Regional Inequalities and Effectiveness of Investment: Russia and China in the Period 1999-2003

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ABSTRACT

This paper is focused on the dynamics, scale and consequences of territorial differences in Russia. The dynamics are analyzed for the five years from 1999 to 2003. In that period, most Russian regions turned from depression to growth, but a highly uneven territorial distribution of benefits had raised concerns about the sustainability of post-crisis recovery. The scale of Russian territorial differences is contrasted with China. A cross-country comparison provides both a measure of spatial inequalities and information on possible regional development policies. The consequences are related to mechanisms which translate inequalities within a country into the inefficient allocation of resources negatively influencing overall efficiency and growth. Statistical analysis suggests that in Russia, investments tend to concentrate in regions with a higher per capita GDP rather than in those with better investment performance. Such distribution could be considered as a case of capital market imperfection, which poses serious binding concerns on regional development and needs to be addressed by the government.

INTRODUCTION

This analysis employs a set of data which generally reflects an inequality of outcome between regions. At the same time, the primary focus is on inequality of opportunity, resulting from an uneven distribution of power and wealth. This approach mirrors the recent "Equity and Development" report by the World Bank (World Bank, 2005). Special attention is given to the effects of unequal opportunities when markets are imperfect. For instance, if capital markets work imperfectly, as they do in many countries, the allocation of resources can be more closely associated with the distribution of assets and status rather than with the profitability of investments. The resultant underinvestment by those who have high potential but lack money and power, and vice versa, can harm the effectiveness of allocation and slow down overall growth. The same concept is used in this paper to analyze a correlation between regional investments and gross output and to answer why spatial inequality matters and how it influence Russian economic development.

REGIONAL INEQUALITIES: RUSSIA VS. CHINA

Trends in regional inequality varied considerably in the former Soviet Union and in present day Russia. The Soviet Union experienced a fast convergence in industrial distribution in the 1950's and 1960's, somewhat slow and uneven changes in the 1970's and 1980's, followed by an explosive widening of regional disparities in the 1990's and 2000's. SD-to-mean ratio for a per capita Gross Regional Product (GRP) has increased from 0.3 in 1990 to 0.78 in 2002. Divergence in the 1990's was primarily driven by differences in regional rates of contraction. Growth since 1999 has changed this pattern but failed to close the gaps (Slinko, Yakovlev, Zhuravskaya, 2003; Rosefielde, Vennikova, 2004; Grigoryev, Urozhayeva, 2004). By 2003, ranges, quartile ranges and SD-to-mean ratios have increased for 16 out of 21 studied indicators (Table 1). Growing asymmetry (skewness) and excess (kurtosis) have shown further shifts from normal distribution patterns. The exceptions, i.e. indications of narrowing disparities, were limited to CPI (almost normal and highly equal distribution), Household Final Consumption (both overall and per capita; possible evidence of more effective redistribution via social transfers), FDI per capita (influence of extremely unequal distribution in 1999) and Value of Exports and Imports (both overall and per capita, probably as a result of shifts in the regional location of traders).

In spite of numerous differences, Russia and China feature a significant autonomy of administrative regions and are often referred to as "semi-federations" (Governance…, 2000). They share enormous geographical disparities and a long history of interventionist development policy. In 1999, the Chinese government initiated the "Go West" strategies and in 2003

the “Revitalize Northeast” strategies (World Bank, 2005). In 2006, it listed the urban-rural and the rich-poor wealth gap as top national priorities. Such policies contain a strong regional dimension and deserve the attention of Russia, considering the growing need to address the country’s social and spatial imbalances.

The statistics (Table 1, Table 2) suggest that in 1999-2003, regional inequalities in Russia probably grew faster and became greater than in China. At least, in 2003 Russian SD-to-mean ratios were higher, with the exception of per capita Industrial Production, Household Final Consumption and Regional Budget Revenues.

Table 1. Regional Inequalities in Russia in 1999-2003 (N=79).

	Mean	Median	SD/Mean
Gross Regional Product (million PPP $)			
1999	9726.0	5052.0	1.85
2003	13032.1	6129.0	2.07
Gross Regional Product Per Capita (PPP $/person)			
1999	4377.2	3503.0	0.67
2003	5864.6	4775.0	0.78
Household Final Consumption (million PPP $)			
1999	6375.0	3326.0	2.32
2003	8363.3	4283.0	2.18
Household Final Consumption Per Capita (PPP $/person)			
1999	2741.3	2367.0	0.60
2003	3791.7	3401.0	0.50
Industrial Production (million PPP $)			
1999	6309.6	3592.0	1.21
2003	9293.0	5514.0	1.33
Industrial Production Per Capita (PPP $/person)			
1999	3090.6	2703.0	0.73
2003	4627.4	3819.0	0.76
Investment in Fixed Assets (million PPP $)			
1999	1573.6	845.0	1.76
2003	2663.9	1378.0	1.89
Investment in Fixed Assets Per Capita (PPP $/person)			
1999	725.1	546.0	1.02
2003	1455.9	939.0	1.46

Sources: calculated on the basis of "Regions of Russia" Statistical Yearbook, Federal State Statistics Service of Russia, 2004

Chinese figures appeared to be closer to normal distribution as asymmetry and excess were lower. This indicates that in China, regional disparities depended on a large number of incidental variables, instead of a few non-incidental factors in Russia. More accurate analysis should take into account the differences in the number of regions and some statistical discrepancies, but it seems unlikely that it will alter the basic conclusions.

As for investments, Russia has seen an extremely fast divergence both in volume and in per capita levels. China has achieved a marginal divergence in volume accompanied with a strong per capita convergence. So, investments in China were still concentrated in a few parts of the country but have already started to spread to underinvested regions. Distribution of Household Consumption in Russia has followed a more equal pattern, but China has moved slightly in the opposite direction. The likely reason is that Russia prioritized consumption equalization over an active investment policy, while China took a different approach to regional problems.

Table 2. Regional Inequalities in China in 1999-2003 (N=31).

	Mean	Median	SD/Mean
Gross Domestic Product by Region (million PPP $)			
1999	148847.5	103315.0	0.78
2003	242901.6	157248.0	0.82
Gross Domestic Product by Region Per Capita (PPP $/person)			
1999	4106.5	2816.0	0.74
2003	6572.5	4620.0	0.77
Household Final Consumption (million PPP $)			
1999	60329.0	51329.0	0.71
2003	91072.0	68400.0	0.73
Household Final Consumption Per Capita (PPP $/person)			
1999	1578.9	1316.0	0.51
2003	2301.1	1783.0	0.53
Value-added of Industry (million PPP $)			
1999	36612.5	25794.0	0.97
2003	75251.3	49364.0	1.06
Value-added of Industry Per Capita (PPP $/person)			
1999	1010.4	617.0	1.03
2003	1916.5	1206.0	0.98
Investment in Fixed Assets (million PPP $)			
1999	49182.6	34946.0	0.78
2003	97857.2	66704.0	0.81
Investment in Fixed Assets Per Capita (PPP $/person)			
1999	1471.9	1098.0	0.89
2003	2715.4	2034.0	0.69

Sources: calculated on the basis of China Statistical Yearbook, China National Bureau of Statistics, 2004

TERRITORIAL DIFFERENCIES AND INVESTMENT PERFORMANCE

Investments in Russian regions strongly correlate with gross output. In the period 1999-2003, the coefficient of correlation (r) for per capita Investments and GRP increased from 0.71 to 0.83 (Table 3). Wealthier regions attracted more

capital, but were they more effective? The answer is probably yes, if one uses a Profit-to-Investments Ratio (PIR) as the best available criterion of effectiveness. Per capita GRP positively correlated with PIR, though the intensity of correlation was relatively weak and declining, because the corresponding value of r has dropped 11 points in 5 years (r = 0.54 → 0.43, Table 3). In other words, investments were still "crowding into" wealthier regions while profits have already started "crowding out".

Table 3. Correlations (r) of Gross Regional Product, Investment, Profit/Investment Ratios for Russia in 1999-2003

	Gross Regional Product Per Capita (rub)		Invest. Per Capita (rub)		Profit/Investment Ratio (%)	
	1999	2003	1999	2003	1999	2003
Gross Regional Product Per Capita (rub)						
1999	1.00					
2003		1.00				
Investment Per Capita (rub)						
1999	*0.71		1.00			
2003		*0.83		1.00		
Profit/Investment Ratio (%)						
1999	*0.54		*0.25		1.00	
2003		*0.43		*0.27		1.00
Investment Per Capita by Source (rub)						
1999						
enterprises own funds	*0.74				*0.50	
bank loans	0.02				-0.13	
budget funds	0.15				-0.08	
Investment Per Capita by Source (rub)						
2003						
enterprises own funds		*0.82				*0.55
bank loans		*0.56				0.07
budget funds		*0.19				-0.22

* significant at 0.05 level

Excluded: Moskva, Tyumen and 5 other regions with excessive values

Sources: calculated on the basis of "Regions of Russia" Statistical Yearbook, Federal State Statistics Service of Russia, 2004

Correlation of Investments and PIR, or "effectiveness" of Investments' spatial distribution in our terms, was extremely low, but still statistically significant and slowly rising (r = 0.25 → 0.27, Table 2). At the same time, various types of Investments have shown considerably different performance. Own funds of enterprises (45.6% of total Investments in 2003), were most closely linked to PIR (r = 0.50 → 0.55, Table 3). Bank loans (5.3% of total) almost certainly were provided to borrowers with minimum risk rather than to those with maximum return. Indeed in 2003, 92% of variance in regional borrowing rates could be explained by a variation in investment risks. For budget investments (18.7% of total), correlations with PIR were insignificant and had a negative value (r = -0.08 → -0.22, Table 3). To some extent, this is proof of budget allocations in favor of ineffective regions which were not necessarily poorer in terms of per capita GRP.

The situation in China perhaps was even more complex than in Russia. The Chinese government has initiated a redistribution of investment flows in favor of lagging regions (World Bank, 2005). In 1999-2003, investments became slightly

less firmly attached to per capita GRP (r = 0.89 → 0.82, Table 4). It was coupled with an obvious drop in intensity of the correlation between investments and PIR, or in other words, with a plunge of "effectiveness" in investment distribution (r = 0.66 → 0.39, Table 4). These developments can be regarded as a sign, along with other possible explanations, that Chinese authorities increasingly prioritized equity over profitability in directing budget investment funds and providing incentives for private investors.

Table 4. Correlations (r) of Gross Domestic Product by Region, Investment, Profit/Investment Ratios for China in 1999-2003

	Gross Domestic Product by Region Per Capita (yuan)		Investment Per Capita (yuan)		Profit/Investment Ratio (%)	
	1999	2003	1999	2003	1999	2003
Gross Domestic Product by Region Per Capita (yuan)						
1999	1.00					
2003		1.00				
Investment Per Capita (yuan)						
1999	*0.89		1.00			
2003		*0.82		1.00		
Profit/Investment Ratio (%)						
1999	*0.78		*0.66		1.00	
2003		*0.74		*0.39		1.00

* significant at 0.05 level

Excluded: Beijing, Tianjin, Heilongjiang, Shanghai (excessive values)

Sources: calculated on the basis of China Statistical Yearbook, China National Bureau of Statistics, 2004

MAIN FINDINGS AND FUTURE RESEARCH

The analysis confirms that in 1999-2003, spatial disparities in Russia grew faster and became greater than in China, which is well-known for its enormous discrepancies in geographical distribution of potential and wealth. Regional inequality does matter for Russian development because it is economically ineffective and not only socially or strategically unacceptable, as is usually said. Some evidence suggests that a growing number of Russian regions with lower per capita GRP generated new profitable investment opportunities, but could not finance them since funds tended to concentrate in the wealthier parts of the country. The situation should be addressed by the government to stimulate effect-bearing instead of wealth-oriented spatial distribution of investments. The example of China underlines a necessity to consider the inevitable efficiency tradeoffs and to balance social and economic concerns in extending investment support to lagging regions.

In this paper, effectiveness of investment is measured by the ratio of total profit to total investments by region. At the same time, many other statistical indicators can be used for this purpose. The identification of new indicators should provide direction for future research.

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