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**Economic Growth and its Effect on Poverty Reduction
in Russia**

Yuka Takeda

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School of Political Science and Economics, Waseda University

Abstract

This study discusses whether Russia's economic growth following the 1998 financial crisis is pro-poor. Using Russia's regional data pertaining to 1995–2002, we estimate the elasticity of poverty to real per capita GRP (gross regional product). The analysis reveals that the elasticity of poverty to growth after the crisis substantially falls at both the national and regional levels. Our results also suggest that inequality increases between and within the richer and poorer regions. We conclude that it is quite necessary to formulate pro-poor policies rather than growth-enhancing ones, in order to alleviate poverty in Russia.

Keywords: Poverty. Inequality. Pro-poor growth. Russia.

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1. Introduction

Until the global financial crisis of 2008, which stemmed from the financial crisis in the U.S., Russia has enjoyed economic growth for about 10 years since 1998. Although the 1998 financial crisis damaged the Russian economy, the considerable depreciation of the rouble and the drastic rise in the oil and gas prices following the crisis led to the recovery of the economy. The economic growth, which occurred for the first time after the collapse of the Soviet Union, substantially reduced poverty. In Russia, the poverty rate in 1995 and 2000 was 24.8% and 29.1% respectively, but it reduced to 15.3% in 2006 ([Goskomstat 1999](#); [Rosstat 2007](#)). The drastic decrease in the poverty rate was possible because poverty in Russia is shallow: the consumption (or income) levels of most of the poor are close to the poverty line. While Russia witnessed economic growth and poverty reduction, inequality remained high. The Gini index in 1998 and 2002 was 0.401 and 0.397 respectively. Moreover, it reached 0.410 in 2006.

Using data from a large sample of developed and developing countries over the last four decades, [Dollar and Kraay \(2002\)](#) empirically showed that growth in the average income of the poor increased or decreased at the same rate of growth in the overall income. They emphasized that the standard growth-enhancing policies focusing on low inflation and fiscal discipline effectively reduce poverty. The results of their study were highly contentious: [Kakwani et al. \(2000\)](#) theoretically criticized the Dollar and Kraay study and highlighted the importance of government policies that aimed at pro-poor growth.

This study examines whether economic growth is pro-poor in Russia, using the regional data of Rosstat (Federal State Statistical Service of Russia) from 1995 to 2002. Although there have been a few studies on income convergence in Russia, some studies have highlighted the slow convergence rate in the country ([Yemtsov 2005](#); [Lugovoi et al. 2007](#); [Kholodilin et al. 2007](#)). If the convergence rate is considerably slow in Russia, it can differentiate the impact of economic growth on regional poverty reduction. This study is one of the first attempts to deal with this issue ([Takeda 2004a](#); [2004b](#); [2006](#)). If Russia's economic growth is not found to be pro-poor, the government will seriously need to consider formulating economic policies aiming at pro-poor growth. The purpose of this study is to shed light on the significance of pro-poor growth policies in Russia.

Section 2 briefly shows the trend of socio-economic indicators in Russia. In addition, we will examine the relationship between the regional poverty rate and GRP (gross regional product). Section 3 discusses the data and methodology employed; Section 4 shows the empirical results on the elasticity of poverty rate to GRP; and Section 5 presents the conclusions.

2. Economic Growth, Poverty, and Inequality in Russia

Figure 1 shows the trend of the socio-economic indicators in Russia pertaining to 1995–2005. For the sake of convenience in obtaining estimates in the subsequent sections, the average real per capita GRP, instead of the real per capita GDP, is presented in Figure 1. The real per capita GRP is deflated by an annual CPI (consumer price index) at the regional level. On 1 January 1998, the rouble was officially denominated with 1 new rouble equalling 1,000 old roubles. For measuring the real value in this study, we use the year 1995—three years prior to the 1998 financial crisis—as the base year. The 1995 price is set to a denominated value. Although the contagion of the Asian financial crisis hit the Russian economy in August 1998, the devaluation of the rouble caused by the crisis recovered the production of its domestic industries and initiated Russia’s economic growth. The average real per capita GRP in 2002 was 11,839 roubles, while those in 1995 and 1998 were 9566.3 and 6654.8 respectively¹.

Poverty rate is defined as the proportion of the population with incomes below the official poverty line. As shown in Figure 1, the poverty rate at the national level reached 29.9% in 1999, while it decreased to 20.8% in 1997. In the course of the economic development, however, the poverty rate rapidly decreased to 15.3% in 2006. As expected, the economic growth had a positive effect on poverty reduction in Russia.

The Gini coefficient is a measure of the concentration of income distribution; it ranges from 0 (perfectly equal distribution) to 1 (perfectly unequal distribution). The Gini coefficient is indicated in Figure 1 in terms of percentage. In the early stages of the transition period, the inequality of income distribution significantly deteriorated

¹ Kamchatka Oblast, Evreiskaya Autonomous Oblast, Republic of Chechnya, Republic of Ingushetia, Chukotsky Autonomous Region, and other autonomous okrugs are excluded from the analysis. See Section 3.1 for details.

in Russia. Although the Gini coefficient in 1991 was 26.0%, it rapidly increased to 40.9% by 1994 and has been at around 40% since 1994. The inequality of income distribution in Russia is as high as that in Latin American countries.

CV (coefficient of variance) is measured by dividing the standard deviation of a variable by its mean. In [Figure 1](#), the CV for the real per capita GRP is indicated in terms of percentage. The inequality of the regional economy in Russia has been continuously increasing. Moreover, it should be noted that the CV increases more rapidly when the economic growth is higher. This could suggest that the economic growth in Russia was not pro-poor.

[Figure 2](#) shows the relationship between the regional poverty rate (logarithm) and real per capita GRP (logarithm). With reference to the estimates shown in the subsequent sections, the period ranges from 1995 to 2002. We observe a negative relationship between poverty and real per capita GRP in this period. The equations shown in all the panels of [Figure 2](#) are estimated with no control variables, using pooled data from 592 observations (74 oblasts and 8 years). The elasticity of poverty to growth in the periods before and after the 1998 financial crisis is -0.401 and -0.436 respectively. It seems that an increase of one percentage in the real per capita GRP could be more effective in reducing the poverty rate in the period after the crisis. Moreover, it could suggest that the economic growth in 1999–2002 was pro-poor. In the subsequent sections, we conduct a more thorough examination of whether the economic growth in Russia can be considered pro-poor.

3. Data and Methodology

3.1 Data

In this study, we used Rosstat's official data at the regional level (Rosstat 2007; Goskomstat 2002). As of January 2009, the Russian Federation has 84 regions that include oblasts, autonomous okrugs, and krais. As mentioned previously, the real value is measured on the basis of the 1995 denominated price, using an annual CPI. Following Lugovoi et al. (2007) and Kholodilin et al. (2008), besides autonomous okrugs within oblasts, the Republic of Chechnya, Republic of Ingushetia, Republic of Kalmykia, and Chukotsky Autonomous Okrug are excluded from the analysis; this is because the data on the GRP of the Republic of Chechnya in 1995–2004 are

not available and the data on the remaining three regions are unreliable. In addition, in this study, Kamchatka Oblast and Evreiskaya Autonomous Oblast are excluded from the analysis because of the lack of data on their regional poverty rates. We thus have 74 regions for the analysis. To compare the estimates for the period before and after the 1998 financial crisis, the 1995–2002 period is used for the analysis.

3.2 Methodology

In order to examine how poverty reduction varies in the economic growth before and after 1998, we estimate the elasticity of regional poverty to real per capita GRP. The basic model is as follows:

$$\ln P_{it} = \beta_0 + \beta^{GRP} \ln GRP_{it} + \beta^{AC} AC_i + \mu_i + \varepsilon_{it} \quad \dots (1)$$

To improve the model's goodness of fit, we augment the basic model by controlling other variables. By adapting the model proposed by Ravallion et al. (2002), we obtain an augmented model:

$$\ln P_{it} = \beta_0 + \beta^{GRP} \ln GRP_{it} + \beta^{GOV} \ln GOV_{it} + \sum_k \beta_i^{FO(k)} FO_{(k)i} + \beta^{AC} AC_i + \mu_i + \varepsilon_{it} \quad \dots (2)$$

where P_{it} is the regional poverty rate in region i ($i = 1, \dots, N$) at year t ($t = 1, \dots, T$); GRP_{it} is the real per capita GRP in region i at year t ; GOV_{it} is the real per capita government expenditure in region i at year t ; AC_i is a dummy variable for the period after the crisis (1 if the year ranges from 1999 to 2002); μ_i is an unobserved individual effect for region i ; and ε_{it} is an error term². In addition, FO_k indicates the dummy variables for federal regions (federal'nyi okrug) to which region i belongs ($k = 1, \dots, K$). The Russian Federation has 7 federal regions: Center, North West, South, Volga, Ural, Siberia, and Far East. We found differences in the poverty rates—statistically significant at 1%—among the federal regions. Thus, we control the dummies for federal regions in the model. Following Ravallion et al. (2002), in order to improve the model's goodness of fit, we use the 2-year moving average of $\ln GRP_{it}$ and the

² Unlike Ravallion et al. (2002), a variable for inflation is not included in the model of the study.

lagged value of $\ln GOV_{it}$.

4. Empirical Results

The estimation results with the pooled OLS, fixed effect (FE), and random effect (RE) models are shown in [Table 1](#). As the results of the F tests, the Breusch-Pagan tests and Hausman tests, the FE model gives us the efficient and consistent estimator. Thus, we obtain an estimate of -0.367 for the elasticity of poverty to growth. In addition, the estimate by the pooled OLS is -0.57 , which is very close to the estimate of -0.53 obtained by Ravallion et al. (1997) for Eastern Europe and Central Asia³.

To examine the elasticity of poverty to growth in the periods before and after the 1998 financial crisis, we separately re-estimated the augmented equation (equation 2) by the periods⁴. The estimation results are shown in [Table 2](#). The specification tests show that the estimates by the FE model are the efficient and consistent estimators. Here, we obtain -0.607 for 1996–1998 and -0.195 for 1999–2002. In Russia, the elasticity of poverty to growth drastically falls in 1999–2002, that is, at the beginning of the rapid economic growth. It suggests that although Russia's economic growth on the whole rapidly developed after the crisis, the growth cannot be called pro-poor.

Does elasticity of poverty to growth vary among regions with higher or lower poverty rates? [Table 3](#) shows the estimates of the elasticity of poverty to growth for regions with higher and lower poverty rates⁵. Here, we define regions with higher poverty (HPR) as ones in which the poverty rate in 1995 is above the 5th quintile of its distribution. The others are defined as regions with lower poverty (LPR). In the analysis, the HPR comprise 15 regions, including Dagestan Republic, Kurgan Oblast, Buriatiya Republic, Tuba Republic, and Chita Oblast ([Appendix 1](#)). The average

³ Ravallion et al. (1997) estimated the elasticity of poverty to income (or expenditure) growth using national household surveys of developing and transitional countries (67 countries). Their datasets included at least two surveys during the period since the 1980s. As for Russia, the survey years were 1988 and 1993. In their study, the pooled OLS showed the efficient and consistent estimate of the elasticity of poverty.

⁴ The Chow test shows that at the 1% significance level, we can reject the hypothesis that the coefficients of a statistical model do not differ between different regimes of the covariate space.

⁵ The Chow test shows that at the 1% significance level, we can reject the hypothesis that the coefficients of a statistical model do not differ between different regimes of the covariate space.

poverty rate for the HPR is 49.8%, while that for the LPR is 25.9%. For the HPR and LPR, the efficient and consistent estimator is provided by the RE and FE models respectively. As shown in [Table 3](#), before the 1998 financial crisis, the estimated elasticity of poverty to growth is almost at the same level in the HPR and LPR, that is, -0.557 and -0.573 respectively (statistically significant at the 1% level). After the crisis, however, the elasticity for the HPR to growth sharply decreased. The estimate for the HPR is -0.142 , while that for the LPR is -0.224 . It should be noted that the estimate for the former after the crisis is not statistically significant. It could suggest that the economic growth after the crisis had little effect on poverty reduction in the HPR. In addition, it is also noteworthy that its 95% CI (confidence interval) ranges from -0.408 to 0.124 , while that for the LPR after the crisis ranges from -0.421 to -0.027 . It could suggest that the elasticity of poverty to growth for the HPR in 1999–2002, if any, is lower than that for the LPR.

To sum up, at both the national and regional levels, Russia's economic growth after the 1998 financial crisis is not pro-poor. Although Russia enjoyed a high economic growth, the growth after the crisis benefited the richer regions (or people) more than it did the poorer regions (or people).

5. Conclusions

To examine the effect of economic growth on poverty reduction in Russia, the study estimates the elasticity of poverty to real per capita GRP, using Russia's regional data pertaining to 1995–2002. We find that Russia's economic growth, which occurred after the 1998 financial crisis, is not pro-poor. At the initial stage of the high economic growth after the crisis, the elasticity of poverty to growth drastically falls at the national level. Moreover, it substantially decreases at the regional level in both the poorer and higher poverty regions. It should be noted that although the elasticity of poverty to growth for the period before the crisis does not vary among both the regions, it substantially varies among the regions for the period after the crisis. During the economic development after the crisis, the elasticity of poverty to growth for the poorer regions falls much more drastically than that for the richer regions. In Russia, the growth following the crisis benefited the richer regions (people) much more than it did the poorer regions (people). It also suggests that Russia's economic growth is more effective in poverty reduction in the richer regions than in

the poorer ones. The findings of the study explain well the Russian peculiarity of shallow poverty; moreover, inequality is still observed at the high level and is even slightly growing.

In the period of the high economic growth following the crisis, poverty drastically decreased in Russia. As is the general notion, economic growth is necessary for poverty reduction. On the other hand, the decrease in the elasticity of poverty to growth in the period after the crisis, as shown in the study, suggests that economic growth is not sufficient for poverty reduction in Russia. Taking all these points into consideration, growth-enhancing economic policies such as liberalization of trade, strongly recommended by Dollar and Kraay (2002), could not be effective in alleviating poverty in Russia. The results of our study suggest that it is quite necessary to reduce the inequality of distribution within and between regions. The government could play an important role in this area by formulating pro-poor policies such as the building and development of infrastructure in order to make economic growth pro-poor.

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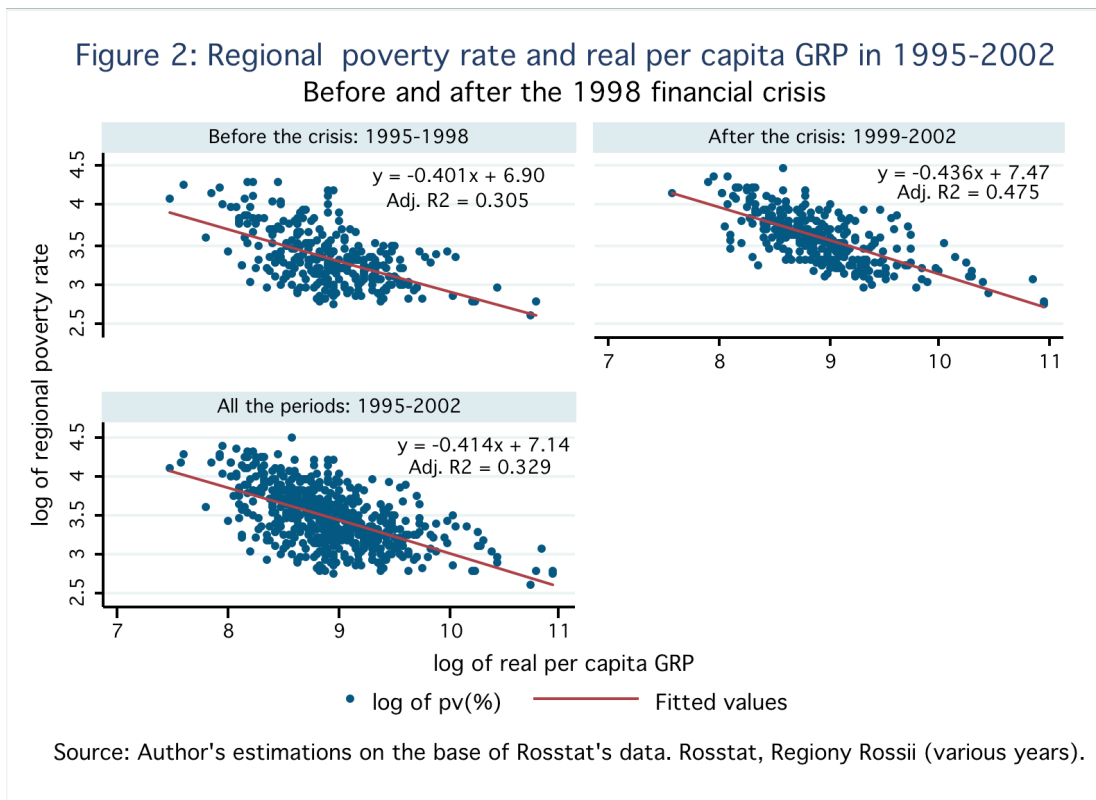
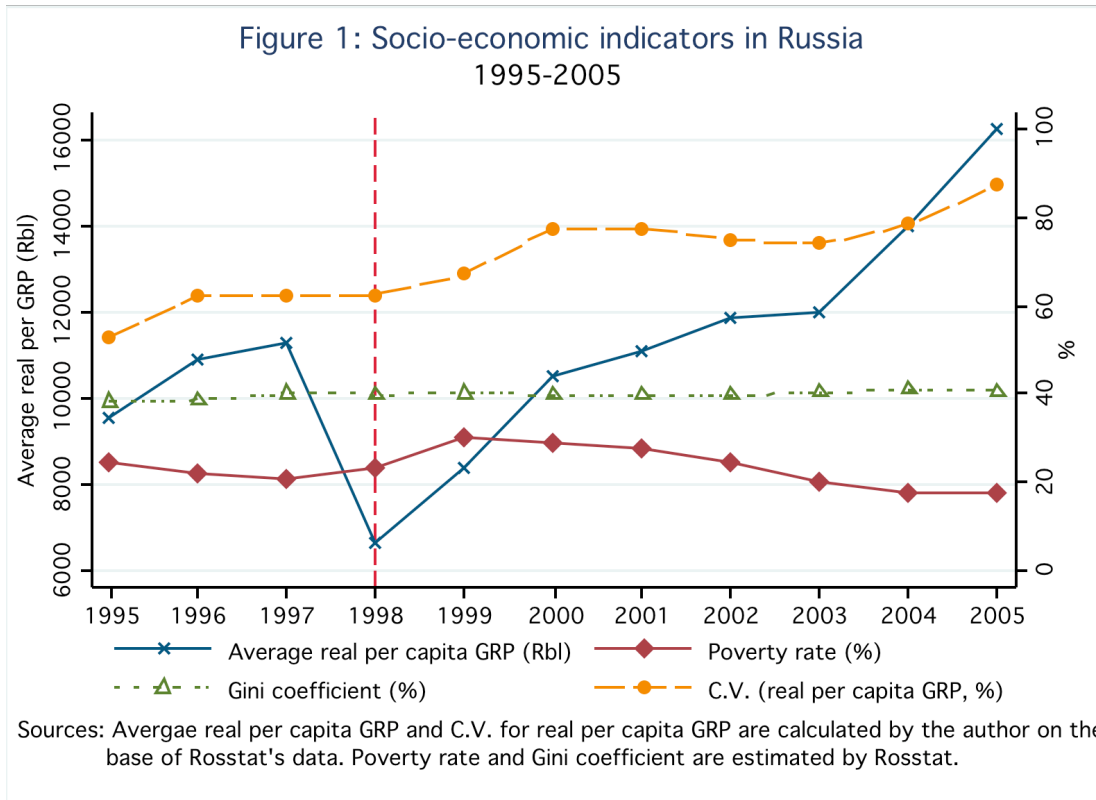


Table 1: Regression of Poverty for Russia in 1996-2002

	Pooled OLS			Fixed effect (FE)			Random effect (RE)		
	Coef.		<i>t</i> -value	Coef.		<i>t</i> -value	Coef.		<i>z</i> -value
Log of real per capita GRP (current + lagged)	-0.570	***	-15.67	-0.367	***	-7.17	-0.425	***	-10.01
Log of real per capita GOV (lagged)	0.056		1.53	-0.124	***	-3.32	-0.088	**	-2.49
AC (vs. 1999-2002)	0.237	***	10.4	0.190	***	10.53	0.198	***	11.33
FO (vs. Center)									
North West	0.089	**	2.53				0.097		1.36
South	0.092	***	2.61				0.119	*	1.66
Volga	0.146	***	4.78				0.151	**	2.36
Ural	0.241	***	4.93				0.235	**	2.34
Siberia	0.309	***	9.44				0.333	***	4.95
Far East	0.425	***	9.19				0.471	***	5.29
Constant	7.856	***	36.69	7.522	***	18.04	7.607	***	24.06
Number of observations	518			518			518		
Number of groups				74			74		
Adj R-sq.	0.620								
Within R-sq.				0.52			0.51		
Between R-sq.				0.43			0.66		
Overall R-sq.				0.45			0.61		
F test (prob>F)	0.000	***							
Breusch & Pagan test (prob>chi2)	0.000	***							
Hausman test (prob>chi2)	0.006	***							

Notes: *** is significant at 1% level; ** is significant at 5% level; * is significant at 10% level.

Source: Author's estimation.

Table 2: Regression of Poverty by Period before and after the 1998 Financial Crisis

	Before the financial crisis: 1996-1998						After the financial crisis: 1999-2002					
	Fixed effect (FE)			Random effect (RE)			Fixed effect (FE)			Random effect (RE)		
	Coef.		t-value	Coef.		z-value	Coef.		t-value	Coef.		z-value
Log of real per capita GRP (current+lagged)	-0.607	***	-10.0	-0.563	***	-13.47	-0.195	**	-2.18	-0.336	***	-5.17
Log of real per capita GOV (lagged)	-0.099	**	-2.4	-0.053		-1.64	-0.322	***	-5.09	-0.198	***	-3.67
FO (vs. Center)												
North West				0.181	**	2.14				0.068		0.88
South				0.237	***	2.78				0.009		0.12
Volga				0.267	***	3.54				0.078		1.14
Ural				0.499	***	4.15				0.093		0.87
Siberia				0.538	***	6.77				0.207	***	2.87
Far East				0.647	***	6.03				0.424	***	4.43
Constant	9.481	***	12.57	8.473	***	17.71	7.582	***	14.72	7.855	***	22.19
Within R-sq.	0.44			0.43			0.37			0.36		
Between R-sq.	0.31			0.65			0.40			0.59		
Overall R-sq.	0.32			0.64			0.39			0.54		
Number of obs	222			222			296			296		
Number of groups	74			74			74			74		
F test (prob>F)	0.000	***					0.000	***				
Breusch-Pagan test (prob>chi2)	0.000	***					0.000	***				
Hausman test (prob>chi2)	0.000	***					0.000	***				

Notes: *** is significant at 1% level; ** is significant at 5% level; * is significant at 10% level.

Source: Author's estimation.

Table 3: Regression of Poverty by Region before and after the 1998 Financial Crisis

Table 3-1: Regions with Higher Poverty

	Before the crisis: 1996-1998						After the crisis: 1999-2002					
	Fixed effect (FE)			Random effect (RE)			Fixed effect (FE)			Random effect (RE)		
	Coef.		<i>t</i> -value	Coef.		<i>z</i> -value	Coef.		<i>t</i> -value	Coef.		<i>z</i> -value
Log of real per capita GRP (current+lagged)	-0.693	***	-5.18	-0.557	***	-5.18	-0.061		-0.30	-0.142		-1.05
log of real per capita GOV (lagged)	-0.183	**	-2.71	-0.130	**	-2.06	-0.367	***	-2.89	-0.289	***	-2.89
Constant	11.032	***	7.63	9.488	***	8.13	6.914	***	5.93	7.060	***	8.62
Within R-sq.	0.49			0.49			0.40			0.40		
Between R-sq.	0.23			0.23			0.03			0.07		
Overall R-sq.	0.24			0.24			0.14			0.16		
Number of obs	45			45			60			60		
Number of groups	15			15			15			15		
F test (prob>F)	0.000	***					0.000	***				
Breusch-Pagan test (prob>chi2)	0.000	***					0.000	***				
Hausman test (prob>chi2)	0.652						0.195					

Notes: *** is significant at 1% level; ** is significant at 5% level; * is significant at 10% level. Regions with higher poverty in 1995 are listed in Appendix 1.

Source: Author's estimation.

(Continued)

Table 3-2: Regions with Lower Poverty

	Before the crisis: 1996-1998						After the crisis: 1999-2002					
	Fixed effect (FE)			Random effect (RE)			Fixed effect (FE)			Random effect (RE)		
	Coef.		t-value	Coef.		z-value	Coef.		t-value	Coef.		z-value
Log of real per capita GRP (current+lagged)	-0.573	***	-8.32	-0.417	***	-9.15	-0.224	**	-2.24	-0.313	***	-3.90
log of real per capita GOV (lagged)	-0.056		-1.10	0.073	**	2.00	-0.314	***	-4.22	-0.134	**	-2.03
Constant	8.809	***	9.81	6.434	***	12.65	7.741	***	13.41	7.264	***	18.38
Within R-sq.	0.43			0.40			0.37			0.35		
Between R-sq.	0.16			0.21			0.39			0.44		
Overall R-sq.	0.18			0.23			0.37			0.41		
Number of obs	177			177			236			236		
Number of groups	59			59			59			59		
F test (prob>F)	0.000	***					0.000	***				
Breusch-Pagan test (prob>chi2)	0.000	***					0.000	***				
Hausman test (prob>chi2)	0.070	*					0.000	***				

Notes: *** is significant at 1% level; ** is significant at 5% level; * is significant at 10% level.

Source: Author's estimation.

Appendix 1: Regions with Higher Poverty in 1995

Region	F.O.	Poverty rate, %
Pskov Oblast	North West	42.7
Adygeia Republic	South	46.4
Dagestan Republic	South	71.2
Kabardino-Balkariya Republic	South	42.5
Krachaev-Cherkessiya Republic	South	45.7
Severnaya Osetiya Republic	South	42.8
Stavropol Krai	South	39.6
Mariy El Republic	Volga	43.2
Orenburg Oblast	Volga	49.3
Kurgan Oblast	Ural	50.4
Buriatiya Republic	Siberia	55.2
Tuva Republic	Siberia	73.2
Novosibirsk Oblast	Siberia	39.8
Chita Oblast	Siberia	66.5
Amur Oblast	Far East	37.9

Note: Region with higher poverty is defined as a region in which poverty rate is above the 5th percentile of its distribution.