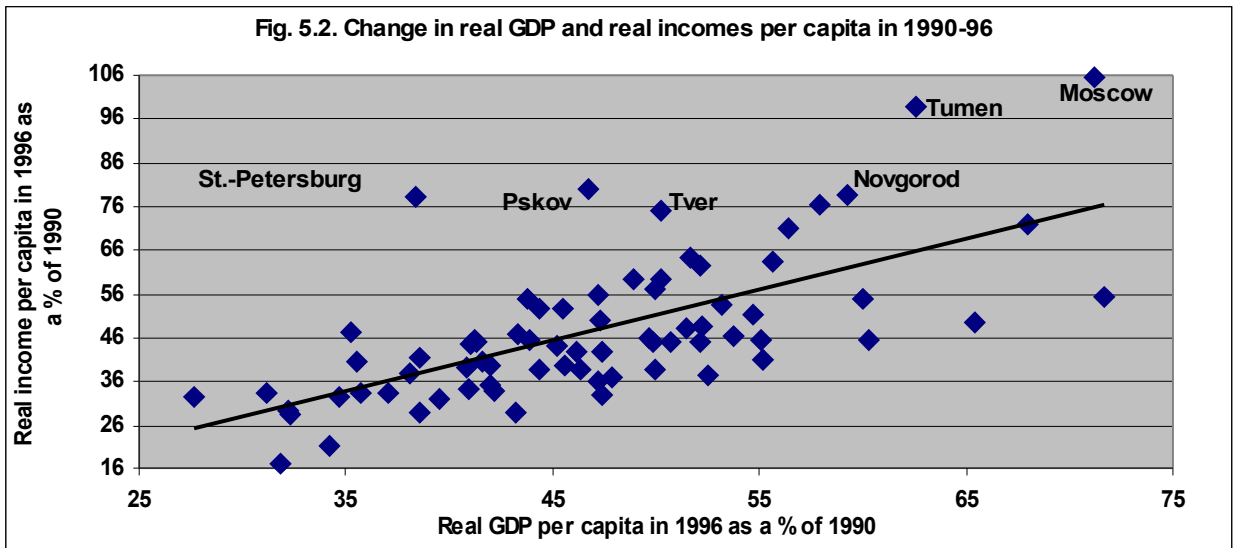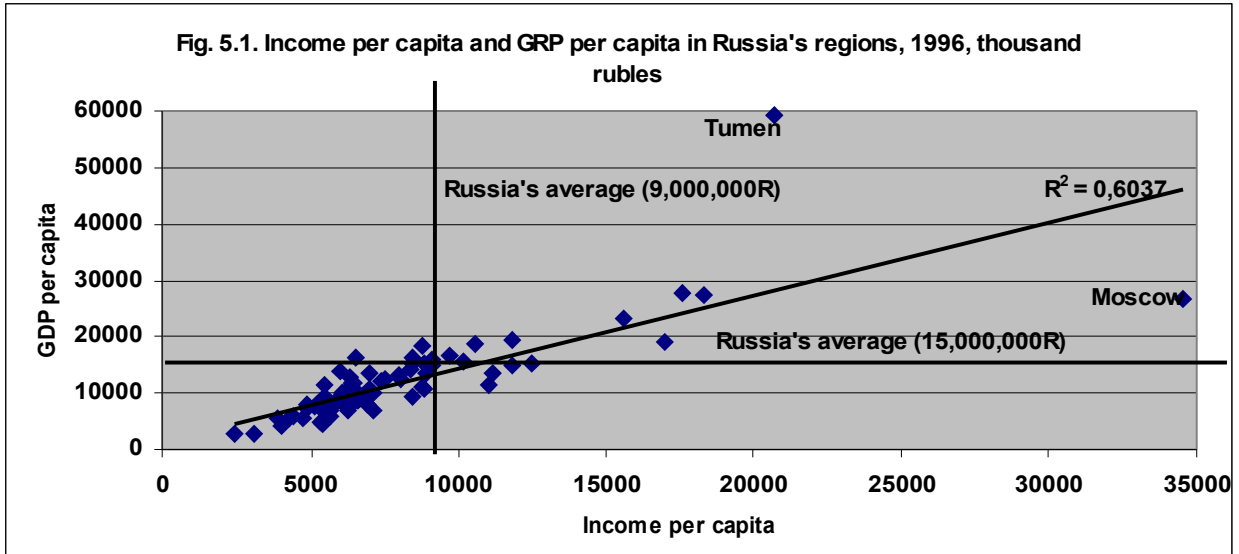
Overall, the difference between GDP and personal incomes at the national level is equal to business income (undistributed profits and income of non-corporate business) plus depreciation plus indirect taxes minus subsidies. The share of personal income in GDP did not change much from 1990 to 1996, staying at a level of about 2/3 (Rossiyskiy…, 1997, p. 140, 306). At the regional level there is another reason for the difference between personal incomes and GRP: value added may be created in one region, but incomes generated by the creation of value added may be received in another region. This applies to all kind of incomes – labour incomes, as well as business incomes and government transfers, but in practice, since labour incomes are mostly paid in the region where the value added is created, regional differences in income/GRP ratio reflect mostly inter-regional flows of business income (dividends, interests and other distributed business income) and government transfers.

Turning to the actual data on income and GRP by region, the first observation is that inter-regional flows of business income and government redistribution activity do not change much the pattern of distribution of income that would prevail in the absence of such flows. Income per capita in the regions seem to be strongly correlated with GDP per capita. As fig. 5.1 suggests, regions with higher GDP per capita mostly had proportionately higher personal incomes than regions with lower GDP per capita in 1996. The extreme cases –outliers – are quite meaningful: Tumen, the main oil and gas producing region, had GDP per capita, which was 3 times higher than personal income per capita, whereas Moscow, the capital, where the headquarters of the major companies and banks were

located, enjoyed incomes exceeding it GRP per capita. Because both - Moscow and Tumen were net donors in inter-regional government financial flows, the explanation for the extreme position of points characterising these two regions in the chart is obvious: value added created in Tumen was redistributed to the other regions through state taxation and, perhaps, transfers of business income to the other regions, whereas in Moscow net losses from inter-government financial redistribution were more than compensated by net benefits from transfers of business income (dividends, interest, etc.) from the other regions (including Tumen).

It seems also that this conclusion holds not only in static – for the single year of 1996, but also in dynamics – if changes in income are compared to changes in GRP. The data in this case are less reliable since comparable GRP numbers for 1990-96 were computed on the basis of incomplete information (Mikheeva, 1998)[5], but they apparently show the same pattern: regions with greater reduction of GRP per capita exhibit also greater reduction of personal income per capita (fig. 5.2). Tumen, Moscow and St.-Petersburg in this case are all markedly above the regression line, i.e. managed to maintain higher incomes than regions with similar reduction of GDP.

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[5] Gross regional product (GRP) was reconstructed by N. Mikheeva for 1990-96 on the basis of data for industrial and agricultural output, construction activity (newly constructed housing space), transportation activity (cargo turnover volumes), trade and service sector output (real retail trade turnover, number of employees in the service sector).

Fig. 5.1. Income per capita and GRP per capita in Russia's regions, 1996, thousand rubles

Russia's average (9,000,000R)

$R^2 = 0,6037$

Russia's average (15,000,000R)

Tumen

Moscow

GDP per capita

Income per capita

Fig. 5.2. Change in real GDP and real incomes per capita in 1990-96

Moscow

Tumen

St.-Petersburg

Novgorod

Pskov

Tver

Real income per capita in 1996 as a % of 1990

Real GDP per capita in 1996 as a % of 1990

The second observation is that inter-regional government financial flows were not negligible in relative terms – as a percentage of total incomes, and were affecting considerably income levels in the regions even though they were less important than the impact of differences in GRP per capita, i.e. were not sizeable enough to change the patterns of regional differences in incomes determined by regional variations in GRPs. Indeed, total inter-regional government financial flows, as opposed to direct financial transfers from the centre to the regions, which constitute only about 4% of GDP (and were used by D.Triesman as a dependent variable) should be calculated as the difference between the

total revenues collected by all levels of government in this particular region and total outlays of regional and local authorities in this region. In this case the average region is certainly a donor vis-à-vis the federal government since these financial transfers constitute the major source of the revenues of the federal government (but not the only source, since part of the revenues of the federal government, like custom duties and proceeds from privatisation of federal property, are not divided by regions). In 1996 these net transfers from the regions to the centre amounted to 1,086,000 roubles per capita (Predprinimatel'sky…, 1997), which was equivalent to about 8% of national GDP, or to about average per capita income for 1.5 months. The variations by regions, however, were huge: from +6,000,000 R in Moscow (national average per capita incomes for nearly 8 months) to -2,820,000R per capita in Chukotka in the Far East (equivalent to nearly 4 monthly average per capita incomes). To put it differently, Moscow residents were paying extras to the federal budget equivalent to the average national per capita income for over half a year, whereas Chukotka residents were receiving net transfers equivalent to average national income per capita for nearly 6 months.

It seems like these huge inter-regional financial flows did make a difference for the regional incomes in a sense that they explained to a large extent the deviations of per capita regional GRPs from per capita regional incomes. As fig. 5.3 demonstrates, regions with high positive financial flows to the centre (net donors, as Tumen) had lower income/GRP ratios, whereas regions with low and negative financial flows to the central government (net recipients, like Chukotka) enjoyed high income/GRP ratios.

A different conclusion holds, if changes in income/GRP ratios, rather than absolute levels of these ratios, are considered. It turns out that relatively successful regions, where the ratio of income to GRP increased in 1990-96 (or did not decline much) were paying for their success by transferring more funds to the centre than regions, in which the ratio of incomes to GRP declined substantially (fig. 5.4).

Fig. 5.3. Ratio of income to GRP and net financial flows per capita in 1996 from regions to the centre

Net financial flows from the region to the center per capita in 1996, thousand rubles

Moscow (129;6000)

Tumen

Russia's average (1,100, 000R)

R² = 0,0324

Russia's average (61%)

Chukotka

Ratio of income to GDP in 1996, %

Fig. 5.4. Ratio of change in income to change in GRP in 1990-96 and net financial flows from regions to the centre per capita in 1996

Net financial flows from the region to the center per capita in 1996, thousand rubles

Moscow

Tumen

St.-Petersburg

Ratio of income to GRP in 1996 as a % of 1990

Thus, donor regions, like Tumen, had higher income growth in 1990-96, but lower income/GRP ratio in 1996 as compared to recipient regions, like Orel and Stavropol. Or, to put it differently, better performing regions in terms of income growth in 1990-96 (and absolute level of income per capita in 1996) had lower income/GRP ratios in 1996 because they had to pay for their success by transferring more funds to the centre through federal-regional financial system.

It may seem that the first and the second observations are contradictory: according to the first one, regional variations in per capita income are determined by the variations in the GRP per capita (the higher GRP per capita, the higher the regional per capita income), whereas the second observation states that these regional variations in income are explained by the inter-regional financial flows arising from the government redistribution activity (the higher the net government financial subsidy to the region, the higher the income to GRP ratio). In fact, there is no contradiction, both observation are correct, and the right conclusion to make at this point is that the government financial flows do not increase the regional variations in income that are determined to a large extent by the interregional differences in per capita GRP (i.e. the government does not reward the better off regions and does not punish the worse off regions). On the contrary, - and this is the third observation – the government-induced financial flows are aimed at mitigating regional variations in income arising from the regional per capita GRP variations, but they are not enough to eliminate the income differences completely.

The evidence is on fig. 5.5-5.7 which compare income and GRP per capita with the net government financial flows: it turns out that the beneficiaries are mostly poor regions in terms of both - the level of income and GDP per capita. It is interesting that the outliers are mostly far away regions of the Far East – they are getting more transfers from the centre than could have been suggested by their levels of income and GRP per capita, which are apparently higher than average. It should be noted, though, that the cost of living in these far away regions is considerably higher than the Russian average (the highest in Russia), so the unusually large financial donations are just compensating the higher cost of living. If per capita incomes are adjusted for the cost of living (by dividing incomes by the cost of the basket of basic goods which constitutes the so called subsistence minimum and is computed separately for each of the Russia's regions), all the outliers get much closer to the regression line (fig.5.7), except for Chukotka, the most remote region, where unusually

high subsidies are caused, perhaps, by the extreme remoteness and the collapse of the "severniy zavoz" system of good deliveries via the Arctic sea route from Murmansk.

Fig. 5.5. GRP and net financial transfers from regions to the centre per capita in 1996

Fig. 5.6. Incomes per capita and net financial transfers from regions to the centre per capita in 1996

Fig. 5.7. Incomes per capita as a % of subsistence minimum and net financial transfers from regions to the centre per capita in 1996
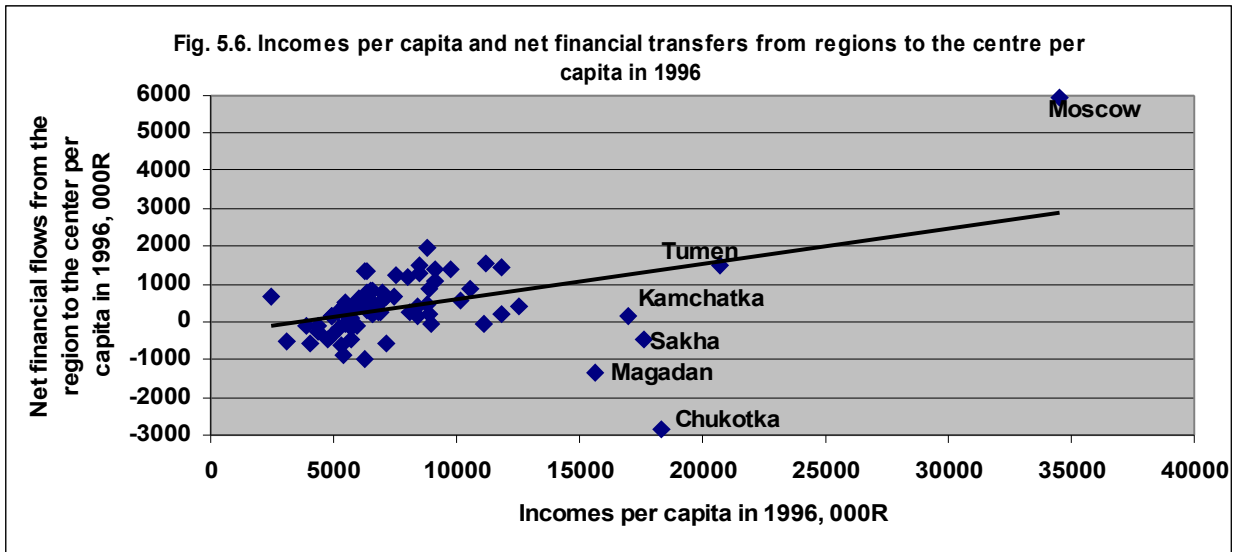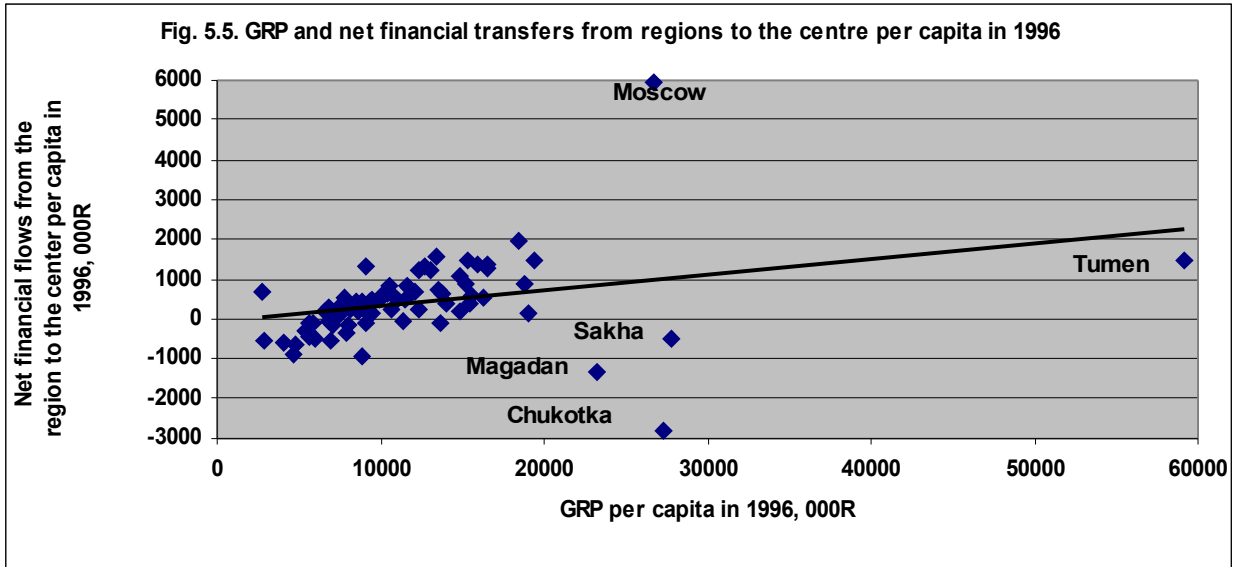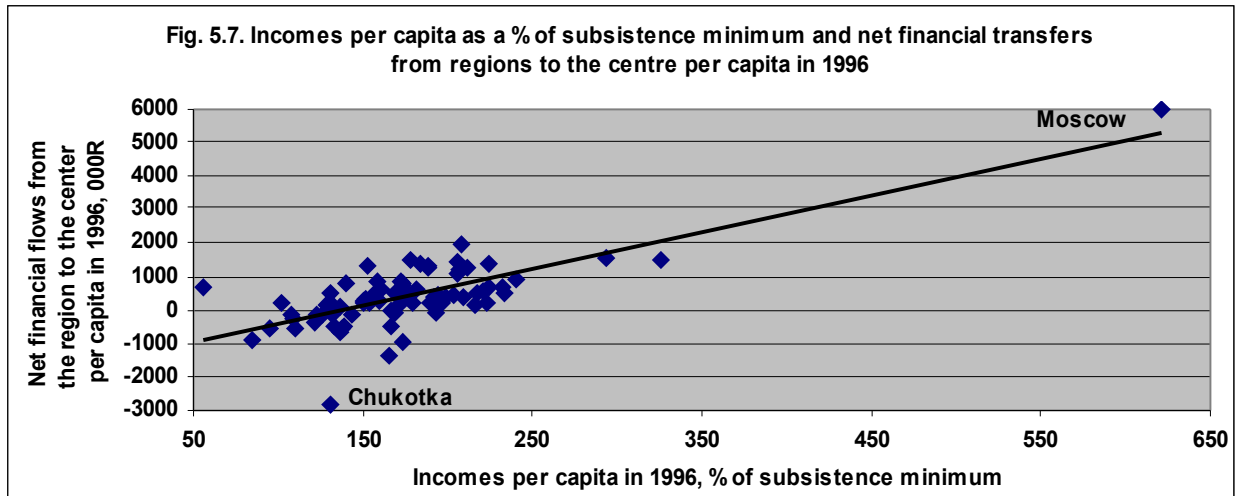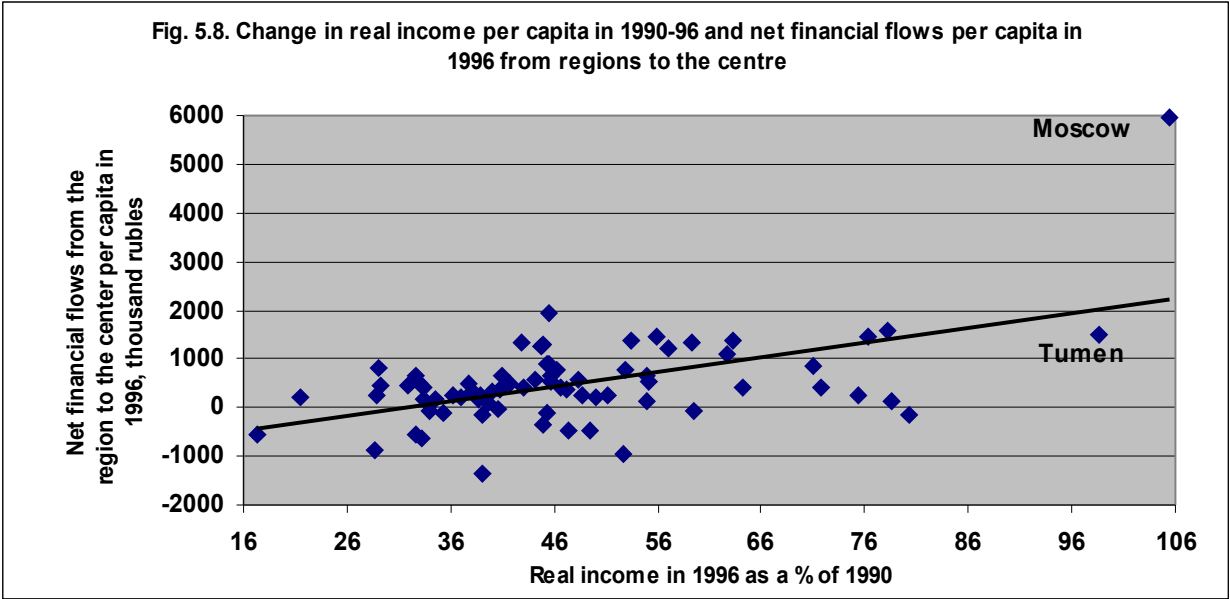

Finally, it seems like the generosity of government financial flows depends not only on the absolute income levels, but also on how the regions performed during transition. As fig. 5.8 suggests, the worse performing regions (with the greatest decline in real per capita incomes in 1990-96) were getting the most generous assistance, whereas in 9 out of 12 regions that were contributing to the federal budget more than the average 1,1000,000 R per capita, real per capita incomes declined by less than 50%.[6]

The important conclusion from this review of the regional variations in income and interregional government financial flows is that the federal government generally appears to be doing the "right thing" – redistributing income from relatively wealthier regions to relatively poorer and from better performing to worse performing, not vice versa. This redistribution activity is not enough (and probably, from the theoretical point of view, should not be enough) to eliminate completely interregional differences in per capita incomes, but at least the government tries to mitigate these differences and actually mitigates them to a considerable extent. The federal government in general

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[6] Comparison of real incomes in 1996 with 1990 level overstates the decline in real income that occurred during transition, since in 1990 due to monetary overhang (forced savings) high income levels did not really reflect accurately existing living standards. Nevertheless, here this is not the issue of concern because we deal only with the regional differences in the magnitude of the decline.

thus does not deserve the accusation of "helping the rich by robbing the poor" or acting in favour

strong lobbying groups in such a way that the poor regions are not supported. Generally they are still

supported even under the complicated and seemingly chaotic system of "bargaining fiscal

federalism" that emerged in recent years.

Fig. 5.8. Change in real income per capita in 1990-96 and net financial flows per capita in 1996 from regions to the centre

Net financial flows from the region to the center per capita in 1996, thousand rubles

Real income in 1996 as a % of 1990

Moscow

Tumen

This result does not necessarily contradict the Triesman's findings discussed earlier and

suggesting that direct transfers from the federal governments to the regions depend on the lobbying

pressure. These direct transfers represent the most visible upper tip of the iceberg of the government

financial interregional flows and, probably because of their visibility, are extremely sensitive to

political struggle and pressure from the lobbying groups. If total net financial flows (computed as the

difference between all taxes - federal, regional and local - collected in the particular region and

expenditure of the regional and local authorities) are taken into account, it turns out that poorest and

worse performing regions benefit from these transfers most.

The other crucial question raised by this review of comparative patterns of change in incomes and output is to what extent these patterns are influenced by intergovernmental financial flows and to what extent – by the interregional flows of business income. We deal with this in the next section on factors affecting changes in output and income.

6. Putting the pieces together: what determines output, investment, and incomes

To reconstruct the general picture of factors affecting the performance of the regions we ran multiple regressions trying to explain changes in GRP, industrial output and income (1990-96/97), as well as the ratio of income to GDP in 1996. The hypothesis to test was that regional variations in these variables characterising performance depend partly on initial conditions, partly on the institutional strength of regional administrations and their ability to create a stable business environment, and partly on the progress of reforms in the particular regions. The question, to what extent regional differences in performance could be attributed to each of these groups of factors, was of course of special interest. The results are presented in five tables below.

With respect to GRP change (table 6.1), it turned out that the best equation explaining GRP variations (still less than half of them, but with very robust T-statistics) is the one that takes into account the resource advantages (resource industries were more competitive), the institutional strength of regional authorities and the effect of the capital city (Moscow dummy variable, equal 1 for Moscow and 0 for all other regions).

The resource advantages were proxied by the share of resource industries (fuel, energy, steel and non-ferrous metals) in total industrial output and by the resource potential index computed by the Russian Union of Industrialists and Entrepreneurs (RUIE) discussed earlier. The institutional strength of the regional administrations was proxied three variables: the share of small enterprises in total employment adjusted for the level of urbanisation (the assumption is

that under stable business environment the new businesses will emerge quicker), by the indices of

investment risk ("Expert" and IAS), which take into account legislative, political, criminal, financial,

social and ecological risk, and by the share of shadow economy in total regional output. All these

measures were discussed previously in the section institutional capacity of the regional governments.

Table 6.1. Regression of GDP change in 1990-96 on initial conditions and policy factors (all coefficients significant at 10% level except those in brackets)

Dependent variable – 1996 GRP per capita as a % of 1990

Variables / equations, number of observations	1, N=77	2, N=77	3, N=76	4, N=77	5, N=73	6, N=73	7, N=76	8, N=75	9, N=76
Share of resource industries in industrial output	.04	.04	.04	.04	.03	.03			
Index of resource potential (RUIE)	.15	.14	.14	.14	.15	.16	.04	.04	.05
Moscow dummy	18.6	16.6	18.6	18.2	23.8	21.9	27.8	27.6	24.5
Share of small enterprises in total employment, adjusted for urbanisation	.36	.32	.38	.35	(-.20) **				
Risk index ("Expert")	-.18	-.18	-.19	-.19	-.20	-.19	-.11	-.11	-.11
Share of shadow economy in output (PSD)							-.75	-.76	-.76
Reform index (RUIE)		(.02)*							.04
Share of prices controlled by regional authorities			(-.07)	(-.1) **				(-.01)	(.08) **
Share of privatised enterprises in trade, public catering and services			(-.02)					(.003)	(-.02)
Crime rate in 1997 as a % of 1990					(.04)*	(.04)*			
Constant	53.4	51.4	56.5	55.3	51.4	50.7	73.9	74.1	68.6
Adjusted R^2	32	32	32	31	37	37	47	45	46

*Significant at 26% level. ** Significant at 27-48% level. Asterisks are used to denote coefficients significant at a level of less than 50% (but more than 10%).

Adding different measures of the reform progress (reform index; the share of private

enterprises in trade, public catering and services; the share of prices controlled by the regional

administration) does not improve the results. The coefficients of these reform variables in all cases

are not statistically significant and sometimes have the unpredicted sign (for instance, privatisation

variable coefficient is negative – the higher the level of privatisation, the lower is GRP per capita in 1996 as compared to 1990). Although reform variable becomes significant in equations 2 and 9, it clearly reflects the impact of subsidies, since the reform index is computed as a composite of 5 indicators, including two measures of subsidies. The other components of the reform index - price control variable and privatisation variable – are insignificant whether they are included into equation together with the reform index or without it. In addition in equation 9, privatisation and price control variables both have "wrong" signs. The magnitude of subsidies, however, can hardly be the measure of the reform (the assumption being that reform progress leads to cuts in subsidies). The inverse explanation is more likely: poor performing regions are getting more subsidies than better performing, which leads to observed positive link between reform index and output.

The variable characterising increases in crime rate, that could have been expected to affect output negatively, in fact is positively linked to GRP change, suggesting most likely that increases in crime rate are higher in better performing regions "paying a price" for the restructuring. Anyway, the coefficient of the crime variable is not significant either; besides, if crime indicator is included, the small enterprise indicator coefficient acquires the "wrong" sign and becomes insignificant (equation 5).

The regression results for changes in industrial output are very similar (table 6.2). In this case from 40 to 67% of regional variations can be explained by the same basic variables characterising resource advantages and institutional strength. The difference is that for industrial output initial level of economic development (GRP per capita in 1990) is an important explanatory variable, but the share of small enterprises in total employment is not (which is not surprising since small enterprises are created mostly in the service sector, not in industry), so that the strength of the institutions is described only by investment risk index.

Table 6.2. Regression of industrial output change in 1990-97 on initial conditions and policy factors (all coefficients significant at 11% level except those in brackets)

Dependent variable – 1997 industrial output as a % of 1990

Variables / Equations, number of observations	1, N=77	2, N=77	3, N=77	4, N=77	5, N=76	6, N=73	7, N=76	8, N=76	9, N=76
GDP per capita in 1990	.002	.001	.001	.001	.001	.001	.001	.001	.001
Share of resource industries in industrial output	.23	.23	.27	.26	.27	.24	.17	.17	.18
Index of resource potential (RUIE)	.04	.05							
Moscow dummy	-17.0	-18.7	-21.8	-19.4	-21.5	-22.1	-13.2	-12.0	(-11.7)*
Share of small enterprises in total employment, adjusted for urbanisation				(-.22)**					
Risk index ("Expert")	-.25	-.25	-.25	-.23	-.24	-.25	-.20	-.19	-.19
Share of shadow economy in output (PSD)							-1.16		-1.23
Reform index (RUIE)		(.01)							(.02)**
Share of prices controlled by regional authorities					(-.02)			(.10)**	(.14)*
Share of privatised enterprises in trade, public catering and services					(-.03)			(-.02)	(-.04)**
Crime rate in 1997 as a % of 1990						(0.1)			
Constant	48.5	47.4	49.3	49.6	51.3	49.2	80.7	79.9	74.2
Adjusted R^2	44	43	43	43	43	38	67	65	67

*Significant at 17-25% level. **Significant at 37-47% level. Asterisks are used to denote coefficients significant at a level of less than 50% (but more than 11%).

The other difference is that coefficients of reform indicators are even less significant than in the GRP regressions (and have unexpected signs- equation 2, 5, 8, 9), which may suggest that the limited positive impact of reforms on output, if any, is felt not in the industrial sector, but in the service sector. Once again, like with the GDP change regression, the combination of the predicted sign of the reform index and the unpredicted sign of privatisation and price control variable, suggests that subsidies are relatively more important for poorly performing regions. Crime variable again

proves to be insignificant. Moscow dummy variable changes sign, but is still statistically significant, since Moscow outperforms other regions in terms of the service sector output and total GDP change, but under-performs considerably in terms of industrial output.

Regression explaining investment yields similar results (table 6.3). Over 50% of the regional variations in investment change in 1990-97 are explained by resource and capital city advantages, plus three indicators of the institutional strength - share of small enterprises in total employment, risk index (Vienna IAS), and the share of unregistered income. The inclusion of reform variables does not add much explanatory power and these variables are not statistically significant (equation 3, 4).

Table 6.3. Regression of investment change in 1990-97 on initial conditions and policy factors (all coefficients significant at 5% level except those in brackets)

Dependent variable – 1997 real investment as a % of 1990 (Russia's average=100%)

Variables / Equations, number of observations	1, N=78	2, N=78	3, N=77	4, N=77
Index of resource potential (RUIE)	.16	.16	.16	.17
Moscow dummy	82.3	85.8	86.5	86.5
Share of small enterprises in total employment, adjusted for urbanisation	.80*	1.04	.99	.99
Risk index (IAS, Vienna)	-1.28	-1.31	-1.26	-1.26
Share of shadow income (PSD)		-.80	-.82	-.82
Reform index (RUIE)				(.08)**
Share of prices controlled by regional authorities			(-.36)**	(-.17)
Share of privatised enterprises in trade, public catering and services			(-.02)	(-.07)
Constant	110.4	155.9	162.9	152.1
Adjusted R^2	50	52	52	53

*Significant at 9% level. **Significant at 22-23% level. Asterisks are used to denote coefficients significant at a level of less than 50% (but more than 5%).

In the per capita income regressions the picture is changing markedly (table 6.4). Our previous basic variables of the resource advantages and institutional strength continue to have high explanatory power, which is not surprising since changes in income are strongly correlated with

changes in GRP. The big shift, however, is that reform indicators start to matter. In fact, over 50% of variations in the per capita income dynamics can be explained by changes in output (GRP per capita), Moscow dummy variable and the reform index, which becomes statistically significant. Another surprise is that the shadow economy variable (unregistered income, as measured by the RET and PSD) is very statistically significant, but has the positive sign, i.e. the higher unregistered incomes, the higher the growth of registered income in 1990-97. Since the risk variable is still significant (equations 8-10), it means that registered income growth is the highest in reform oriented regions with low risk and large opportunities for obtaining illegal income. Reforms (deregulation of prices) are good for income growth, if they do not lead to higher investment risk and the crack down on illegal incomes.

Since the reform index is an average of several indicators (the share of production subsidies in regional budgets, the importance of agricultural subsidies, the degree of price controls, and the progress in privatisation), it was checked what is the impact of the easily interpretable components of the reform index (privatisation and price controls).[7] It turned out that privatisation variable is not statistically significant, but the price control variable is significant at 15-17% level in three equations that use GRP change variable explicitly (No. 2, 3, 9) and at 8% level in another equation (No. 5) that uses as explanatory variables the same factors that were used to explain the GRP dynamics. Crime rate and political orientation of the electorate variables have predicted signs, but are not significant. Thus, it looks like GRP and output variations do not depend on the reform progress, whereas income variations are influenced by at least some measures of reform.

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[7] The share of subsidies in the regional budget and the share of subsidies in agricultural output, strictly speaking, cannot be used without adjustment as the measures of the progress of reforms.

Table 6.4. Regression of real income change in 1990-96 on initial conditions and policy factors (all coefficients significant at 10% level except those in brackets)

Dependent variable – 1996 real income per capita as a % of 1990

Variables / Equations, number of observations	1, N=73	2, N=72	3, N=73	4, N=73	5, N=73	6, N=73	7, N=73	8, N=72	9, N=71	10, N=72
1996 GDP per capita as a % of 1990	.99	1.1	1.0			1.0	.98	1.1	1.1	1.1
Share of resource industries in industrial output				.20	.19					
Index of resource potential (RUIE)										
Moscow dummy	22.3	29.9	31.3	28.1	35.8	21.3	21.5			
Share of small enterprises in total employment, adjusted for urbanisation				.89	1.1					
Risk index ("Expert")				.30	.33					
Risk index (Vienna IAS)								-.30	-.29	(-.19) *
Share of unregistered income (RET)								.53	.52	.53
Share of unregistered income (PSD)								.57	.54	.49
Reform index (RUIE)	.08			.09		.08	.08			.06
Share of prices controlled by regional authorities		(-.23) *	(-.24) *		-.32				(-.19) *	
Share of privatised enterprises in trade, public catering and services		(.05)								
Index of political orientation of the electorate (RUIE)							(.02)			
Crime rate in 1997 as a % of 1990						(-.04) ***				
Constant	(-7.5) **	(-2.3)	(-2.7)	54.1	69.2	(-3.41)	(-8.83) **	-38.2	-33.5	-45.4
Adjusted R²	53	48	48	38	34	53	52	62	63	65

*Significant at 14-17% level. **Significant at 18-31% level or less. ***Significant at 32-49% level. Asterisks are used to denote coefficients significant at a level of less than 50% (but more than 10%).

Table 6.5. Regression of the ratio of income to GRP on non-policy and policy factors (all coefficients significant at 10% level except those in brackets)

Dependent variable in equations 1-7 – ratio of personal income to GRP in 1996;
in equations 8-10 – ratio of personal income to GRP in 1996 as a % of 1990

Variables /equations, number of observations	1, N=80	2, N=78	3, N=77	4, N=73	5, N=72	6, N=72	7=, N=72	8, N=73	9, N=73	10, N=72
Moscow dummy	121.4	143.6	144.2	136.5	137.1	137.6	98.3			
Net government interregional financial flows, per capita, R	-.01	-.02	-.02	-.01	-.01	-.02	-.01			
Share of small enterprises in total employment, adjusted for urbanisation								2.43	2.77	1.49
Risk index ("Expert")								-.31	-.33	-.26
Share of unregistered income (RET)						.58				.92
Share of unregistered income (PSD)										.87
Share of unregistered employment (RET)							1.51			
Reform index (RUIE)								.13		.13
Share of prices controlled by regional authorities		(-.18) **	(-.16) ***						(-.45) *	
Share of privatised enterprises in trade, public catering and services			(.08) ***		(.13)*	(.12)*	(.07) ***			
Index of political orientation of the electorate (RUIE)						(.09)*	.13	(.03)	(.10) ***	
Crime rate in 1997 as a % of 1990				-.11	-.14	-.17	(-.09) *	(-.13) **	(-.12) ***	
Constant	74.8	79.4	73.1	90.2	84.8	80.8	43.0	112.6	124.5	26.6
Adjusted R^2	36	46	46	46	47	48	63	23	19	37

*Significant at 11-16 % level. **Significant at 17-27% level. ***Significant at 28-36 % level.
Asterisks are used to denote coefficients significant at a level of less than 50% (but more than 10%).

To check the hypothesis that reform progress is crucial for explaining the dynamics of income per capita, but not for explaining GRP, industrial output and investment change, we ran regressions with the ratio of income to GRP as a dependent variable (table 6.5). The results are quite meaningful and shed light on the question formulated in the section on incomes. The conclusion formulated in that section (second observation – negative link between incomes and net transfers) still holds: the higher are intergovernmental transfers from regions to the centre, the lower is income/GRP ratio). However, the striking additional result is that, after controlling for the redistribution that occurs due to intergovernmental financial flows, reform indicators, in particular the general reform index and the degree of price control, start to matter more than they did while explaining the output change.

The increase in the crime rate and political orientation of the electorate are important explanatory variables as well (significant at 1% and 16% level respectively). Nearly 50 % of the variations in income/GRP ratios among regions are thus explained by the intergovernmental financial flows, Moscow "capital effect", reform variables, pro-liberal mood of the voters and the ability of regional authorities to contain crime. The explanatory power rises to 63% if the measures of shadow economy are added; as in the previous income regression, they enter the equation with the positive sign (equation 7); price control variable in this case becomes insignificant, but the attitude of the electorate, crime rate and privatisation seem to matter as well (at 2, 14, and 30% significance level respectively).

Another result worth noting – factors affecting change in the income/GRP ratios (equations 8-10 in table 6.5). Although the explanatory power of the regression is quite low, reform and institutional indicators (share of small enterprises, risk index, crime rate, reform index, price control variable) are statistically significant, as well as the measures of shadow economy, which again turn out to have a positive impact on incomes.

One possible interpretation of the results may be the following. Reforms did not produce expected outcomes in terms of output and investment change: although there is evidence that changes in GRP, industrial output and investment are influenced by the initial conditions (resource advantages) and the strength of the institutions (investment risk and business climate conducive to the creation of small enterprises, the ability of the authorities to control the shadow economy), there is no evidence that measures of reform progress in the regions (reform index, price liberalisation, degree of privatisation) were important indicators for explaining the patterns of output change.

On the contrary, measures of the reform progress together with the investment climate and opportunities for obtaining illegal income (risk index, crime situation, political preferences of the voters, share of shadow incomes and employment) were important explanatory variables for the varying patterns of income change. It is noteworthy that the ratio of income to GRP, which normally was higher in poor regions due to the intergovernmental transfers, after controlling for these transfers, depended positively on the reform progress. This is to suggest that while intergovernmental financial flows redistributed income among regions in the "Robin Hood way" – from rich to the poor, the market type reform progress, liberal preferences of the electorate and opportunities for illegal income (together with the stronger institutions ensuring lower crime rates and lower investment risk) were acting in the opposite direction, i.e. were redistributing income from poor to the rich regions.

Reforms, to put it differently, did not lead to better performance in terms of output, but had an income concentration effect, redistributing income from worse performing and poorer regions to the wealthier and better performing regions. This process was overshadowed by the government interregional financial flows going in the opposite direction (from the rich to the poor), but after controlling for such intergovernmental transfers it turns out that the impact of reforms was to generate the flows of business income in the "anti Robin Hood way".

To formulate this conclusion in the most provocative way, it could be stated that reforms resulted in the creation of "save liberal heavens" – relatively prosperous, liberal oriented (both – in terms of voting patterns and regional economic policies), low-risk, low-crime regions with large shadow economy that started to suck incomes from their less successful counterparts. Moscow, where income/GRP ratio was 130% in 1996 (two times higher than national average!) and where 1996 real incomes were higher than in 1990, despite the fact that output was lower than in 1990 (GRP – only 70%, industrial output – only 36% of the 1990 levels) is the most obvious example, but the conclusion holds even if this factor is accounted for through introducing the Moscow dummy variable. There are other regions (Komi, St.-Petersburg, Pskov, Novgorod, Tver, Kabardino-Balkariya, Tumen,) that appear to have managed to increase income/GRP ratio during transition noticeably faster than the national average (1.2 times) – partly due to intergovernmental transfers (like Pskov, Novgorod, Tver and Kabardino-Balkariya, that are net recipients), partly due to reform induced transfers of business incomes (like Moscow, St. Petersburg, Komi, Tumen, that are net donors in intergovernmental financial flows).

The mechanism of these interregional flows of business income is a story that deserves a special consideration. It could be mentioned here, though, that the likely channels are banks, trading companies (including foreign trade) and head offices of major resource companies transferring business income to the regions of their origin.

The income distribution impact of reforms is thus more tangible than the production effect – at least it can be traced in the regressions explaining income differences, but not in regressions explaining differences in output change.

7. Preliminary conclusions

The statistical review of patterns of regional development leads to at least several conclusions, which need to be further tested of course.
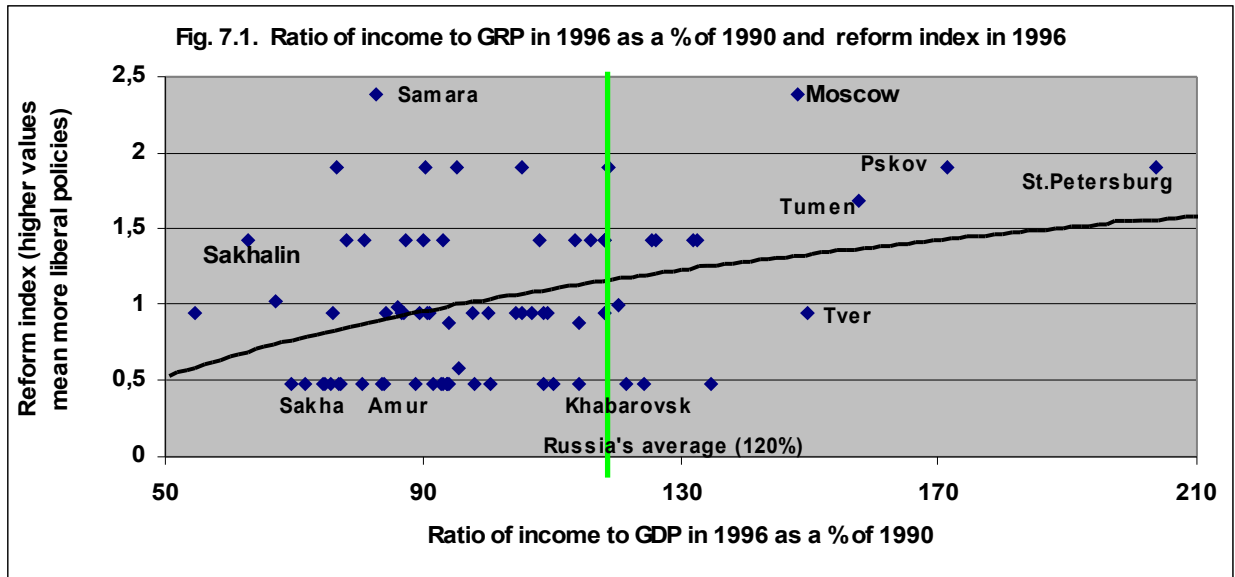
First, there is no evidence that economic reforms in the region pay off in a sense that they lead to better output and investment dynamics. After controlling for the initial conditions (resource advantages) and the strength of the institutions (the ability of the authorities to contain investment risk and shadow economy and to promote business climate favourable for the emergence of small businesses), it turns out that measures of the reform progress are not statistically significant neither in GRP change regressions, nor in industrial output and investment change regressions.

Second, the intergovernmental financial flows (total tax revenues raised in the region minus expenditure of regional and local authorities) benefited poor regions and regions that were doing worse in terms of real income and output change (mostly these are the same regions). These flows were not enough to completely neutralise the regional differences in income dynamics, but at least they were aimed at that redistributing income in a "pro Robin Hood way".

Third, the progress in reforms, though it did not influence patterns of output change, had a positive impact on the dynamics of real per capita income. Controlling for the fact that the government interregional flows were redistributing funds in the opposite direction, it turns out that the major impact of reforms was not to boost output and investment, but to redirect incomes into the pro-reform regions (also the regions with larger shadow economy, lower investment risk and better business climate for small enterprises, liberal-minded electorate and lower increases in crime rates). This "anti Robin Hood" redistribution effect of reforms could be explained by interregional transfers of business incomes by large companies (with head offices in pro-reform "liberal and shadow safe heavens"), trading companies and banks. Moscow is the most obvious example of such a region, but this effect is observed even after controlling for the capital city phenomena through the Moscow

dummy variable. Regions like St.-Petersburg, Komi and Tumen, despite being net donors in intergovernmental transfers, exhibit more favourable changes in income/GRP ratios in 1990-96 than the average increase of 1.2 times (fig. 7.1). These differences in the regional patterns of income change and output change suggest that the success of some regions in terms of real incomes dynamics can be based at least partially on two different redistribution effects working in the opposite directions – the reform effect leading to the concentration of incomes in pro-reform regions and the intergovernmental financial flows supporting generally poorer and worse performing regions.

In a sense, the uneven impact of reforms on output and income in Russia's regions may be similar to the effects observed when comparing performance of independent countries. A number of recent studies (De Melo, Denizer, Gelb and Tenev, 1997, p. 25; Kruger and Ciolko, 1998; Campos, 1999; Heybey, Murrel, 1999; Popov, 2000) found no evidence that the flow of reforms affects output change in transition economies. But income change may well be affected, since only successful reformers are able to attract substantial amounts of foreign capital: Estonia, for instance, in the second half of the 1990s had deficits on current account equivalent to about 10% of GDP, whereas Russia had to earn a surplus of about the same size to finance the capital flight. Reform policies thus yielded a dividend, if not in the form of better output dynamics, then in the form of more favourable income performance.

Fig. 7.1. Ratio of income to GRP in 1996 as a % of 1990 and reform index in 1996

Reform index (higher values mean more liberal policies)

Samara • Moscow

Pskov

Tumen

St.Petersburg

Sakhalin

Tver

Sakha   Amur   Khabarovsk

Russia's average (120%)

Ratio of income to GDP in 1996 as a % of 1990

50   90   130   170   210

0   0,5   1   1,5   2   2,5

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