

**NAVAL POSTGRADUATE SCHOOL**  
**Monterey, California**



**THESIS**

**DID INEQUALITY INCREASE IN TRANSITION?  
AN ANALYSIS OF THE TRANSITIONAL COUNTRIES OF  
EASTERN EUROPE AND CENTRAL ASIA**

by

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June 2002

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TRANSITIONAL COUNTRIES OF EASTERN EUROPE AND CENTRAL ASIA**

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## **ABSTRACT**

Parallel to the process of democratization, the former socialist countries of Eastern Europe and Central Asia have shown an increase in measured income inequality during their transition from centrally-planned to a market-oriented economy. Since the behavior of these countries contradicted previous models of inequality, researchers analyzing the transition process linked the increase in income inequality to the egalitarian values of socialism and to the process of economic and political liberalization.

This thesis questions the validity of the above statement based on three pillars. First, other factors, from economic convulsions to the revaluation of natural resources, violent conflicts, corruption, and the expansion of organized crime, have been more closely linked than democratization to changes in income inequality. Second, data quality was generally poor in socialist countries, and extremely poor in several socialist countries, and have improved during the transition in most countries, usually without proper documentation of the changes. Finally, the analysis of the origins of today's income inequality shows that the magnitude and effect of hidden inequalities in the socialist past were highly underestimated.

In short, an increase in income inequality caused by democratization is not likely, while hidden inequalities in the socialist era could even be higher than today's measured inequality.

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## **I. INTRODUCTION**

The collapse of the communist regimes has brought an unprecedented increase in economic freedom for hundreds of millions of people in Eastern Europe and Central Asia. Nevertheless even in the most advanced former socialist countries like the Czech Republic, Hungary and Poland, many people believe that their lives have become worse since the collapse of these communist regimes. One of the main driving forces of this nostalgia is a perceived increase in income inequality, which also appears in the survey results on income inequality during the transition period. Since this nostalgia hinders further political and economic liberalization, a thorough analysis of these results is necessary to facilitate economic development and poverty reduction in the region.

In order to help answer the question of whether the transition from socialist to market-oriented economies was beneficial for the average citizen, this research will examine the apparent changes in income inequality in the transitional economies of Eastern Europe and Central Asia in order to determine whether the increase is real or spurious.

### **A. BACKGROUND AND PURPOSE**

Despite previous findings about the positive effect of political liberalization on income inequality (Gradstein and Milanovic 2000), researchers have found increasing income inequality in the former socialist countries of Eastern Europe and Central Asia during their transition from centrally-planned to market-oriented economies.<sup>1</sup> The authors identified various reasons for the apparent increase, from the role of socialist values in the pre-transition period (Gradstein and Milanovic 2000), to the higher wage inequalities due to variances in skills and education (Milanovic 1996, 1999, Kattuman and Redmond 2001), the emergence of the private sector, unfocused government transfers, and the growing difference between urban and rural populations (Milanovic 1996, 1999). Other authors observed a positive correlation between the degree of income inequality and the share of the informal sector within the economy (Rosser, Rosser, and Ahmed 2000), and rising differences in access to education and learning achievement (Mickelwright 1999).

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<sup>1</sup> Gradstein and Milanovic 2000; Milanovic 1996, 1998, 1999; Ferreira 1999; Rosser, Rosser, and Ahmed 2000; Kattuman and Redmond 2001; World Bank 1997.

While many researchers caution that special circumstances (Ferreira 1999), poor data quality (Milanovic 1998, Rosser, Rosser, and Ahmed 2000), or overlooked factors (Kattuman and Redmond 2001) have a possible effect on income inequality, no estimates are available about the order of magnitude of the possible error or bias. This thesis analyzes the findings in the mirror of pre-transition data quality and data reliability, the effect of changing measurement methods, and the effect of hidden income transfers during the pre-transition period.

## **B. SCOPE, STRUCTURE AND METHODOLOGY**

The regional scope of the thesis extends to the following countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and Yugoslavia. The temporal scope is the transition of these countries from socialism to democracy. Although there is no single point in time to mark the beginning of the transition, socialist regimes collapsed in all of these countries between 1989 and 1992. On the other hand, none of these countries has completed the transition process.

This thesis examines whether income inequality increased in the transition period for the countries of Eastern Europe and Central Asia. After reviewing the findings in the literature and questioning the reliability of the previous results, the thesis discusses the possible reasons behind the change in income inequality. The analysis then expands to examine the possible hidden factors behind the changes in income inequalities in the former socialist countries of Europe and Central Asia.

The analysis is conducted in five chapters, with a changing methodology adjusted for the purpose of the analysis and the available data. The first of the five chapters, the second chapter of this thesis, reviews the latest research results with a special focus on problems caused by poor data quality and changing measurement results. The methodology used in this chapter is based on overview and mainly a qualitative evaluation.

The next chapter discusses additional factors, other than democratization, to identify and analyze their possible effect on income inequality during the transition. The

purpose of this chapter is to show how these factors possibly contribute to the apparent increase in income inequality and how they reveal the possibility of an increase in inequality without including democratization in the set of independent variables. The methodology throughout this chapter is a description of these factors and quantitative analysis wherever appropriate data are available.

The fourth chapter of the thesis focuses on the effect of the changing measurement methods. Because of the lack of reliable data from the pre-transition period, this chapter uses two kinds of approaches in estimating the order of magnitude of the possible bias caused by the changes. The first part of the chapter provides a summary on the theoretical background of measuring income inequality, with a special focus on the Gini index, the most frequently used income inequality measure, and the possible effect of different underlying definitions. The second part shows the order of magnitude of the possible bias caused by changing measurement methods using a set of examples from the transition countries and from the OECD (Organization for Economic Cooperation and Development) countries.

The fifth chapter identifies several sources of inequality in the pre-transition period, the effect of which were often overlooked or underestimated by the researchers. This chapter starts with theoretical considerations about the nature of a centrally-planned economy, and the possible use and meaning of economic indices in describing the status and processes of such an economy. The second part of the chapter provides examples of sources of inequality in socialist countries. Because of the nature of these phenomena, the poor quality of the existing data, and the impossibility of reliable data reconstruction, this chapter is based on qualitative description. Finally, the last chapter summarizes the most important findings of the analysis and draws some policy implications for the future based on the results.

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## II. OVERVIEW OF THE LITERATURE ON INEQUALITY

The centerpiece of socialist ideology was, at least in theory, the equality of income and wealth. Given this objective, it is no surprise that researchers studying the social and economic aspects of the transition from socialist to market economy included inequality in their set of variables. While there was a common belief that inequalities would increase in the initial phase of transition in the former socialist countries, the effect of this increase on the process of democratization was not clear.

In this chapter, I review the latest research results. The review is divided into three sections. In the first section, I discuss the findings of previous research on inequality and its relation to other variables. The second section focuses on the quality of data used by the researchers and on the problems related to changing measurement methods during the transition period. The third section provides an evaluation of the research results based only on data quality.

### A. FINDINGS OF PREVIOUS RESEARCH

Reviewing the previous literature on the links between democracy and income inequality, Gradstein and Milanovic (2000) found an inverse relationship between the measures of these two variables. Using more accurate measurement techniques for income inequality and the level of democracy, the researchers' analysis reinforced the results of previous studies,<sup>2</sup> except in the cases of Eastern European countries and former Soviet republics during their transition from socialism to democracy. While in other cases, a higher level of democracy led to a lower level of inequality, the democratization of former socialist countries was accompanied by an increase in inequality.

In order to cast more light on this phenomenon, the authors investigated the change in the Freedom House's combined index of political freedom and civil liberties

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<sup>2</sup> Gradstein and Milanovic divide the sources they discuss into two groups. The first group includes sources using the expansion of the voting franchise to measure the level of democracy. The authors review the findings of Peltzman (1980), Lindart (1994), Justman and Gradstein (1999a), Husted and Kenny (1999), Lott and Kenny (1999), and Abrams and Settle (1999) in this group. The second group consists of sources conceiving democracy in terms of civil liberties and political rights. Gradstein and Milanovic reviewed the works of Bollen (1980), Jagers and Gurr (1995), Sirowy and Inkeles (1990), Bollen and Grandjean (1981), Bollen and Jackman (1985), Hewitt (1977), Muller (1988), Rodrick (1998), Li, Squire, and Zou (1998), Simpson (1990), Nielsen and Anderson (1995), Justman and Gradstein (1999b), and Lundberg and Squire (1999) in this second group.

and the change in the Gini coefficient for 21 transition countries between 1989 and 1997. The Freedom House's combined index measures political rights and civil liberties on a scale of 1.0 to 7.0, where higher scores mean less freedom. The Gini coefficient measures income inequalities on a scale of 0 to 1, where 0 represents uniform equality and 1 represents total inequality. Although Gradstein and Milanovic show that the democratization process was slower in countries with higher Gini indices, they found that both democracy and income inequality increased during the sample period. The negative correlation between the pace of democratization and inequality was even stronger when data for the three Central Asian republics, Belarus, and Croatia were omitted from the analysis. Additionally, there was a significant difference between the data for former Soviet republics and other Eastern European countries, which led Gradstein and Milanovic (2000) to the following conclusion:

We believe that socialist values which frowned upon excessive wealth accumulation, explicitly banned private ownership of the means of production, [and] made sharp distinction between private and personal property (the latter being control over essentially [sic] items of current consumption), did prevent increases in income inequality.

The same parallel increase in democracy and inequality is described also in three other works of Milanovic (1996, 1998, 1999). In his 1996 article on poverty and inequality in transitional economies, Milanovic describes socialist countries as having low inequality levels even if adjusted for flaws in surveys and the privileged consumption of the elite. In identifying a reason for the apparent increase of poverty during the transition, he concludes that the real average income declined and inequality increased in these countries during their transition. Higher earnings of skilled, white-collar workers; the emergence of the private sector; unfocused government transfers; and the growing difference between urban and rural populations each contributed to the higher levels of inequality in the transition period.

In his 1998 book about income, inequality and poverty during the transition of Eastern European countries and former Soviet republics, Milanovic considers the increase in inequality to be uniform, rapid, sizeable, and still underestimated. As in his previous article, he identifies the higher concentration of wages, the expansion of the

private sector, and the increasing gap between the urban and rural populations as the main reasons for the increased inequality. Based on a model using the concept of the “hollowing-out” of the state-sector middle class, Milanovic (1999) finds the increased inequality of wage distribution again as the main reason for the increase in inequality. The model is based on the idea that the share of the state-sector middle class within the population of socialist countries decreased during the transition. In this case, some of its members moved to the private sector and enjoyed the higher wages, while others moved to the unemployed sector, or, in other words, to poverty.

Several other authors have also explored anomalies connected with the changes in income inequalities in the former socialist economies of Eastern Europe. Ferreira (1999) noted that the transition economies of Eastern Europe experienced increased income inequality with negative growth at the same time in the 1990s. He also warns, however, that this coincidence can be attributed to specific circumstances of transition in Eastern Europe and Central Asia. In other words, one phenomenon did not necessarily cause the other. Mickelwright (1999) has studied inequalities in education related to access and learning achievement within the countries of Central and Eastern Europe and the former Soviet Union. Focusing on the transition period and on differences in household income and geographic location, he concluded “evidence of various types also points to rising differences during the transition.” (Mickelwright 1999, 371)

Studying the possible relationship between income inequality and the informal economy in transition economies, Rosser, Rosser, and Ahmed (2000) observe an increase in inequality parallel to an increase in the share of informal economy in the transition economies of Eastern Europe and the former Soviet Union. Although the authors warn the reader that the quality of the data used is far from perfect, they note a positive correlation between the degree of income inequality and the share of the informal sector within the economy. Kattuman and Redmond (2001) found that income inequality increased between 1987 and 1996 in Hungary. When they divided the sample into sub-periods, however, they found no apparent increase in income inequality between 1987 and 1991 and a decrease for the 1989-1991 period. While Kattuman and Redmond state that their work builds on that of Milanovic and others, they offer as the main reason the

increase in inequality in employees' earnings. More important, they suggest that inequality research may overlook some important factors.

First, Kattuman and Redmond (2001), discussing the rising living standards in Hungary through the 1980s, noted, "This rise was accompanied by steadily increasing inequality in disposable incomes." In other words, other researchers may have concentrated to their detriment on the transition period in that they failed to notice that inequality may have been steadily increasing in the decade prior to transition. The data from the transition period met their expectations, and therefore they failed to examine contradicting data from the pre-transition period. Even more telling about the role of expectations in research results is their following statement: "It was widely anticipated that post-Communist economies would experience greater income inequality over the period of their transformation into market economies." (Kattuman and Redmond 2001, 41)

Finally, without linking inequality to other variables, one of the most widely used and respected data sets on income inequality is the Deininger and Squire dataset. Using data from the Deininger and Squire dataset, we observe an increase in inequality in the transition economies of Eastern Europe and the former Soviet Union (World Bank 1997). Figure 2.1 displays Gini indices for selected countries based on data from the dataset.

Figure 2.1. Percentage Value of the Gini Index of Selected Transitional Economies from 1970 to 1994  
(Data from World Bank 1997)

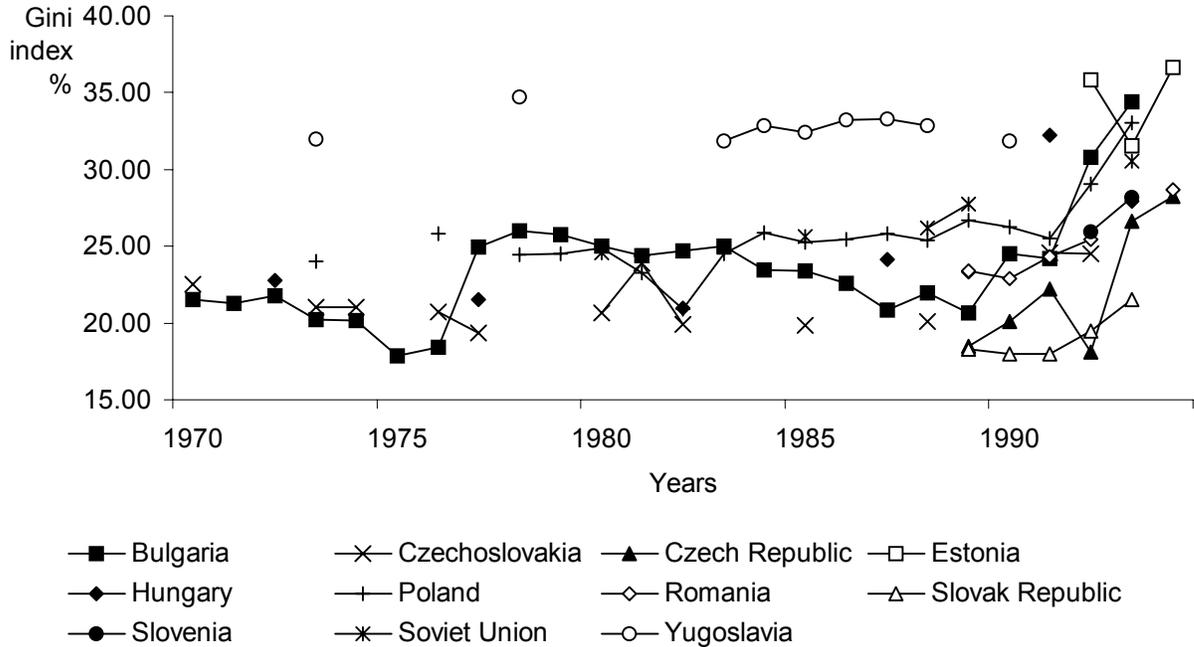


Figure 2.1 shows that Gini indices increased significantly during the sample period. Yugoslavia appears to be an exception. Since the country collapsed, this exceptional behavior either remained concealed for the researchers on inequality or was attributed to the collapse itself. Nonetheless, this question deserves further analysis, as the status of Yugoslavia was also exceptional within the former socialist block.

As we have seen in the examples above, researchers agree that inequality increased in former socialist Eastern European countries and former Soviet republics during the transition period. The increasing differences in wages and earnings emerge, in most of the articles, as the primary reason for increased inequality, sometimes parallel to a less effective compensatory effect of social transfers. As a more thorough explanation, some of the authors suggest that an increase in inequality was anticipated after the political changes in the region. On the other hand, some results indicate weak or non-existent correlations, poor data quality, and overlooked facts prior to the transition,

suggesting that we should not only regard the inferences critically, but also be cautious about the data itself.

## **B. DATA SOURCES AND MEASUREMENT METHODS**

Remarkably, none of the authors of the reviewed articles used primary survey data for the measurement of their variables. In many cases, the authors did not even turn to the original data sources to calculate inequality indices on their own. Rather, they used readily available Gini indices from data sets compiled by other researchers. Since the structure and quality of income surveys vary by country and time of survey, these Gini index values may not be comparable.

Gradstein and Milanovic (2000) derive their conclusion about “socialist values”, as reasons for lower income inequality, from inequality data obtained from the Deininger and Squire data set, complemented with data from the Luxemburg Income Survey. Although the authors note that data for Eastern European countries were scarce due to the lack of developed data collection procedures, they did not explicitly address the risk of using data from secondary databases.

In his earlier work, Milanovic (1996) states that socialist countries exhibited very modest inequalities even if adjusted for flaws in household surveys and privileged consumption of the elite. On the other hand, he notes that surveys deliberately omitted the very poor and the top nomenklatura, especially in the Soviet Union. His anecdotal remark, on the quality of vacation homes for the top Party brass, also misses the point. While the statement that “their level of comfort and service is below that of an average Holiday Inn” (Milanovic 1996, 200) might be true, it does not change the fact that these accommodations were readily available for the top brass free of charge, at any time. Therefore, comparing the value of this privilege with the value of a benefit available for the common people within the same country would have been more appropriate. Unfortunately, since prices did not reflect market values in socialist economies, this comparison is hardly possible.

In his book on income, inequality and poverty during the transition, Milanovic (1998) uses greatly diverse surveys. All of them were conducted by state statistic services of the respective countries for both the transition and pre-transition periods but with considerable differences in quality and method. Furthermore, the methods varied in time

even within the same country. Only Bulgaria, Hungary, Poland, Slovenia, the Central Asian republics of the former Soviet Union, and Moldova used the same type of survey during and before their transition. The Central Asian republics and Moldova, however, used the Soviet-type family budget survey, a measurement method of extremely low quality. The Soviet-type surveys were based on quota sampling instead of random sampling. Workers and farmers selected by their supervisors through the branch of production approach were asked to cooperate with statistical authorities (Milanovic 1998).

The great variance in survey methods makes any comparison, either between countries or in time, extremely hard. Milanovic (1998) summarizes the survey defects before and during the transition as shown in Table 2.1 below.

Table 2.1. Survey Defects in Pre-transition and Transition Years (From: Milanovic 1998, Table A1.5.)

Country	Pre-transition	Transition
Poland	Incomplete coverage of recipients	Semi-annual data
Hungary	None	No consumption-in-kind
Czech Republic		Monthly data
Slovakia		Not fully representative
Slovenia		Income definition problem
Bulgaria	Income definition problem; Gross income instead of disposable income	
Romania	Not fully representative; Income definition problem	Monthly data
Estonia	Quota sample, not fully representative; Income definition problem	Quarterly data
Latvia		Quarterly data
Lithuania		Gross income; No consumption-in-kind
Russia		Quarterly data
Belarus		Quarterly data
Ukraine		Monthly data; Large underestimate of income
Kyrgyz-Republic	Quarterly data; Large underestimate of income	
Moldova	Quota sample, not fully representative; Income definition problem	
Kazakhstan		
Turkmenistan		
Uzbekistan		

As the table shows, serious problems exist with data quality and data comparability in each country. The effect of these defects and the differences between pre-transition and transition survey methods upon the apparent increase in inequality is hard to estimate; nevertheless the result is an overestimated increase in inequality in the majority of the cases. Table 2.2 shows the estimated effects according to the Milanovic himself.

Table 2.2. Bias in Estimating Change in Poverty and Inequality during the Transition (From: Milanovic 1998, Table A1.6.)

Country	Poverty	Inequality
Poland	Unclear	Overestimates increase
Hungary	Overestimates increase	
Czech Republic		
Slovakia		
Slovenia	Unclear	Unclear
Bulgaria	None	
Romania		
Estonia		
Latvia		
Lithuania		
Russia		
Belarus		
Ukraine		
Kyrgyz Republic		
Moldova		
Kazakhstan	Unclear	
Turkmenistan		
Uzbekistan		

Milanovic uses the same data sources in his article to explain the increase in inequality during the transition (Milanovic 1999). Although the author mentions many possible problems with the reliability of the data again, he summarizes his conviction in the following two sentences:

But, it is up to each researcher to decide how strong an emphasis he or she wishes to place on these systemic (underlying) changes; how much he or she believes that they vitiate all pre-post comparisons. I would

tend to believe that the underlying change in Eastern Europe was not of such a magnitude as to render, after appropriate *caveats*, the comparisons of inequality before and after the transition unreliable. (Milanovic 1999, 323-324)

In their 2001 article, Kattuman and Redmond summarize Milanovic's results for Hungary as follows: "His 1998 paper shows an increase in inequality between 1987 and 1993, while his 1999 article suggest[s] that inequality actually fell between 1989 and 1993." (Kattuman and Redmond 2001, 49) Regarding Hungary, there are no data for 1989 in Milanovic's paper of 1998, and his 1999 article also shows an increase in inequality between 1987 and 1993. On the other hand, there is some inconsistency in his numbers. Although he refers to the same sources in both works, the Household Budget Surveys of Hungary's Central Statistical Office for 1987 and 1993, he reports a Gini coefficient of 21.0 for 1987 and 22.6 for 1993 in his 1998 paper, and 20.7 for 1987 and 22.9 for 1993 in his 1999 article.

Ferreira (1999) uses data from other authors as the starting point of an analysis on inequality and economic growth. Although he does not provide an estimate on data quality, he cautions about the possible role of specific circumstances of transition before inferring any causative relationship from the negative correlation between the change in income inequality and economic growth.

Mickelwright (1999) does not use income inequality indices in his work. The data for differences in education related to access, enrollment, or learning achievement for different social groups divided by income, geographical location, or family background are from secondary sources, mainly from UNICEF sources. His data, however, are rather scarce in supporting any conclusion about increasing differences during the transition. All of the data used to illustrate differences in enrollment by family background are pre-transition data. Additionally, with only one exception, data used to compare pre-transition and transition conditions are general data without any reference to various income groups. The only exception is a figure containing time series for the ratio of household education expenditures per child in top decile to expenditures per child in the bottom decile of per capita income (Mickelwright 1999, 365, Figure 7). The author uses data for only two countries, Bulgaria and Slovakia, in this figure. In addition, data on Bulgaria are not earlier than 1992. While the data undoubtedly show a significant increase in the ratio

of education expenditures of households in the top decile to those of households in the bottom decile, the numbers do not necessarily mean that access to education became more restricted for low-income families. The increasing difference in education expenditures can also be attributed to the decreasing influence of the elite on state education institutions. In other words, what is probably happening is that the elite are spending more now because they have to spend more to keep the same advantage in education.

Rosser, Rosser, and Ahmed (2000) use secondary data compiled by other authors in their work on inequality and the informal economy. They also measure inequality with the readily available Gini index, but they argue that other measures, like the decile ratio of income would be more effective in presenting an overall picture. They also warn the reader about the effects of a possible relationship between the level of corruption and the degree of unreliability of data and mention other weaknesses of existing income inequality measures, as well. Referring to an earlier study, they present the example of Poland, where “correcting for the earlier failure to survey the private sector in Poland eliminates the increases in income inequality that appear in official data during the transition.” (Rosser, Rosser, and Ahmed 2000, 163)

Another weakness of the data used in this article is that the numbers come from six different sources, none of which are primary data sources. The authors track back one of their sources<sup>3</sup> to Milanovic’s 1996 article discussed earlier, stating that “there are many unanswered questions regarding his data, including the problem of variations in the groups surveyed from country to country.” (Rosser, Rosser, and Ahmed 2000, 163) They track back another important source<sup>4</sup> to the Deininger and Squire data set, the World Development Report of the World Bank for 1996, several United Nations Development Reports, and the same article of Milanovic. They additionally criticize this source stating, “he does not indicate how his data are estimated” (Rosser, Rosser, and Ahmed 2000, 163). Regarding their findings, the authors caution that the calculated coefficients “would vary under different specifications, including multiple regressions with other variables or

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<sup>3</sup> Corricelli, Fabrizio. 1997. Income Distribution and dynamics of Reforms. *Economics of Transition* 5: 510-514

<sup>4</sup> Honkkila, Juha. 1997. *Privatization, Asset Distribution and Equity in Transitional Economies*. Working Paper No. 125. Helsinki: UNU/WIDER.

more complicated functional forms.” (Rosser, Rosser, and Ahmed 2000, 167) The authors also provide a list of examples for such variables, adding the following remark:

Even if such data were available for our full sample, we lack degrees of freedom for dealing with very many of these in a multiple regression.

These estimates must be viewed with caution given the questionable nature of the data. No causal directions should be inferred from such simple estimates. (Rosser, Rosser, and Ahmed 2000, 167)

The main data sources for Kattuman and Redmond are Hungarian Household Budget Survey microdata for the years 1987, 1989, 1991, 1993, and 1996 (Kattuman and Redmond 2001). Concluding that the data indicated an increase in inequality during the transition based on data for only five years may seem bold, even though the authors generated six variables<sup>5</sup> to measure inequality. While they conclude that there was no apparent increase in inequality between 1987 and 1991, referring to the time period between 1991 and 1996, the authors claim “In the following 5 years, inequality rose *again* [italics added].” (Kattuman and Redmond 2001, 45) This claim is based on data for only the three years of 1991, 1993, and 1996 within this period. It is also mistaken to say that inequality increased “again;” for this to happen, inequality must have increased a first time.

Finally, the data quality of the Deininger and Squire data set also deserves more thorough attention. The data set uses five classes for data reliability, marked by the authors with the abbreviation of “accept”, “nn”, “cs”, “ps”, “est”, and “wg”. The meanings of the abbreviations are as follows:

accept: included in the high quality data set

nn: based on a survey of less than national coverage

cs: estimate that was not included due to availability of an estimate from a consistent source

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<sup>5</sup> The variables are the ratio of income at the 90th percentile to the median income (p90/p50); the ratio of the median income to income at the 10th percentile (p50/p10); the ratio of income at the 90th percentile to income at the 10th percentile (p90/p10); the Gini coefficient; and the generalized entropy measures  $I_0$ , and  $I_2$ .  $I_0$ , also known as Theil index, is sensitive to distribution changes in low income groups, while  $I_2$  is sensitive to distribution changes in high income groups.  $I_0$  and  $I_2$  are zero under perfect equality, and increase with inequality up to an upper limit depending on the size of the population.

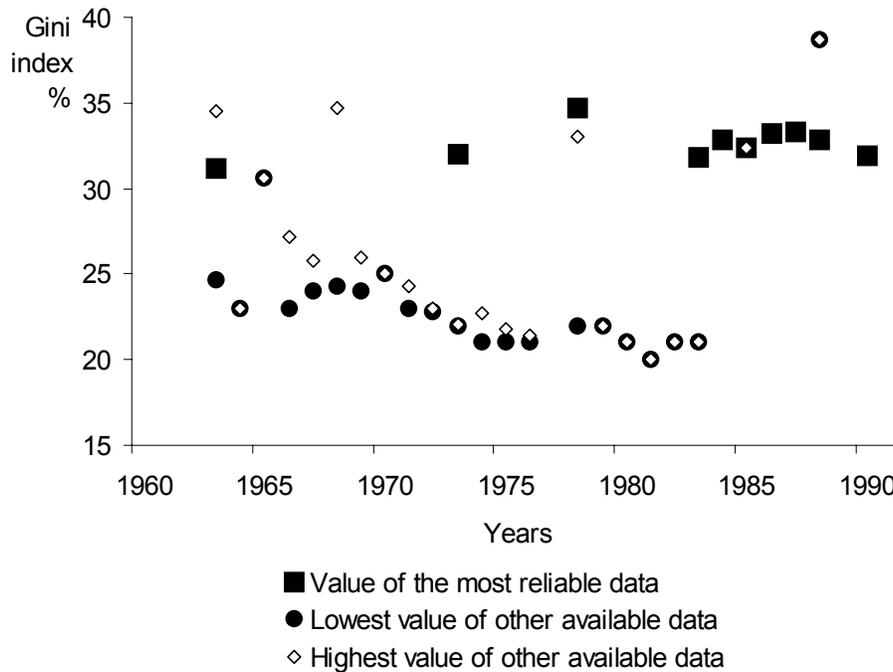
- ps: estimate that was not included as there is no clear reference to the primary source
- est: estimate based on national accounts or surveys of less than full national coverage
- wg: estimate excluded because it was based on the income earning population only or derived from non-representative tax records (World Bank, 1997).

Only two of the classes are based on primary survey data (“accept” and “nn”) and only one of these is considered as high quality data in the data set. There are three different observations for Yugoslavia in 1968 for this class, two of them for urban population with Gini index values of 17.91 and 34.72. The difference between the two is huge. While both values came from the same source<sup>6</sup>, the lower Gini coefficient was calculated on the basis of household equivalent, the higher on the basis of person equivalent as the recipient units. Regarding this kind of data from socialist states, the comparison of the primary and secondary sources for the Gini index in Yugoslavia is informative and reveals how unreliable socialist government statistics are. Figure 2.2 shows the high quality primary data (“accept” class) together with the highest and lowest values gained from secondary sources.

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<sup>6</sup> Jain, Shail. 1975. *Size Distribution of Income: A Compilation of Data*. World Bank.

Figure 2.2. Gini Index Values from the Most Reliable Primary Sources and from Secondary Sources (Lowest and Highest Values) for Yugoslavia between 1963 and 1990 (Data from World Bank 1997)



The majority of the secondary data is based on Statistical Yearbook data of workers' household incomes reported since 1963. In other words, these are official data provided by a government organization. The figure shows how these values are consequently different and much lower than the values of primary survey data. At the same time, the compilers of the data set considered the data from income surveys conducted every five years in Hungary, for example, as high quality data, and ranked them in the "accept" class in the Deininger and Squire data set (World Bank 1997).

We can see that even the reliability of a carefully compiled, widely used and respected data set can be questioned in the case of transitional economies before their transitions. Furthermore, as also seen in Figure 2.1, not much data are available on these economies from the time of their socialist past.

### C. EVALUATION OF THE LITERATURE

The short analysis of the reviewed literature demonstrates that even if some researchers have found a remarkable increase in inequality in Eastern Europe and the

former Soviet republics during their transition from socialism to market economy, we have to be cautious about such conclusions for various reasons.

First, survey methods and income definitions changed fundamentally during the transition of most countries. Moreover the changes were so radical that this fact, in itself, could be a reason for an apparent change in the measures of inequality. Second, data for the pre-transition period appear to be scarce and unreliable. Most of the authors use official government statistics from the former socialist countries, caveating their results due to the suspect nature of the data. Even Milanovic, one of the most fervent promoters of the idea of a real increase in inequality admits that Soviet-style survey methods were extremely bad: “For the Central Asian countries and Moldova, pre-transition and transition surveys are also the same: the Soviet-style FBS [Family Budget Survey]. Given significant shortcomings with FBSs, however, this is more of a problem than an advantage” (Milanovic 1998, 142-143). The Soviet-style surveys were based on quota sampling, instead of random sampling. In this method, statisticians had to include a certain predetermined number of respondents from the various groups of the society in the surveys. As a result, the method was not representative, and the composition of the sample could change in time for political reasons or without any rational reason at all. In other words, incomparability in time was an inherent characteristic of the Soviet-style survey methods.

Finally, the authors do not pay enough attention to the role of factors outside their specific object of investigation. Eastern Europe and the former Soviet Union formed a very complex, fragmented, and difficult region. The uniform and unified Soviet monolith simply never existed, since ethnic, traditional, historic and economic ties with countries outside the Soviet block were too strong to be completely abolished even by brutal force. The signs of this complexity became more visible after the collapse of communism; however they were always there. As one consequence of this diversity, the transition processes of the different countries were not uniform either. Some countries broke up while some experienced war or long-standing, deep economic crises.

While some of the authors caution the reader about the results, none of them provides estimates for the magnitude of the possible bias. In summary, we believe that the expectations for a large increase in inequality during the transition from socialist to

market economy were so strong that the researchers became incapable of recognizing the fragile nature of their apparent results.

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### **III. EFFECT OF FACTORS OTHER THAN DEMOCRATIZATION ON INEQUALITY**

Political liberalization and the transition from a centrally-planned economy to a market-oriented one were not the only factors causing changes during the transition period. Many other factors could have significantly influenced income inequality in the region. The difficulty is finding a valid explanation for the apparent increase in inequality among the numerous factors influencing income inequality during the transition period.

For Eastern Europe and Central Asia, at least three factors other than democratization may have had a significant effect on the variations of income inequality during the transition period. First, all of these countries experienced a significant decline in economic activity at the beginning of the transition process. While some countries responded well to this challenge and stabilized their economy with relatively small sacrifices, others have remained in the state of a deep economic crisis. Second, the transition process was not peaceful for every country. Violent conflicts accompanied the collapse of the Soviet Union in many of its former member republics, and the breakup of Yugoslavia also led to a civil war within the country. The emergence and increased activity of organized crime groups additionally added to the violence in the region. Other, peaceful but important, political changes were the breakup of Czechoslovakia and the reunification of Germany.<sup>7</sup>

Finally, factors like natural resources, geographical accessibility, or traditional concepts of property also affected income inequality in the region. The effect of these factors, however, has often been concealed by the differences in government policies throughout the region. Based in part on a personal experience of living in a socialist country, I believe that many of these policy differences are much more influenced by external circumstances than by the good intention of policymakers. Substituting sugar and tobacco with oil and other natural resources and slave labor with the prevalence of poverty and high inequality, the following passage from Adam Smith is still accurate in describing the present situation in former socialist countries:

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<sup>7</sup> Although the former German Democratic Republic is not counted among the transition countries of the region, the reunification of Germany had a dramatic impact on the transition process during its early period.

The pride of man makes him love to domineer, and nothing mortifies him so much as to be obligated to condescend to persuade his inferiors. Whenever the law allows it, and the nature of the work can afford it, therefore, he will generally prefer the service of slaves to that of freemen. The planting of sugar and tobacco can afford the expence of slave cultivation. The raising of corn, it seems, in the present time, cannot. (Smith 2000, 418)

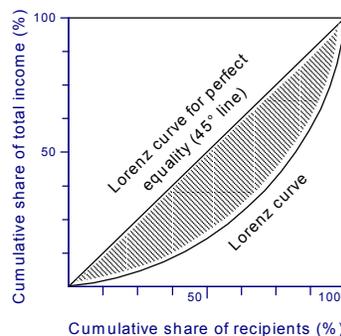
## A. INEQUALITY AND THE GINI INDEX

Before proceeding into the discussion of the factors introduced above, this section presents a basis for interpreting the most frequently used income inequality measure, the Gini index. The concept of the Gini index is described and followed by Gini indices for selected countries as examples.

### 1. The Gini Index

The Gini index, or Gini concentration ratio, is derived from the Lorenz curve, which indicates the income received from any cumulative percentage of recipients in the lowest incomes as a percentage of the total income of the society. In the case of perfect equality, the Lorenz curve is a straight 45-degree line, as shown in Figure 3.1. The Gini index is calculated as the ratio of the area between the Lorenz curve for perfect equality and the actual Lorenz curve to the total area below the Lorenz curve for perfect equality (Gillis et al. 1996, 70-76). The value of the Gini index is 0 for perfect equality, and 1 for perfect inequality. Practical values have a narrower range between about 0.25 and 0.60 (Gillis et al. 1996, 70-76).

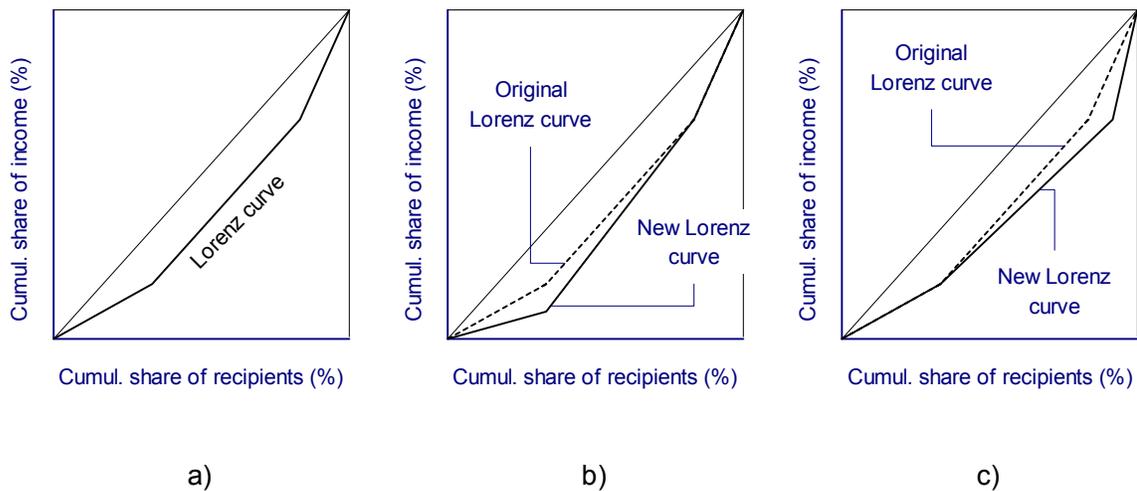
Figure 3.1. The Lorenz Curve



In spite of being the most frequently used income inequality measure, the Gini index also has problems. One of these is its insensitivity to changes in distribution, especially for changes in the income of low-income groups. The reason is that these changes can be small in relation to total income, while they are considerable for the low-income households. Another problem is that different income distribution patterns can result in the same Gini index values.

As an example, Figure 3.2 displays two possible changes in income distribution leading to the same change in the Gini index. Part *a*) shows the original income distribution. In the situation displayed in part *b*), the share of income for the low-income groups dropped by half. This can be either the result of a rising average income for the whole society without the low-income groups, or the result of a loss of income for the low-income groups with no significant change in income for the rest of society. Part *c*) shows an increased concentration in the highest income group, which can be the result of an increase in income or a decrease in the number of recipients in the high-income group. As the area between the actual Lorenz curve and the Lorenz curve for perfect equality is the same in both case, the two different changes in income distribution result in the same Gini index value.

Figure 3.2. Different Changes in Income Distribution: *a*) Original Distribution  
*b*) Decrease in the Share of Income of Low-income Households  
*c*) Decrease in the Share of High-income Households

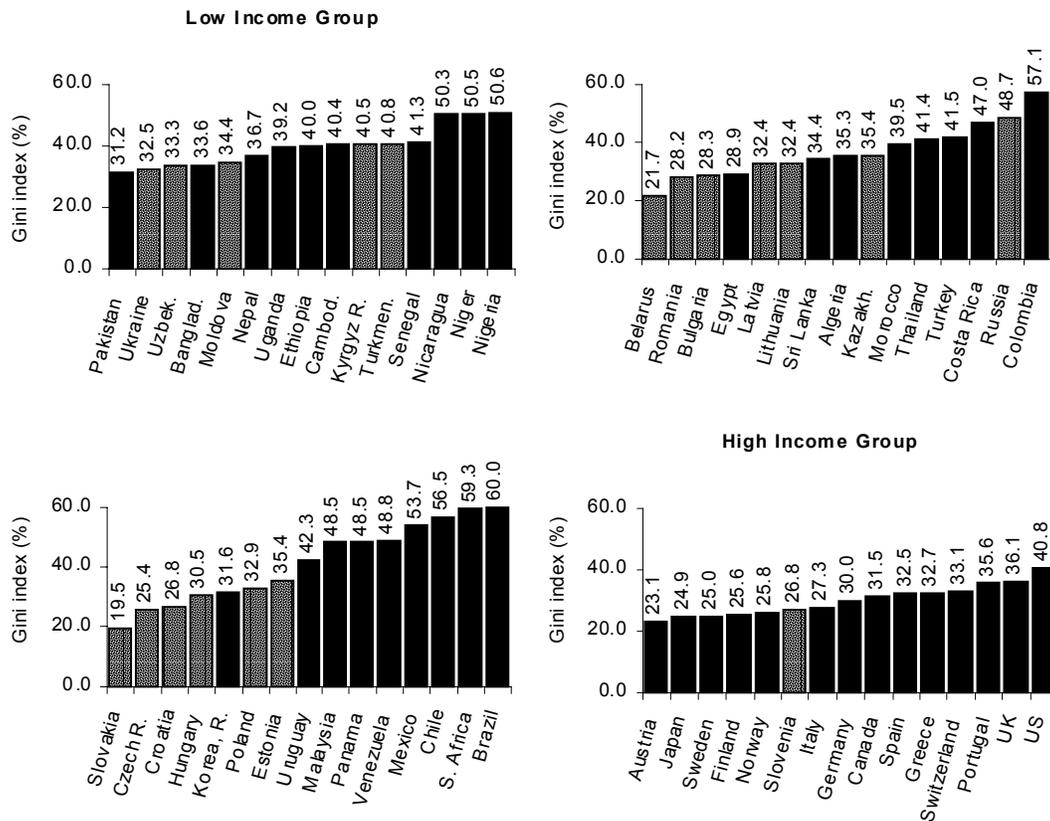


## **2. Income Inequalities in Various Countries**

While the mathematical meaning of a certain Gini index value is easy to comprehend, it is hard to attribute any practical meaning to it, except in the most extreme situations. In practice, however, Gini index values are rarely found under 0.2 or over 0.6. Furthermore, even if attributing some practical meaning to Gini index values were possible, evaluating the achievements of a country without comparing that to other countries is not feasible. For these reasons, a brief survey of actual Gini index values is necessary in evaluating income inequality data from the transition economies of Eastern Europe and Central Asia.

Figure 3.3 displays Gini indices for 60 countries throughout the world, with many of the Eastern European and Central Asian transition countries among them. Within the sample, the Gini index values range from 19.5 % for Slovakia to 60.0 % for Brazil. One third of the countries have Gini indices of 40.5 % or higher, and one third of them have Gini indices of 32.4% or lower.

Figure 3.3. Gini Indices for Selected Countries. (Data from World Bank 2000b, Table 5)



Dates of the surveys vary by country ranging from 1991 to 1999, except for Austria (1987), Spain (1990), and Uruguay (1989). Dotted bars indicate the transition countries of Eastern Europe and Central Asia. Income group classification is based on per capita GNP for 1999. Per capita GNP values are not more than \$755 for the low-income group, between \$756 and \$2,995 for the lower middle-income group, between \$2,996 and \$9,265 for the upper middle-income group, and above \$9,265 for the high-income group. Data from World Bank 2000b, Table 1.

Based on their Gini indices, the transition countries of Eastern Europe and Central Asia tend to show inequalities in the lower side of the spectrum, especially in the middle-income groups, suggesting that the increase in income inequality experienced during the transition is the result of a convergence process. In their 2001 article, Estrin, Urga, and Lazarova analyze the growth patterns of former socialist countries. The authors found no evidence in support of the convergence between the developed and transition economies of the region. Although the article does not examine income inequalities at the household level, it calls attention to the failure of the regional-level reallocation mechanism, a stated

resource redistribution policy to level differences between the different regions of socialist countries.

The paper highlights the failure of the reallocation mechanism within the socialist bloc. Policies to redistribute resources from richer regions to poorer ones within the national entities (e.g., Yugoslavia, Soviet Union, Czechoslovakia) were stated clearly. In a rigorous way, our study shows that this reallocation did not lead to convergence in per capita GDP, with the possible exception of Yugoslavia. (Estrin, Urga, and Lazarova 2001, 690)

On the other hand, many other explanations for the experienced increase in income inequality are still possible. One of them is the dramatic economic decline experienced by all transition countries of the region, even if the decline was to various extents and for various lengths of time.

## **B. ECONOMIC DECLINE**

Shortly after the political changes, the transition economies of Eastern Europe and Central Asia uniformly displayed a dramatic decline in their economic performance. All countries of the region had over a 10 % decrease in their GDP for at least one year, and all of them, except Poland, experienced a decrease in their GDP for at least three subsequent years between 1990 and 1998. Since changes in economic performance of this order of magnitude are likely to have an effect on income inequality, a short discussion of their possible effects on income inequality during the transition is in order.

### **1. Transition and Economic Growth**

While people in Eastern Europe and Central Asia had been waiting for their freedom for a long time, the sudden collapse of the Berlin Wall found them unprepared for the forthcoming changes and necessary adjustments in the economies of their countries. In fact, the causes of the dramatic economic decline were inherent in the centrally planned, socialist economic system, eventually leading to its collapse. However these cases were less visible before the transition to the market-oriented economy started.

#### ***a. Economic Performance during the Transition***

Analyzing the growth prospects of transition economies, Campos (2001) concludes that transition economies of Eastern Europe and Central Asia are still

structurally different from economies of the rest of the world. While the author agrees with the temporary nature of transition, he argues that “The legacies of central planning are more resilient than previously thought”, and he further believes that the transition process may last longer than expected. The author focuses his study on GDP growth between 1990 and 1998. Using data from Campos’s work, Table 3.1 displays annual growth rates of per capita GDP for 25 transition economies from 1990 to 1998, together with their real per capita GDP in 1998 as a percentage of their per capita GDP in 1989. The countries are listed in the order of their overall decrease in per capita GDP between 1989 and 1998. The years with a decrease in per capita GDP are marked by gray shading in the table.

The distribution of the shaded gray cells suggests that countries facing the decline earlier recovered sooner and suffered less from economic crisis. Another remarkable phenomenon is that the former Soviet republics tended to perform badly. With the only exceptions of Estonia, Belarus, and Uzbekistan, they all suffered a decrease by at least a third of their original per capita GDP level. On the other hand, only Bulgaria and Macedonia suffered a decrease of more than a fourth of their original per capita GDP level compared with the former socialist countries of Eastern Europe. Only Slovenia and Poland were able to show some growth in their real per capita GDP during the nine-year period.

Table 3.1. Annual Percentage Growth Rates for 25 Transition Economies (Data from Campos 2001, Table 1)

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	Real GDP in 1998 (1989=100)
Moldova	-2.4	-17.5	-29.1	-1.2	-31.2	-3.0	-8.0	1.3	-8.6	32
Georgia	-12.4	-20.6	-44.8	-25.4	-11.4	2.4	10.5	11.0	2.9	33
Ukraine	-3.4	-11.6	-13.7	-14.2	-23.0	-12.2	-10.0	-3.2	-1.7	37
Armenia	-7.4	-17.1	-52.6	-14.8	5.4	6.9	5.8	3.1	7.2	41
Tajikistan	-1.6	-7.1	-29.0	-11.0	-18.9	-12.5	-4.4	1.7	5.3	42
Turkmenistan	2.0	-4.7	-5.3	-10.0	-18.8	-8.2	-8.0	-26.1	4.2	44
Azerbaijan	-11.7	-0.7	-22.6	-23.1	-19.7	-11.8	1.3	5.8	10.1	44
Russia	-4.0	-5.0	-14.5	-8.7	-12.7	-4.1	-3.5	0.8	-4.6	55
Latvia	2.9	-10.4	-34.9	-14.9	0.6	-0.8	3.3	8.6	3.6	59
Kyrgyz Rep.	3.0	-5.0	-19.0	-16.0	-20.0	-5.4	7.1	9.9	1.8	60
Kazakhstan	-0.4	-13.0	-2.9	-9.2	-12.6	-8.2	0.5	2.0	-2.5	61
Lithuania	-5.0	-6.2	-21.3	-16.0	-9.5	3.5	4.9	7.4	5.2	65
Bulgaria	-9.1	-11.7	-7.3	-1.5	1.8	2.1	-10.1	-7.0	3.5	66
Macedonia	-9.9	-7.0	-8.0	-9.1	-1.8	-1.2	0.8	1.5	2.9	72
Estonia	-8.1	-13.6	-14.2	-9.0	-2.0	4.3	3.9	10.6	4.0	76
Romania	-5.6	-12.9	-8.8	1.5	3.9	7.1	4.1	-6.9	-7.3	76
Croatia	-7.1	-21.1	-11.7	-8.0	5.9	6.8	6.0	6.5	2.3	78
Belarus	-3.0	-1.2	-9.6	-7.6	-12.6	-10.4	2.8	10.4	8.3	78
Albania	-10.0	-27.7	-7.2	9.6	9.4	8.9	9.1	-7.0	8.0	86
Uzbekistan	1.6	-0.5	-11.1	-2.3	-4.2	-0.9	1.6	2.4	3.3	90
Hungary	-3.5	-11.9	-3.1	-0.6	2.9	1.5	1.3	4.6	5.1	95
Czech Rep.	-1.2	-11.5	-3.3	0.6	3.2	6.4	3.8	0.3	-2.3	95
Slovakia	-2.5	-14.6	-6.5	-3.7	4.9	6.9	6.6	6.5	4.4	100
Slovenia	-4.7	-8.9	-5.5	2.8	5.3	4.1	3.5	4.6	3.9	104
Poland	-11.6	-7.0	2.6	3.8	5.2	7.0	6.1	6.9	4.8	117

Note:  Decrease in GDP between 0 and 10 percent.  
 Decrease in GDP between 10 and 20 percent.  
 Decrease in GDP over 20 percent.

Countries are listed in the order of their real GDP in 1998 as a percentage of their GDP in 1989.

The dramatic decline indicated by the data in the table, however, is only partially real. Campos cautions about the comparability of pre-transition and transition data as follows.

Socialist statistical offices had a comparative advantage in measuring quantities and were poorly equipped to deal with issues such as price changes and unemployment. Moreover, the systemic transformation led to radical changes in incentives from fulfilling plan targets to evading taxes, that is, from overreporting to underreporting output. (Campos 2001, 667)

Furthermore, the author mentions that the rapidly growing share of the hidden economy during the initial years of transition is also unaccounted for in the data set. In other words, the experienced economic decline during the early years of transition could be shocking, but not to the extent suggested by the data. There are two ways that the data overstate the decline. First, the expanding hidden economy could partially compensate for the decline of the official economy. Second, a certain portion of the indicated decline could be attributed to the changes in measurement methods and incentives of the respondents and statisticians alike.

***b. Economic Performance Before the Transition***

In any case, the decline was real at least in one sense. While centrally-planned economies were able to fulfill their plans in terms of quantity, the quality of their products was often very low. In addition, they often manufactured different products in large quantities, which were unnecessary for the society. Most of these products were highly demanded in the first two decades after World War II. Central-planners, however, did not cut back on production even after the initially high demand subsided. Additionally, technical development in socialist countries fell behind that of the world. Therefore, the fall of quality adjusted prices in Western economies, caused by the accelerated technological development, made the products of socialist economies less desirable for the consumers at the regulated prices. For these reasons, the real economic decline conceivably started before the transition; however, socialist systems of measuring national economic performance were unable to predict or indicate it earlier.

In their 2001 article, Estrin, Urga, and Lazarova analyzed growth patterns of transition economies from 1970 to 1998 using three different approaches to generate a continuous series of GDP growth rates from 1970 to 1998.

The authors used actual GDP growth rates for the transition period, starting between 1988 and 1992 in former socialist countries, and around 1991 in former

Soviet republics. Since socialist economies did not use the United Nations System of National Accounts to measure economic performance prior to transition, actual GDP growth rates were not available for the pre-transition period. The socialist method, the material product system, was incompatible with the System of National Accounts.

For the pre-transition period, the authors used two different methods. In the case of former socialist countries of Eastern Europe, they used estimated GDP growth rates from 1980 to 1990. For three countries, Hungary, Poland and Romania, these estimates were available from 1975<sup>8</sup>. The authors used the growth rate of net material product from the material product system for socialist countries between 1970 and 1980, and for the former Soviet republics between 1970 and the beginning of the transition “on the assumption that NMP [net material product] and GDP growth rates are equivalent.” (Estrin, Urga, and Lazarova 2001, 682)

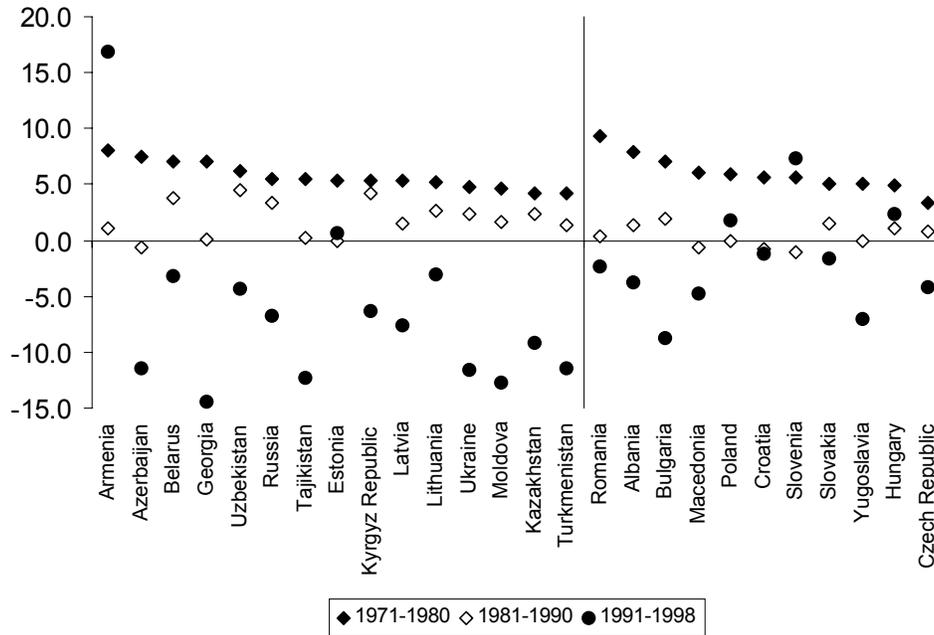
Another problem was that the growth rate of net material product was available for the Soviet Union only. In regards to the Soviet republics, only the proportion of net material product by each republic was available for every five years. The estimated GDP growth rate series were constructed from these two information sources.

Based on the data described above, Estrin, Urga, and Lazarova report average growth rates for periods from 1971 to 1980, from 1981 to 1990, and from 1991 to 1998 (2001, Table 1). These data series are displayed in Figure 3.4. The figure reveals some important phenomena. First, the average growth rate was positive at around 5 % in the first period from 1971 to 1980 for all transition economies. This disciplined order started to break down in the period from 1981 to 1990, turning into an overall decline during the transition years. Second, the growth rates for the different economies became less and less similar to each other. Finally, the average growth rates fell for each economy in the second period, and fell even more, with few exceptions, in the third period.

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<sup>8</sup> The authors used estimates from Marer et al. 1992.

Figure 3.4. Average Growth Rates of Actual and Estimated GDP for Transition Economies between 1970 to 1998 (Data from Estrin, Urga, and Lazarova 2001, Table 1)



Note: The vertical line separates the former Soviet republics from the former socialist countries of Eastern Europe. Based on data from Campos 2001, Table 1, the 16.8 % value for Armenia for the period of 1991-1998 is probably an error. An average growth rate of -16.8 % is more likely.

In summary, economic decline had already started by the time the socialist system collapsed; therefore, the dramatic decline during the transition years was more the consequence of failed economic policies under the socialist system than the consequence of the transition towards market oriented-economies. Additionally, the dramatic decline during the transition suggests that the apparent economic growth of socialist economies before their transition was at least in part the result of the measurement methods. As the national economic output was measured in production quantities instead of values derived from market prices, socialist statistics could indicate a growth in output even if the value of this output was actually decreasing.

## 2. Economic Growth and Inequality

Economic growth is important for various reasons when analyzing income inequality. First of all, equality of income and wealth is only one aspect of human well-

being, and not the most important. The main purpose of studying inequality should be its contribution to the formation of appropriate policies in eliminating poverty. Economic growth can provide a good basis for such policies. Additionally, economic growth and inequality interact with each other. Since changes in economic growth were remarkable in the transition economies, the analysis of possible effect of economic growth or decline on income inequality is a vital part of the discussion.

*a. Economic Development and Inequality in the Transition Economies*

In his 1998 book, Milanovic reports Gini indices for 18 countries of the region for both the pre-transition and transition periods. The pre-transition values are from 1987 or 1988, and the values for the transition period are from the years between 1993 and 1995. The accumulated decline of GDP between 1989 and 1995, approximately the same time period, can be calculated from the annual GDP growth rates shown in Table 3.1 (Campos 2001, Table 1). Based on these sources, Table 3.2 displays the Gini index values and the purchasing power parity based per capita GDP values at the beginning of the transition and several years later.

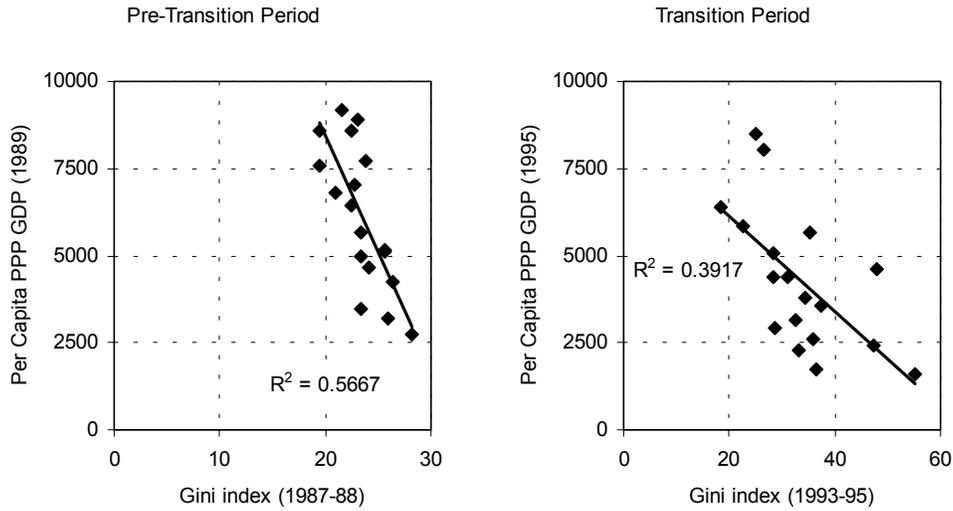
Table 3.2. Gini Indices and PPP Based Per Capita GDP Values for Selected Transition Economies of Eastern Europe and Central Asia (Data from Milanovic 1998, Appendix 4 and Campos 2001, Table 1.)

Country	Gini index		Change in Gini index (percentage points)	PPP GDP per capita (USD)		Real per capita PPP GDP growth between 1989 and 1995 (%)
	1987-88	1993-95		1989	1995	
Belarus	22.8	28.4	5.6	7010	4395	-37.3
Bulgaria	23.3	34.3	11.0	5000	3810	-23.8
Czech Republic	19.4	26.6	7.2	8600	8032	-6.6
Estonia	23.0	35.4	12.4	8900	5643	-36.6
Hungary	21.0	22.6	1.6	6810	5823	-14.5
Kazakhstan	25.7	32.7	7.0	5130	3145	-38.7
Kyrgyz Republic	26.0	55.3	29.3	3180	1603	-49.6
Latvia	22.5	31.0	8.5	8590	4381	-49.0
Lithuania	22.5	37.3	14.8	6430	3549	-44.8
Moldova	24.1	36.5	12.4	4670	1756	-62.4
Poland	25.6	28.4	2.8	5150	5078	-1.4
Romania	23.3	28.6	5.3	3470	2939	-15.3
Russia	23.8	48.0	24.2	7720	4601	-40.4
Slovakia	19.5	18.3	-1.2	7600	6392	-15.9
Slovenia	21.5	25.1	3.6	9200	8510	-7.5
Turkmenistan	26.4	35.8	9.4	4230	2614	-38.2
Ukraine	23.3	47.4	24.1	5680	2425	-57.3
Uzbekistan	28.2	33.3	5.1	2740	2285	-16.6

Note: Per capita PPP GDP values for 1995 are calculated from the values for 1989, using annual growth rates from Campos 2001, Table 1.

The table shows that a decrease of per capita GDP accompanied the increase in income inequality in all of these countries, except Slovakia, where the income inequality decreased slightly. This simultaneous change suggests that income inequality and economic output were related to each other. In fact, as indicated in Figure 3.5, the purchasing power parity based per capita GDP and the income inequality expressed with the Gini index were negatively correlated in both the pre-transition and the transition periods.

Figure 3.5. Per Capita PPP GDP and Income Inequality Expressed with the Gini index in Selected Transition Economies in the Pre-transition and Transition Periods (Data from Milanovic 1998, Appendix 4 and Campos 2001, Table 1.)



Note: Per capita PPP GDP values for 1995 are calculated from the values for 1989, using annual growth rates from Campos 2001, Table 1.

The figure reveals some interesting inherecies. First, the Gini-index values followed the same pattern, but they were dispersed over a wider range during the transition. While the lower end of this range of Gini indices remained around 20, the upper end of the range became more diffuse and substantially higher. The figure also indicates that the changes were more remarkable in the cases of less developed countries. Since pre-transition surveys were less reliable in less developed countries, this behavior suggests that the numbers indicated larger changes when there were more improvements in the survey methods.

Second, per capita GDP and income inequality were more closely related before the transition than during the transition, even when omitting the more unequal Kyrgyz Republic, Russia, and Ukraine, and the more equal Slovakia and Hungary from the transition-time analysis. Without the three highly unequal countries, the  $R^2$  value would be 0.4582 in the transition period. Removing all of these five countries would raise the  $R^2$  value to 0.4788. Compared to the  $R^2$  value of 0.5667 in the pre-transition period,

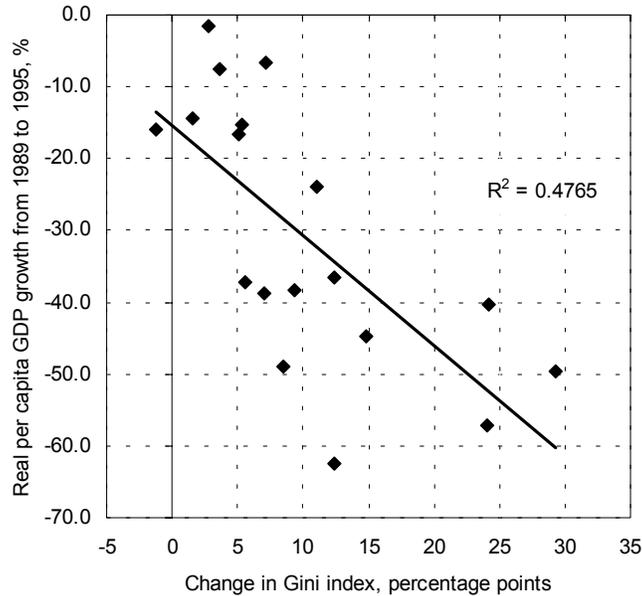
even these higher values indicate a decrease. This decrease in the  $R^2$  value suggests that income inequality became less dependent on the level of per capita GDP during the transition. Assuming that socialist egalitarian values had a role in forming inequalities before the transition, income inequality should have been less dependent on the per capita GDP *before* the transition since deliberate policies toward the equality of income and wealth should have neutralized the effect of the level of per capita GDP on the Gini index.

Finally, two of the three countries having the highest Gini indexes in the transition period, Russia, and Ukraine were the most populous Soviet republics. In addition, Russia, Ukraine, and the Kyrgyz Republic, the country with the highest Gini index in the transition period, experimented with socialism for seventy years. Based on these facts, egalitarian values of socialist ideology should have the most long-lasting effect on income inequality in these countries. The numbers suggest the opposite. Table 3.1 shows that the countries with the highest seven Gini index values during the transition are all former Soviet republics.

***b. Interaction of Growth and Inequality***

In order to decide whether economic growth could have an impact on inequality in the transition economies of Eastern Europe and Central Asia, examining the mechanisms for interaction of growth and inequality in the region is needed. As a starting point, Figure 3.6 displays the relationship between the change in Gini indices and the GDP decline during the early years of the transition.

Figure 3.6. The Relationship between the Change in Gini Index and GDP Decline during the Early Years of Transition (Gini Index Data from Milanovic 1998, Appendix 4 GDP Growth Data from Campos 2001, Table 1.)



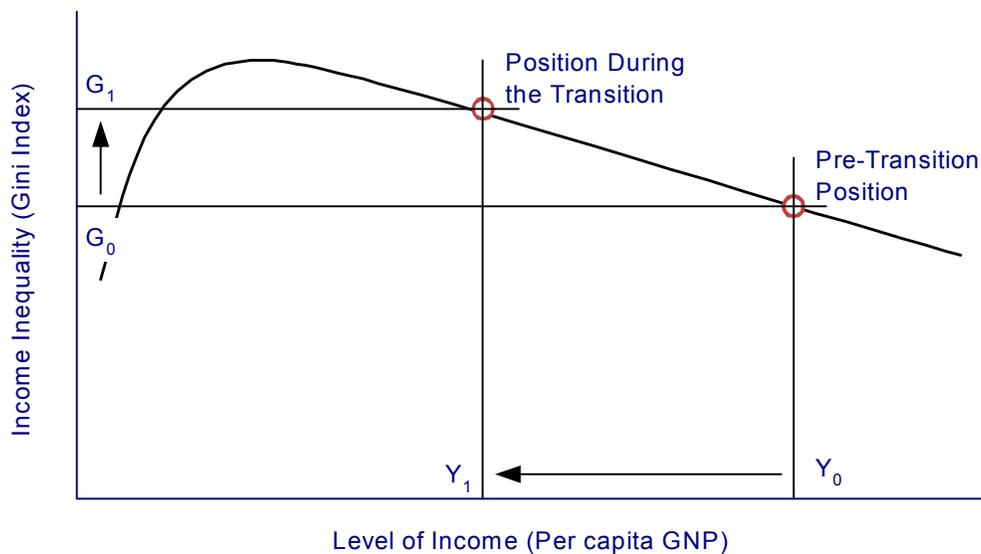
Included countries are Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Turkmenistan, Ukraine, and Uzbekistan.

The figure indicates a negative correlation between the change in Gini index and the change in GDP with an  $R^2$  value of 0.4765. In contrast, Gradstein and Milanovic base their conclusion of the role of socialist egalitarian values in the increase in income inequality on a substantially weaker correlation. They report an  $R^2$  value of 0.14 in the correlation between the change in Gini index and the change in their measure for democratization, the inverted Freedom House index of civil and political freedom (Gradstein and Milanovic 2000, 34). Comparing these  $R^2$  values, it is more likely that income inequalities increased *despite* the progress of democratization, because of the overwhelming negative impact of the experienced economic decline.

Several approaches to the mechanisms of interaction between economic growth and income inequality are available. I will discuss two of them to examine whether the experienced economic decline could have contributed to increasing income inequality during the transition.

Kuznets' hypothesis about the inverted-U relationship between the level of income measured by per capita GNP and income inequality is probably the earliest theoretical model for the relationship of economic development and income inequality. According to the model, inequality rises initially as the per capita income rises and then declines as higher income levels, characteristic of industrial countries, are reached. (Gillis et al. 1996, 80-81). Since the transition economies of Eastern Europe and Central Asia started the transition process with per capita GNP levels in the middle income range, income inequalities have possibly increased as a result of a decreasing per capita income in these countries, as illustrated on Figure 3.7.

Figure 3.7. Decreasing Per Capita Income and Increasing Income Inequality in Kuznets' Model



Although Kuznets' model had been influential, the practical evidence in support of the model is rather weak. In their 1999 article, Aghion, Caroli, and García-Peñalosa report that while the Kuznets hypothesis explained tendencies in the US and in most OECD countries up to the 1970s, the relevance of the Kuznets curve was challenged more than twenty years ago in the case of developing countries.<sup>9</sup> Even more important from the aspect of transition is the following statement:

<sup>9</sup> The authors refer to Adelman and Morris 1973, and Anand and Kanbur 1993.

However, the downward trend in inequality experienced by these economies [OECD countries] during the twentieth century has reversed sharply in recent times. In particular, the past fifteen years have witnessed a significant increase in wage inequality. (Aghion, Caroli, and García-Peñalosa 1999, 1616)<sup>10</sup>

This period of time, the last fifteen years, roughly coincides with the time frame of transition. If inequality increased in the developed economies during the same time, transition may not be the only reason for an increase in income inequality in the transition economies. The increase in developed countries could have spread to former socialist countries causing an increase in the already existing inequalities that made hiding the differences no longer possible.

Aghion, Caroli, and García-Peñalosa (1999) also analyzed the mechanisms of the interaction between inequality and growth in their article, examining both the impact of inequality on growth and the impact of growth on inequality. The authors argue that when looking at the effect of inequality on growth, wealth inequality should be examined because it “can affect aggregate output and growth through its impact on individual investment in human or physical capital” (Aghion, Caroli, and García-Peñalosa 1999, 1617). On the other hand, when looking at the effect of growth on inequality, wage inequality should be considered so that changes in labor earning and other income sources can be distinguished.

Unfortunately, few data exist about the distribution of wealth. Therefore researchers use proxies in empirical studies such as income inequality and, at times, the distribution of land. It is difficult, however, to compare the transition and pre-transition period when identifying the effect of inequality on growth. With state ownership of the means of production and distribution, wealth or income inequality might have affected economic growth through a mechanism which did not exist in market economies. On the other hand, the authors’ findings are relevant to the transition period.

Regarding the effect of inequality on economic growth, the authors found that “when capital markets are highly imperfect and the production technology exhibits diminishing returns to capital, inequality in the distribution of wealth is bad for growth.”

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<sup>10</sup> The authors refer to OECD *Employment Outlook*, 1993, 61-62.

(Aghion, Caroli, and García-Peñalosa 1999, 1630) Examining the development of financial architecture in transition, Berglof and Bolton (2002) report a great divide among the transition economies based on their financial development. Despite the differences, however, the authors observe that “banking and other financial institutions do not yet perform their intended functions of channeling savings into the most productive investments” (Berglof and Bolton 2002, 96) even in the financially more developed countries of the region. The authors also report that countries falling behind with financial reforms also experience longer and deeper economic crises. In summary, the increase in income inequality, together with capital market imperfections, probably had a role in the experienced economic decline in the transition countries.

Regarding the effect of growth on inequality, Aghion, Caroli, and García-Peñalosa report a “substantial increase in earnings inequality in several OECD countries during the past twenty years” (1999, 1632-33). This increase was characterized by greater differences in education and age, and an increase in within-group wage inequality. The authors found skill-biased technical development to be the main reason for the changes. They argue that technical development affect the productivity of various types of labor differently, causing changes in income distribution. Although the authors examined OECD countries, where the increase in income inequality was accompanied by economic growth, skill-biased technical development probably affected transition economies also. These countries did not access advanced Western technologies before their transition. Consequently, the countries experienced the same technological changes in a shorter time during their transition. In these circumstances, technological changes might have cause an even greater increase in income inequality in transition economies than in OECD countries.

In summary, two important lessons have emerged from the discussion of growth and inequality in transition economies. First, dramatic changes of the overall economic performance had a great impact on the patterns of inequality. While democratization and political liberalization alone could have reduced inequalities in the transition countries, the dramatic decline in economic performance had the opposite effect. Additionally, technological changes, driving economic growth in developed countries, could have also

contributed to the increase in income inequality in the transition economies, without having a strongly positive effect on economic growth. The other lesson is probably even more important. As seen earlier in this chapter, economic decline started before the transition and the increase in income inequality was positively correlated with the decline in per capita GDP during the transition. Kuznets' model also predicts an increase in income inequality caused by a decrease in per capita GNP for socialist countries as seen in Figure 3.7 earlier. Consequently, an increase in income inequality should have been seen well before the transition period. This increase, however, did not appear in the data, suggesting unreported inaccuracies in income inequality data for the pre-transition period.

### **C. OTHER FACTORS AFFECTING INEQUALITY**

Besides economic growth and democratization, many other factors affected inequality in the transition economies. Legacies of socialism, with wars, crime, and corruption among them, are probably the most important; however, the revaluation of natural resources and geographical accessibility of each country could have also contributed to the differences between them. The possible effects of these factors on inequality will be discussed later.

#### **1. Corruption**

In 1991, at a conference held in Visegrád, Hungary three former socialist countries, Czechoslovakia, Hungary, and Poland agreed to cooperate in seeking NATO and EU membership. Although Czechoslovakia separated into two independent countries, the Czech Republic and Slovakia, in 1993, these countries avoided major political turmoil during their transition, with their economies recovering quickly after a short initial decline in the early 1990s.

On the other hand, today corruption and problems in implementing policies due to administrative weaknesses of their governments are still problems even in these countries (European Commission 2000a,b,c,d, 2001). Without a doubt, the less developed former socialist countries are not devoid of corruption either.

In their 1998 article, Gupta, Davoodi, and Alonso-Terme provide evidence that corruption increases both income inequality and poverty to a considerable extent. The

authors argue that corruption reduces economic growth, the progressivity of the tax system, the level and effectiveness of government transfers, and the formation of human capital. Since a less progressive tax system would encourage economic growth in normal circumstances, this factor deserves more attention. Corruption reduces the progressivity of the tax system through bribes paid by low income individuals to government officials. The problem with this mechanism is that this it does not reduce the overall marginal tax rates for the recipients of bribes. Their marginal tax rate for all legal activities remains the same while the marginal tax rate on bribes received is zero. In addition, officials cannot secure their income from corruption if they work efficiently without bribes. Consequently, corruption creates incentives only for even more corruption and not for more efficient work.

Analyzing a correlation and causative relationship between six different corruption indices and various economic indices, the authors found that “worsening in the corruption index of a country by one standard deviation (2.52 points on a scale of 0 to 10) increases the Gini coefficient by 5.4 points.” (Gupta, Hamid, and Alonso-Terme 1998, 29)

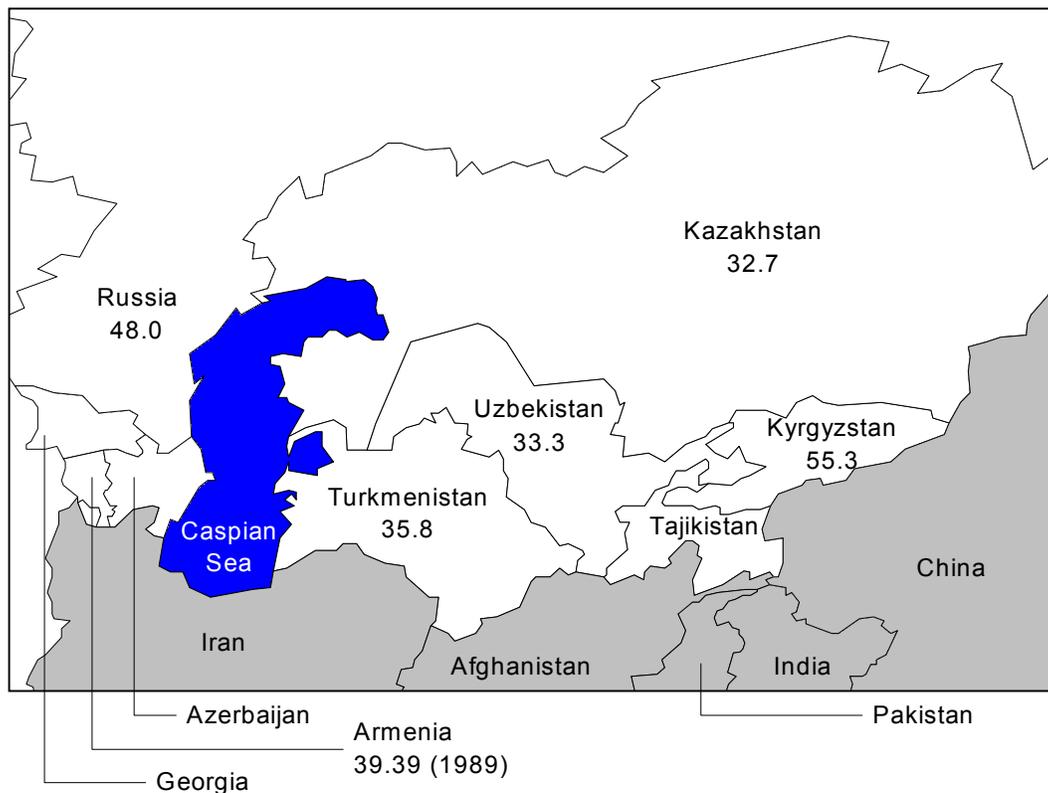
## **2. Natural Resources and Geography**

After the collapse of socialism, natural resources became more important in the transition economies of Eastern Europe and Central Asia for two reasons. First, with the end of central planning and the appearance of market prices, the principles of determining the value of a good were changed radically. In the socialist system, the work vested in the production of a good determined its value without the consideration of any other factors of production. Consequently, the value of natural resources was zero until they were exploited, and then it varied by the amount of labor necessary to exploit them. This absurd evaluation changed soon after the transition process had started and natural resources were evaluated on their market value. Second, with the decline of production, the sale of raw materials and energy sources totaled a larger portion of the economic output of these countries.

Probably the most valuable resources, huge deposits of oil and natural gas, are concentrated around the Caspian Sea, in the Caucasian and Central Asian region, as displayed on Figure 3.8. Around the Caspian Sea, Azerbaijan, Kazakhstan, and

Turkmenistan have the largest oil reserves. Russia also has huge deposits of oil and natural gas in both the Caspian region and Siberia. This wealth of natural resources could easily be the basis of an economic development providing fairly-high living standards for the people of these republics. Unfortunately, the area is geographically isolated. The war over the secession of Chechnya in Southern Russia has hindered development in the Caucasian region and has isolated Azerbaijan from its potential markets. Kazakhstan and Turkmenistan sell most of their oil and natural gas through Russia. Turkmenistan has sold natural gas to Iran since 1998, but Russia has refused to transport Turkmen gas to the European market (Edward 2002, 123).

Figure 3.8. The Central Asian and Caucasian Republics of the CIS



Gini indices in percentage for years from 1993 to 1995 are displayed under the names of the countries (data from Milanovic 1998, Appendix 4). No Gini index value was available for Azerbaijan, Georgia and Tajikistan. The Gini index for Armenia is for 1989 (World Bank 1997.)

Despite its potential to drive overall economic development, oil contributed to income inequality in the region to a great extent. All of the Central Asian republics have authoritative governments. The national unemployment rate in Kazakhstan is 14 percent, with rates of 50 percent in cities away from the oil fields. In Turkmenistan, cotton production using outdated methods is still the source of income for nearly half of the workforce, while President-for-life Saparmurat Niyazov destroys homes in the center of the capital, Ashgabat, to get a site for his new marble palace. The less fortunate neighbors of these oil rich republics experience even deeper crises. The Kyrgyz Republic has the highest Gini index among the transition economies with bands of radical Islamic guerillas from neighboring Tajikistan battling Kyrgyz troops and taking hostages in the country. Tajikistan has been in a state of war since 1991. Most of its terrain is mountainous; cotton is still the main crop in the small arable areas. Militia leaders still control regions of the country and some commanders are allegedly involved in smuggling opium from Afghanistan. The guerilla war also touches neighboring Uzbekistan, where President Islam Karimov has established an oppressive regime to fight the guerillas and his political opponents. Cotton production, the main source of income in the country, is also controlled by the state through state farms and artificially-low buying prices. (Edwards 2002, 114-125)

### **3. Civil Wars and Violent Conflicts**

Besides the abuse of power by the government officials of oil-rich former Soviet republics, civil wars and violent conflicts have also contributed to the income inequality in many former socialist countries. The Yugoslavian war was probably the most remarkable civil war in the region; the war still continues in the Caucasian region and in Tajikistan. While ethnic and religious conflicts always provided an explanation for these conflicts, they had some other common characteristics as well. As Collier argues “Conflicts are far more likely to be caused by economic opportunities than by grievance.” (Collier 1999, 1) In fact, the author found that ethnic and religious fractionalization significantly reduced the risk of conflict.

Civil wars are likely to increase inequality by inflicting a high cost on the economy and creating certain new opportunities for profit. Collier observed an increase in crime and opportunistic business practices and a decrease in competition, as it became

harder to enter the market in civil war societies. The different sides often fight for control over resources or transportation routes. In addition, since the war itself may be a source of profit, adversaries do not necessarily fight for victory. The author found that regions characterized by “The combination of large export of primary commodities, low education, a high proportion of young men and economic decline” (Collier 1999, 14) carry the highest risk of civil war and major violent conflict. Similar combinations of economic factors characterized all the major conflicts in the transition economies of Eastern Europe and Central Asia.

In the 1980s, a stagnant economy made the differences between the Western and Eastern republics of former Yugoslavia more important (Sowards 2000). Adriatic tourism and industries capable of producing goods for export were concentrated in Slovenia and Croatia; these republics were less willing to pay the subsidies for unproductive factories in Serbia and Macedonia. At the same time, Serbian nationalism was on the rise and Milosevic, Serb President and communist leader, successfully used it to disarm his opposition. The growing tension escalated to war in June 1991 after Serbia refused to hand over the presidency to Croatia when it was due in May, 1991. The impossibility of preventing Slovenian and Croatian secession soon became obvious when member states of the European Community recognized Slovenian and Croatian independence. During the different phases of the war, Serbia fought for territorial gain in Croatia and Bosnia-Herzegovina and oppressed ethnic Albanians in Kosovo. While the Serbs did not achieve their goals in the war, many of the profit seeking warlords of the country probably “did well out of war”.

Economic reasons are also dominant in the conflicts of the Caucasian region and in the fights in and around Tajikistan. Both of these regions experienced severe economic decline soon after the collapse of the Soviet Union and probably even earlier. Primary commodities, like oil and cotton are the main products in both region, and the same Fergana Valley is the richest farming area of both Uzbekistan and Tajikistan in Central Asia (Edwards 2002).

#### **4. Organized Crime**

Organized crime is also part of life in transition economies. Williams’ (1999) observation about the Russian Federation is also true for other countries in the region:

“the old symbiotic relationship between the state apparatus and the black market criminals – a relationship that was essentially under the control of the state – has been replaced by a new symbiotic relationship dominated by the criminal organizations themselves.” (Williams 1999, 203) To a certain extent, the otherwise positive changes in the economic system have also helped the criminals. Analyzing the economics of organized crime in Russia, Millar observes that “The disappearance of many former central control systems ..., the creation of novel property arrangements (such as privatization), and the now virtually unlimited and unregulated access to retail markets have greatly expanded the opportunities for economic crime.” (Millar 1996, 207). In addition, these changes have also curtailed the elites’ opportunities for legal and semi-legal pillage of state resources through their privileges and connections.

In fact, the socialist regime was an incubator for organized crime. Elite privileges have built a perception that everything from the state is free. During this period, connections between criminals and state elite has also been established. As a result, behavioral norms of the whole society have been shifted towards more tolerance to crime. Supplementing wages by using company resources (tools, machines and supply) for moonlighting and stealing supplies and equipment was rather the norm than the exception at all levels. With political liberalization the fear from punishment decreased, while incentives became even stronger as stolen equipment were able to be legally used in small private enterprises.

Another driving factor for organized crime was economic decline. High unemployment rates and inflation, together with weak implementation of new government policies and the defects of law enforcement, led to a rise in unorganized criminal activities. As organized crime provided goods and services to criminals (Millar 1996, 207), the growth of unorganized crime provided opportunity for organized crime as well. Weak law enforcement also invited foreign criminal groups into the former socialist countries. (Williams 1999). As a result, Albanian, Chechen, Ukrainian and even Chinese crime groups, among others, became more active in Eastern Europe and in the former Soviet Union, with ties between Russian and Italian organized crime groups becoming stronger.

Undoubtedly, former Soviet republics suffered the most from organized crime. With the collapse of the Soviet Union, a common judicial space ceased to exist. While border control and law enforcement have been weak, coordination among justice systems have been limited with no consistent legal norms in place in these countries. As a result, organized crime controls 70 to 80 percent of private banks in the Russian Federation (Williams 1999, 178, 189).

Organized crime imposes an extra cost on transition economies. In addition, the argument that after accumulating a certain level of capital, these crime groups may transform themselves into successful legal businesses is also unfounded. If criminal organizations were transformable into legal businesses, it could be done in three different ways: by legalizing their products and services (e.g. the sale of soft drugs), by purchasing legitimate businesses, or by serving as schools for entrepreneurship. Millar (1999) argues that none of the above is likely in Russia, and his argument is also applicable to the other transition economies. As these organizations could not compete with established legitimate companies, legalizing their products or services forced them out of business. Purchasing legitimate businesses is not a valid option either, because crime groups would rather invest in the stable capital markets of developed countries than in unstable economies of their host countries. Finally, crime organizations cannot serve as schools of entrepreneurship because the conduct of business is substantially different from legitimate a business environment.

Despite its negative effects, organized crime is more of a symptom of economic and political problems than a reason for the same. On the other hand, privatization transferred great wealth to a small, strategically-positioned elite, popularly identified as criminals. For this reason, the importance of the high level of crime lies in its potential to fuel nostalgia for the socialist system, in which these problems were less visible. This nostalgia then would hinder development, while maintaining and increasing the influence of both the former elite and organized crime on the society.

#### **IV. EFFECTS OF THE CHANGING MEASUREMENT METHODS**

The transition from a centrally-planned to market-oriented economic system is in itself a dynamic and complex process. The changes in ownership structure, tax systems, economic control mechanisms and the role of the state in the economy have been not only quantitative, but also qualitative. In fact, these profound changes themselves have made any comparison between pre-transition and transition economic indices difficult and ambiguous. The same applies for the measurement of inequality. The transition has not only affected the shares of total income for different groups, but has also affected the distribution mechanisms to a great extent. For example, government transfers still constitute a major part of the income in the transition countries, and the system of these transfers has gone through major changes. Another example of factors effecting inequality is the personal income tax, which was non-existent in most transition countries before the transition.

In addition to these changes, the transition process has also affected the institutions responsible for measuring and tracking economic trends and indices. These changes involved changes in measurement methods and survey practices, including profound changes in the quality of work. The changes, however, did not follow the same path in all countries. After more than ten years of transition, survey and measurement methods are still not uniform in the transition countries of Eastern Europe and Central Asia, with major differences between a group of former socialist republics and the rest of the countries. Major differences between the methods used prior to transition in various countries and the significant but immeasurable improvements in the quality of work further complicate the picture.

Because of the nature and order of magnitude of these changes, I can not provide exact correction factors for the inaccuracies inherent in the data. Nevertheless, I provide a brief summary of the possible effects of changes in measurement methods with useful examples from the OECD countries. In the second part of the chapter, I provide further specific examples to the transition countries, which are likely to have a major impact on inequality measures.

## **A. THE DIFFICULTIES OF MEASURING INCOME INEQUALITY**

In his 1995 book on measuring inequality, Cowell describes the problems of inequality measurement. The author distinguishes five categories of possible problems: data, computation, appraisal of the results, special function forms and interpretation (Cowell 1995, 92-134). Assuming that all of these problems except those related to data quality can be equally handled by the researcher for the transition countries as for others, I discuss data-related problems in this chapter.

### **1. Income Definition**

The first problem is defining the income to be measured. The researcher has to decide what income components should be included in what time period. While a more focused definition makes the measurement simpler, it also results in a less accurate measure of inequality than an all-inclusive definition.

#### ***a. Time Period***

The first problem is that income changes in time with seasonal and random fluctuations in the short run and with the age of the recipient in the long run. In addition, some income components may be less frequent and therefore not be measured in the survey on monthly income. Most of these short-term fluctuations, however, can be handled by measuring yearly income. On the other hand, measuring yearly income does not solve the problem of age-related inequalities. Although the measurement of lifetime income could help in theory, it would be much more of an estimate based on many assumptions than a real measurement (Cowell 1999, 99).

In response to the reasons above, a common practice is to measure yearly income, even though, at times, surveys focus on shorter periods and include income for one month or a quarter of a year only. Depending on the scope of the survey and the composition of the economy, the errors from these shorter surveys may be both random and systematic. Unfortunately, as already seen in Table 2.1, surveys in the former socialist countries of Eastern Europe and Central Asia included income for different time periods from one month to a whole year. When addressing the effect of seasonal fluctuations and high inflation, which was present in many of these countries, surveys based on monthly income during different periods of the year could have resulted in significant differences. Another problem is that the time period of surveys changed in

many of these countries. In addition, countries displaying larger increases in income inequality tended to have more changes in their survey methods, suggesting that these changes might have affected the results.

**b. Income Components**

Another questionable area is the income components included in the measurement. A survey consisting of fewer components is less suitable in providing an accurate picture of the real differences among income recipients. On the other hand, a survey on disposable income requires careful consideration in adjusting for direct and indirect taxes, government transfers and other transfer income, and for in-kind benefits. As an example of this complexity, Table 4.1 displays the different income components used in the *Luxemburg Income Study* [2002].

Table 4.1 Income Components Used in the Luxemburg Income Study (Data from *Luxembourg Income Study* [2002])

+ Gross wages and salaries	
+ Farm self-employment income	
+ Non-farm self-employment income	
<hr/>	
= Total earnings	
+ Cash property income	
<hr/>	
= Factor income	
+ Private pensions	
+ Public sector pensions	
<hr/>	
= Market income	→
	Market income
	+ Social retirement benefits
	+ Child or family allowances
	+ Unemployment compensation
	+ Sick pay
	+ Accident pay
	+ Disability pay
	+ Maternity pay
	+ Military/vet/war benefits
	+ Other social insurance
	+ Means-tested cash benefits
	+ Near-cash benefits
	+ Alimony or Child Support
	+ Other regular private income
	+ Other cash income
	<hr/>
	= Total gross income
	- Mandatory contributions for self-employed
	- Mandatory employee contribution
	- Income tax
	<hr/>
	= Disposable income

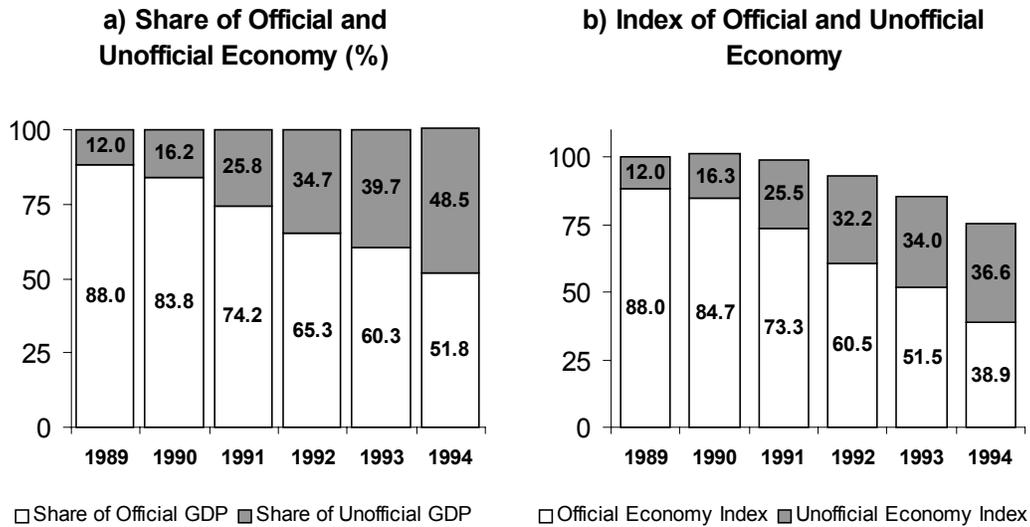
Even this complex decomposition of disposable income is not perfect. For example, if alimony is added to the income of a recipient, it should be listed among the

deductions also since it decreases the income of another recipient. In the case of former socialist countries, however, bigger problems also exist especially in the pre-transition surveys. Milanovic (1998) reported income definition problems for 15 countries in the pre-transition period, and 9 countries during the transition from a sample of 18 countries (see Table 2.1).

One of the major difficulties in the pre-transition era is the valuation of in-kind components of government transfers. Part of the problem is the lack of established market values; however, the effect of shortages is even more important. Even if certain goods and services “should have” been provided by the state, the effort needed to get it was substantially different for different income recipients because of the shortages. While this difference in the necessary effort was systematic, it was not measured in any of the surveys.

Another problem of the income definition is the size of unofficial economy. Kaufmann and Kaliberda argue that unofficial activities in these countries are “not necessarily small, nor are they relatively invisible” because “many unofficial activities take place within large state enterprises where part of the operation is official and part is unofficial. Both are equally visible except for accounting and bookkeeping purposes.” (Kaufmann and Kaliberda 1996, 83) Using Ukraine’s electricity consumption as a proxy for the real overall GDP, the authors estimated the growth indices and the relative shares of official and unofficial GDP in Ukraine as displayed in Figure 4.1.

Figure 4.1. Indices and Relative Shares of Ukraine's Official and Unofficial GDP during the Early Years of Transition  
(Data from Kaufmann and Kaliberda 1996, Table 4.4 and Table 4.5)



As the figure shows, the share of the unofficial economy increased from 12 percent of the overall GDP to 48.5 percent in five years. Even more interesting are the indices of official and unofficial economies. While the overall and the official economy declined substantially during the five year period, a more than 200 percent increase occurred in the unofficial part of the economy.

Other countries experienced similar changes during the same time period. Examining five former socialist countries and eleven former Soviet republics, Kaufmann and Kaliberda report a decrease in the share of unofficial economy only in three countries, Uzbekistan, Poland and Romania (Kaufmann and Kaliberda 1996, Figure 4.4). Seven of the former Soviet republics had a share of unofficial economy over 30 percent, three over 40 percent with Georgia showing a share of unofficial economy above 60 percent. How these high proportions of unofficial economy affected income inequality measures is unclear. Based on recent findings on survey data quality and respondent behavior in transition economies, I believe that the increase in the share of unofficial economy contributed to the increase in measured income inequality and possibly decreased the real income inequality at the same time. Filer and Hanousek found that

response rates are far lower in these countries than in the West, “with those who opt not to respond consisting a nonrandom portion of the population.” (Filer and Hanousek 2002, 237). The authors also found that answers to a survey are usually not reliable. Another factor is the still large proportion of government transfers in total income, creating an incentive to underreport income from other sources. As income from unofficial activity is easier to hide, a higher share of unofficial economy means more distortion in the survey results.

## **2. Income Recipient Unit**

Surveys may also differ in their basic income recipient unit, which is most often either family or household. The surveys of the transition countries differ in this sense also due to basic income recipient units of the surveys changing both from country to country and from pre-transition to transition period (Milanovic 1998). Since the needs of households or families of different composition are not the same, family or household incomes should be adjusted based on the composition of the income recipient unit. The methods and correction coefficients of adjustment for different surveys are not necessarily the same, and are definitely different for surveys with different income recipient units. With the changes in survey methods, these adjustments will need to also change, making any comparisons over time even harder.

Another problem arises when countries switch from one type of income recipient unit to another. For example, family-based income surveys include family members not cohabitating and household-based surveys include non family members. If there are no dynamic changes in the society, either of the two methods is useful for comparisons over time, but switching from one method to the other has its own effect on the measured income inequality even in societies other than the transition countries.

## **3. Representativeness**

An important feature of surveys on income inequality is the representativeness of the sample. If the survey systematically omits certain income groups from the sample, the survey results will be biased heavily and systematically. In addition, the lack of representativeness may not only hide important problems of the society but also hide the problem with representativeness itself.

The two main threats against representativeness are non-random sample selection, and low response rates with a non-random pattern of people who refuse to answer. Both of these were present in the transition countries of Eastern Europe and Central Asia. The Soviet-type family budget surveys, used in the Soviet Union before its collapse and many former Soviet republics during the transition, were clearly examples of non-random sample selection. These surveys were based on quota sampling; workers and farmers selected by their supervisors were asked to cooperate with statistical authorities (Milanovic 1998). In addition, Filer and Hanousek observed that in transition countries “response rates to surveys are generally far lower than in the West, with those who opt not to respond constituting a nonrandom portion of the population.” (Filer and Hanousek 2002, 237)

Changes in representativeness are also important when comparing an unbiased result to a biased result that may falsely suggest a change in the measured income inequality. At the same time, the representativeness of survey methods has also changed in many of the transition countries as displayed in Table 4.2. Half of the 18 countries examined by Milanovic (1998) have improved survey representativeness significantly. Four countries already had acceptable survey methods from this perspective, and another four remained non-representative. One country, Slovakia was transferred from the “Representative” group to the “Non-representative” group. Interestingly, the same Slovakia was the only country showing a decrease in income inequality during the same time period.

Table 4.2. Survey Representativeness in 18 Eastern European and Central Asian Transition Countries Before and During the Transition (Data from Milanovic 1998, Tables A1.1, A1.2, and A1.3)

		Transition Period	
		Representative	Non-representative
Pre-transition Period	Repre- sentative	Bulgaria Czech Republic Hungary Slovenia	Slovakia <sup>a</sup>
	Non-representative	Belarus <sup>d</sup> Estonia <sup>d</sup> Kyrgyz Republic <sup>d</sup> Latvia <sup>d</sup> Lithuania <sup>d</sup> Poland <sup>b</sup> Romania <sup>c</sup> Russia <sup>d</sup> Ukraine <sup>d</sup>	Kazakhstan <sup>d</sup> Moldova <sup>d</sup> Turkmenistan <sup>d</sup> Uzbekistan <sup>d</sup>
<sup>a</sup> Excludes pensioner-headed household with economically active members and households headed by the unemployed from the transition year survey. <sup>b</sup> Excludes non-agricultural private sector, army and police in the pre-transition survey. <sup>c</sup> Overrepresents wage earners, underrepresents pensioners and excludes households headed by the unemployed from the pre-transition survey. <sup>d</sup> Overrepresents workers, and “average” earners and “typical” families and underrepresents pensioners. Pre-transition Soviet survey was based on the “branch of production” sampling.			

Figure 4.2 reveals even more the effect of changes in survey representativeness. Slovakia, the only country in part *a*) of the figure, displayed a decrease in income inequality, but its survey method changed from a representative to a non-representative method. The countries that had a representative survey method in both the pre-transition and the transition period are displayed in part *b*). The Gini indices of these countries slightly increased but remained moderate and relatively close to each other. At the same time, their pre-transition Gini indices were relatively diverse. The countries in part *c*) transformed their non-representative survey methods to representative methods. These countries display the closest Gini indices in the pre-transition period and the most diverse Gini indices in the transition period. Finally, the countries having non-representative survey methods in both periods are represented in part *d*) of Figure 4.2. These countries show a similar pattern to those in the second group with slightly higher and less diverse Gini indices in both the pre-transition and the transition period.

Figure 4.2. Changes in Measured Income Inequality and Survey Representativity in 18 Transition Countries  
 (Data from Milanovic 1998, Tables A1.1, A1.2, A1.3, and Appendix 4)

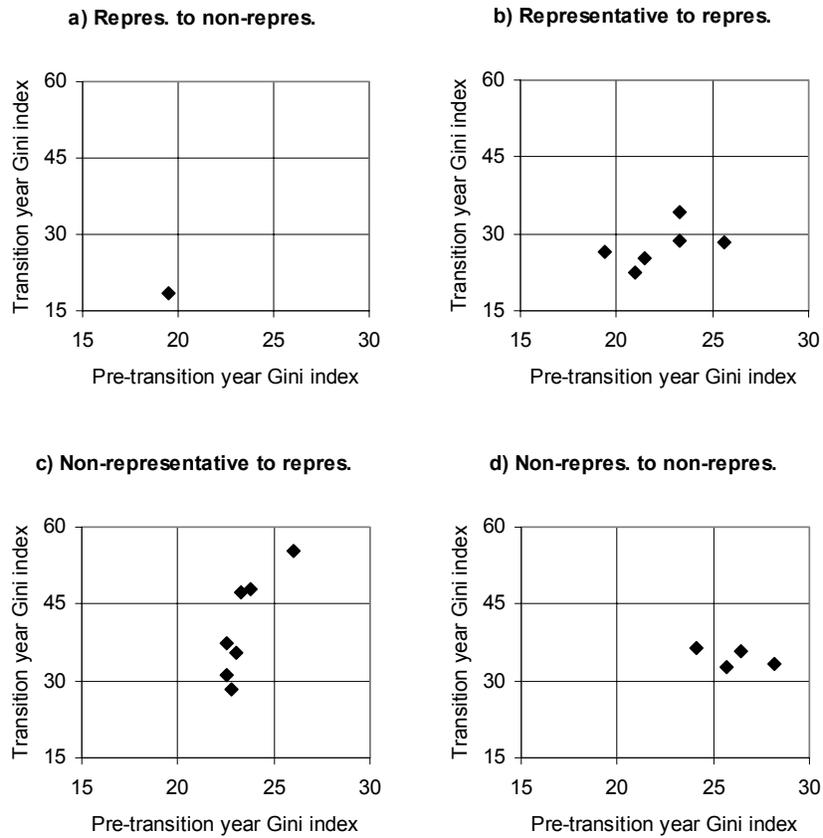


Figure 4.2 has two important lessons. First, representative surveys reveal more differences between countries and higher income inequalities than non-representative surveys. Second, changing the survey method from non-representative to representative seems to have a dramatic impact on survey results with the highest inequalities in the transition period, questioning again the validity of the observations about an increase in income inequality in the transition economies.

#### 4. The OECD Example

Many signals indicating the substantial distorting effect of inconsistency in survey methods have occurred so far. Unfortunately, the lack of reliable data from the pre-

transition period makes a quantitative analysis impossible. Since the changes in survey methods coincided with other dramatic changes in the transition countries, and these changes took place in the same time period in each of these countries, even an estimate of the bias in pre-transition data is impossible. The only hope of estimating the effect of such changes in measurement methods is to look for examples from other countries with less dramatic changes in their economic or political systems. Member countries of the Organization for Economic Cooperation and Development (OECD) are ideal candidates for this role.

In their 2001 article, Atkinson and Brandolini analyzed the usefulness of secondary data sets on income inequality in the case of OECD countries.<sup>11</sup> In their study, the authors concentrated on the World Bank data set constructed by Deininger and Squire (World Bank 1997), which is also widely used in the research on transition economies. While the authors focus on OECD member countries because of the availability of alternative sources for comparisons, they argue that the issues addressed in the study are generally applicable.

The authors identified many problems in the use of secondary data sets for cross-country and over-time comparisons. The source of these problems is the lack of an agreed basis of definition for income components to be used in income inequality surveys and calculation methods of Gini indices. As a consequence, income inequality measures are not necessarily consistent over time and comparable across countries even in the case of OECD countries. Using a comparison between two sets of data<sup>12</sup>, Atkinson and Brandolini found that the ranking of OECD countries by the two estimates are dissimilar while the correlation coefficient of the Gini indices in the two different sets of data is only 0.48. The authors found the reason for this difference in the variant definitions and data.

Using data from the official income inequality series of the Central Bureau of Statistics of Netherlands, the authors showed that changes in measurement methods and

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<sup>11</sup> Although the OECD was formed in 1961, the authors refer to its members as OECD countries in earlier periods as well. The authors do not include countries that joined in the 1990s (Mexico, Korea, Czech Republic, Hungary, Poland), and they also exclude Iceland and Turkey for their lack of familiarity with the data of these countries. (Atkinson and Brandolini 2001, 775)

<sup>12</sup> The authors compared high quality data, marked as “accept” series, from the Deininger and Squire data set (World Bank 1997) and data from the study of Gottschalk and Smeeding (1997).

income concept reversed the trend in inequality, presenting a decrease as an increase in income inequalities during the late 1980s (Atkinson and Brandolini 2001, 780). The authors also argue that household surveys, widely used in the case of transition economies, are subject to problems of sample unrepresentativeness and differences in data processing methods.

In regards to these differences and the order of magnitude of their possible effect, the authors referred to previous studies. One of these, a study from the Office of National Statistics (1999) of the United Kingdom reported that the Gini index for disposable income was a 4-percentage point lower than the Gini index for gross income. Another study from Barro (2000) reported a 5-percentage point lower Gini indices for income net of taxes than income gross of taxes. Finally, Deininger and Squire (1996) found that income-based estimates are on average 6.6 percentage points higher than expenditure-based estimates.

Since differences in survey methods both between countries and over time were larger in the case of transition countries than in the case of OECD countries, the impact of the changes and variance in measurement methods should also have been bigger. In other words, the indicated increase in income inequality could be at least in part attributed to changes in measurement methods in the transition countries of Eastern Europe and Central Asia.

## **B. IMPACT OF CHANGING MEASUREMENT METHODS**

As seen above, the possibility of a quantitative analysis for the impact of changing measurement methods is limited by the lack of reliable data in the pre-transition period and the great variety of parallel changes in the transition countries. On the other hand, the example of the OECD countries shows the significance of the impact of these changes. Since quantitative analysis is not feasible, I discuss the role of changing measurement methods on a qualitative basis in this section.

### **1. Changes in Measurement Methods and Changes in Inequality**

Measuring inequality is a complex process greatly influenced by assumptions and agreements on definitions, even if the same theoretical concept is used in each different case. In other words, it is impossible to describe different inequality measurement

methods with a scalar index for the purpose of making them comparable. On the other hand, comparing measurement methods in time and across countries reveals more about the effect of changes in the measurement methods on the measured value of income inequality. In order to make this comparison possible, Table 4.3 below summarizes the main features of the original income distribution statistics used by Milanovic (1998, Appendix 4) in deriving Gini indices for the pre-transition and the transition period.

The table displays the change in Gini indices as found by Milanovic (1998) together with several characteristics of the original income statistics. The type of income refers to income definition of the particular survey where gross income is a total of earnings from labor, government transfers in cash, income from self-employment, other income from property, entrepreneurial activity or gifts, and consumption in kind. Disposable income refers to gross income reduced by direct personal taxes, while money income excludes consumption in kind. The column labeled as FBS stands for Soviet-type family budget surveys (Milanovic 1998, Appendix 4). The table also displays the number of income brackets in the original income statistics showing whether or not the share of populations was equal in each bracket. Finally the last two columns indicate the time period of the income used in the statistics. Concepts used in the transition year statistics are represented by a check mark in the table. Concepts of pre-transition statistics are displayed for comparison by gray shading. Countries are ranked by the calculated change in their Gini indices.

Table 4.3 The Change in Gini Index and the Characteristics of the Original Income Distribution Statistics for 18 Transition Countries of Eastern Europe and Central Asia (Data from Milanovic 1998, Appendix 4).  
(Transition year characteristics are indicated with ✓, pre-transition year characteristics are indicated with gray shading.)

Country	Change in Gini index (percentage points)	Type of income			Share of popul. in brackets		Number of brackets	Income per		
		FBS	Average per capita			Variable		Equal	Month	Year
			Gross income	Money	Disposable					
Kyrgyz Republic	29.3			✓		✓	10 (5)	✓		
Russia	24.2		✓			✓	10 (5)	✓		
Ukraine	24.1		✓			✓	10 (5)	✓		
Lithuania	14.8			✓		✓	10 (5)		✓	
Estonia	12.4				✓	✓	10 (5)	✓		
Moldova	12.4	✓				✓	24 (5)	✓		
Bulgaria	11.0		✓			✓	10 (10)		✓	
Turkmenistan	9.4	✓				✓	17 (5)	✓		
Latvia	8.5			✓		✓	10 (5)	✓		
Czech Republic	7.2				✓	✓	10 (10)	✓		
Kazakhstan	7.0	✓				✓	17 (5)	✓		
Belarus	5.6				✓	✓	10 (5)	✓		
Romania <sup>a</sup>	5.3					✓	10 (10)	✓		
Uzbekistan	5.1	✓				✓	23 (10)	✓		
Slovenia	3.6				✓	✓	10 (9)		✓	
Poland	2.8				✓	✓	20 (8)	✓		
Hungary	1.6				✓	✓	20 (7)		✓	
Slovakia	-1.2				✓	✓	8 (25)		✓	

<sup>a</sup> No income type specified for the transition year.

Survey methods based on disposable income are more accurate than those based on money income and gross income. The FBS is clearly the worst among the survey methods. Therefore, a shift from the FBS to any other survey method indicates the largest improvement. Regarding income brackets, equal share of population in brackets is more reliable than variable share and more brackets result in greater accuracy. Finally, surveys based on yearly income are more accurate than surveys based on monthly income. In

short, when the checkmark, indicating the survey method used in the transition period, is in a column right from the column with the shaded cell, the survey method have improved compared to the pre-transition period. When the checkmark falls in the shaded cell, there was no or little improvement.

The table shows that countries displaying the largest increase in their Gini indices all experienced major improvements in their measurement methods. In addition, all of them used the Soviet-type family budget survey, which was based on quota sampling instead of representative random sampling, in the pre-transition period. At the same time, countries with less dramatic changes in inequality also had less dramatic changes in their measurement methods.

Moldova, Bulgaria, and Turkmenistan seem to be an exception from the previous phenomenon. Despite the large increase in their Gini indices, the concept of income statistics in these countries did not change. On the other hand, Moldova used 24 income brackets in the transition year, and Turkmenistan used 17, instead of the 5 brackets they used earlier. Nevertheless, the Soviet-type FBS allows such a great deal of inaccuracy in the measurement that using it in both periods does not ensure the comparability of the results. Bulgaria's case is also illuminating. While the country used the gross income in both the pre-transition and the transition year, the introduction of personal income tax in the country made the results of the surveys based on the same income concept incompatible.

In summary, the qualitative comparison of the measurement methods reveals that major changes in inequality went along with major changes in measurement methods. The researchers, however, discounted the importance of these changes because the changes in the measurement methods could not be expressed in one scalar variable. Therefore, a regression analysis between the Gini index and the changing measurement methods was not possible.

## **2. Examples of Factors Affecting Inequality Measures**

Besides simply counting the changes in the various components of measurement methods, many other ways are available to demonstrate the role of these changes in the changing measurement results. None of them, however, can be expressed in one simple variable applicable to a regression analysis. In this section, I discuss three different

factors that possibly have a major impact on the measured value of inequality: the inappropriateness of Soviet-type FBS for measuring inequality, the role of the changes in the tax system, and the low quality of socialist statistics. While the quantitative analysis of the actual effect of these factors is not possible, all of them could contribute to an apparent increase in inequality in the absence of an actual increase.

*a. The True Nature of the Family Budget Survey*

Three countries, the Kyrgyz Republic, Russia, and Ukraine, not only had the highest inequalities in the transition year, but also experienced the greatest increases in their measured inequalities (Milanovic 1998, Appendix 4). All of the three countries used the Soviet-type family budget survey in the pre-transition period and improved their survey methods during the transition. While their actual effect on the measured inequality is not clear, I believe that these improvements contributed to the apparent increase to a great extent. The Russian income distribution statistics illustrate such a case. Table 4.4 displays the Russian income distribution statistics for 1988 and 1993 together.

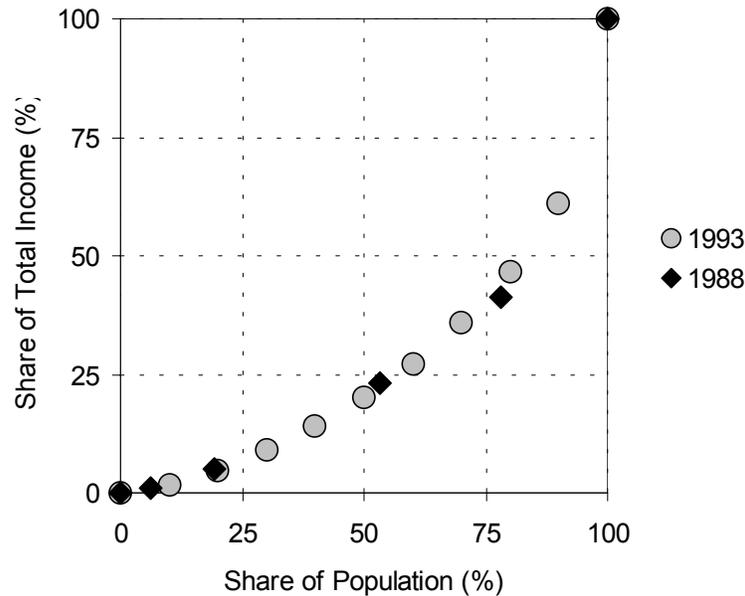
Table 4.4 Income Distribution Statistics for Russia (After Milanovic 1998, Table A4.11)

1988		June-September 1993	
Upper bound of gross income (Rubles per capita per month)	Percentage of population	Average per capita gross income (Thousand rubles per capita per month)	Percentage of population
75	6.3	5 272	10.0
100	13.1	10 441	10.0
150	34.0	13 654	10.0
200	24.6	16 503	10.0
Open	22.0	19 523	10.0
		23 042	10.0
		27 689	10.0
		34 795	10.0
		46 125	10.0
		126 323	10.0

The table shows some important differences between the two statistics. First, the statistics for 1988 do not provide data for the average incomes in the different income brackets. In other words, the average income for the third bracket, for example, can be between 100 and 150 rubles per capita per month. Thus, a series of average

income values of 45, 80, 140, 190, and 700 rubles respectively is also possible for 1988. Figure 4.3 displays the calculated points of the Lorenz-curve for 1988 based on this assumption, together with points of the Lorenz-curve for 1993 calculated from the data given in Table 4.4. As the figure shows, the Lorenz-curves determined by the calculated points for 1988 and 1993 are nearly the same. In other words, FBS-type income statistics yielding a Gini index of 23.8 may easily be the result of an income distribution yielding a Gini index of 48.0 when a more accurate survey method is used.

Figure 4.3 Calculated Points of the Cumulative Income Distribution for the Year 1993 and Calculated Points of a Possible Cumulative Income Distribution for the Year 1988



The second difference between the two types of income distribution statistics is that the share of population falling into a certain bracket varies in the case of the family budget survey of 1988 while the average incomes for 1993 are given for each decile of the population. Since the family budget survey is based on quota sampling instead of representative random samples, this variation in the share of population in the different income brackets provides the statistician, constructing the survey, with an

enormous degree of freedom to predictively shape the resulting income distribution statistics.

Similar examples could be easily constructed from any of the income distribution statistics based on the Soviet-type family budget survey. The most important lesson, however, is that the bad quality of the family budget survey alone can result in changes comparable in size to the most dramatic changes observed in the region.

***b. The Importance of Tax Reforms***

Tax reforms also affected the measured inequality during the transition. Major changes in the tax system not only caused government statisticians to implement new survey methods, but also caused an incompatibility between the survey results of the pre-transition and the transition period. When addressing income inequality measurement, undoubtedly the most important reform was the introduction of the personal income tax. In the pre-transition period, “Wage and payroll taxes were withheld at the enterprise level” (Martinez-Vazquez and McNab 2000) and individual income taxes were practically unknown in the region. With the introduction of the personal income tax in 1988 in Hungary, 1992 in Poland, and during 1993 and 1994 in many other transition countries, however, this situation changed and the personal income tax became one of the most important revenue sources of these governments.

The introduction of personal income tax affected income inequality measurement in several different ways. First, the income definition had to be changed. In the pre-transition period, little difference existed between the gross income and disposable income; the portion of direct personal taxes in gross income became substantially larger with the introduction of the personal income tax. Moreover, as most of the transition countries introduced some kind of progressive system, direct personal taxes increased with the income. Additionally, frequent changes in the tax codes of transition countries made the comparison between pre-transition and transition-time income levels even more difficult.

Another problem of the inequality measures is the effect of these changes on income distribution. Paradoxically, the introduction of the personal income tax might have decreased the real income inequality of disposable income and increased the measured income inequality at the same time. The introduction of personal income tax

reduced income inequality, at least in the short run, because it was paid by individual taxpayers, replacing a collective tax calculated on the basis of the total wages and salaries at the enterprise level. The collective tax did not allow progressive taxation on the individual level. As a result, the collective tax did not only helped to hide differences, but also made it less costly at the enterprise level. For example, reducing the wages of all of the employees by one percent and increasing the salary of top management by the total of this reduction would not affect the total amount of payroll tax in a company. Doing the same in a personal income tax system would cost more for the company because marginal tax rates are higher for high-income individuals.

Although personal income tax could reduce the inequality of disposable income, this reduction could be unaccounted for in income surveys. The main reasons for this are the high marginal tax rates at relatively low income levels, the weak tax administration, and the high rates of social security tax paid by the employer. In the case of Hungary, for example, a person with an income of \$3,400 a year fell already in the highest bracket in 2000 with a marginal tax rate of 40 percent. The upper limit for the lowest marginal tax rate of 20 percent was slightly more than \$1,300. People in both brackets also paid an 11 percent social security tax, and their employer paid another 33 percent of their gross income as a social security tax (Republic of Hungary 1995, 1997). As a result, increasing the net wage or salary of an employee by 100 Forints<sup>13</sup> would have cost 271.43 Forints to the employer for an employee in the highest income tax bracket and 192.76 Forints for an employee in the lowest income tax bracket.<sup>14</sup> Due to the high tax rates even at the lowest income levels and the weak tax administration, tax evasion became prevalent in the transition countries, further increasing the share of unofficial economy. Since underreporting real income for tax purposes was easier in the case of

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<sup>13</sup> Hungary's national currency is the Forint. The exchange rate was about 300 Forints per 1 USD at the end of 2000.

<sup>14</sup> Because of the 40 percent personal income tax and the 11 percent social security tax, the net increase is 49 percent of the gross increase of the employee's income. Therefore a net increase of 100 Forints requires a gross increase of 204.08 Forints (100 Forints divided by 49 %). The employer pays the 33 percent social security tax on this gross income. In this case it is another 67.35 Forints. Therefore, the total cost of increasing the net income by 100 Forints is 271.43 Forints.

Similarly, the net increase in the 20 percent bracket is 69 percent after the deduction of 20 percent income tax and 11 percent social security tax. The gross increase required is 144.93 Forints in this case (100 Forints divided by 69 %), and the employer pays an additional 47.83 Forints in social security tax (33 % of the 144.93 Forints gross increase). Therefore, the total cost of increasing the net income by 100 Forints is 192.76 Forints in the 20 percent personal income tax bracket.

production workers and personal service employees, the difference between the official and real income tended to be bigger in the lower income groups. At the same time, people with low official incomes were eligible for more in government transfers. For this reason, their interest in underreporting official income coincided with that of their employers.

Tax evasion affected the measured income inequality to various extents depending on the weakness of tax administration in the given country. Since countries with the largest increase in measured income inequality were also late and less effective in reforming their tax system and enforcing the rules, it is reasonable to assume that tax evasion also contributed to the apparent increase in income inequality.

*c. Undocumented Changes in Survey Methods*

Despite their huge impact on the results, the effect of changes in measurement methods got very little attention. In their 2002 article about data sources from transition economies, Filer and Hanousek observe that “Many researchers have used data from the region as if their coverage and quality were constant across the past decade, despite the massive evidence to the contrary” (2002, 227).

While the authors found that macroeconomic data is already available to the researchers, they report interpretation problems and great variance in data quality. One reason for these problems is the difference in definitions; the other is the lack of capacity of statistical offices in these countries, especially in the early years of the transition. An example for the first problem is the interpretation of private ownership. Filer and Hanousek argue “some data report a firm as private ... if *any* of the firm’s equity is in private hands” (2002, 234). In other words, a state-controlled firm with 5-percent private ownership may appear to be a private company in the data. Another example, this time for the lack of processing capacity, is the case of firm reporting to national statistical offices. Since these offices were set up to deal with few large state enterprises, they had no capacity to process data from thousand of small firms established during the transition. As a result, enterprise data in the Czech Republic, for example, initially covered only firms with more the 100 workers with this limit being reduced to 50 and 25 workers later during the transition.

Problems are even more serious with microeconomic data on individuals and firms. Filer and Hanousek report that government statistical offices see Western

researchers as a source for budget enhancement (2002, 228), charging them unreasonably high prices for survey results. My own experience reinforces their observation and also extends it to researchers from the transition countries. The authors additionally report that prices vary widely based on the presumed willingness to pay. As a result, many researchers obtained data through unofficial channels at considerably lower costs, but higher risk of unreliability. Regarding Household Budget Surveys, widely used in research on inequality, the authors observed highly varying data quality before 1989 with reasonable data quality in Bulgaria, Czechoslovakia, Hungary, and Poland and problematic data quality in the former Soviet Union.

Another concern about the reliability of survey results is documenting changes and methods used. Even if the researcher is aware of the problems of statistics from transition countries, it is often impossible to take into account the possible effect of all changes. Complexity is only part of the problem; the other part is the lack of proper documentation of the changes. The example provided by Filer and Hanousek is from the Czech Republic, one of the most developed transition countries, and it could have been found in other transition countries also.

It is usually necessary to examine documentation exhaustively, including all footnotes. Given the fact that documentation, especially from early years of the transition, is often inadequate, researchers may have to contact statistical offices directly. We, for example, found that there was no written documentation of when the Czech Statistical Office adopted linkage procedures when replacing items in the consumer price basket and were forced to rely on the memories of senior staff members. (Filer and Hanousek 2002, 238)

In summary, changing methods yield changing results even in a stable environment. Since the transition process brought fundamental changes in the concepts and measurement methods of the statistical offices in these countries, the changes in results caused by these factors are also likely to be large. Based on the analysis so far, I believe that the question of whether income inequality has really increased during the transition is still undecided. The argument that democratization led to a real increase is rather weak. On the other hand, an explanation based on a large uniform bias in the pre-

transition data towards greater measured inequality seems to be more likely. Unfortunately, reconstructing the pre-transition data with greater accuracy is not possible, which was probably the main reason for many researchers to accept the existing results as at least partially valid.

In the next chapter, I discuss the pre-transition period with a different approach. Instead of trying to reconstruct inequality data from low-quality surveys, estimates and assumptions, I show how the socialist system could generate, tolerate and hide inequalities of the order of magnitude measured in Ukraine, Russia, and the Kyrgyz Republic today.

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## **V. THE HIDDEN INEQUALITY IN SOCIALISM**

The previous two chapters showed evidence of weakness in the relationship between the increase of income inequality and democratization in the transition countries of Eastern Europe and Central Asia. The third chapter identified several factors that may also significantly influence income inequality, including the previously hypothesized measures of democracy and political liberalization. The fourth chapter discussed the serious deficiencies of pre-transition surveys and statistical data and showed that even a distortion of the order of magnitude experienced in the worst cases could be caused by poor pre-transition data quality.

This chapter will discuss the major sources of inequality in the pre-transition socialist countries. While many of these factors have been known to the research community, their cumulative effect have been widely underestimated because of the emotional impact of collective ideologies even after the collapse of socialism. In fact, the legacy of socialism, not democratization, has been responsible for many of the troubles during the transition, as clearly stated by Filer and Hanousek:

Behavior in transition economies is heavily influenced by legacies of the communist past. In this world, governments were the enemy, and the less they knew about you, the better life was likely to be. (Filer and Hanousek 2002, 237)

### **A. INTERPRETATION OF DATA FROM A SOCIALIST ECONOMY**

Socialism is a vague concept of a society where general welfare is achieved by common, orchestrated effort of the whole society. This ideology promises everything in general terms, but provides no details about realization, since the more detail the ideology would attempt to provide the more obvious the utopian nature of the promises would be. Milton Friedman identifies the danger of collectivist ideologies in its tendency to replace thoughtful logic with emotional impact.

It is tempting to believe that social evil arise from the activities of evil men and that if only good men (like ourselves, naturally) wielded power, all would be well. That view requires only emotion and self-praise – easy to come by and satisfying as well. To understand why it is that

‘good’ men in positions of power will produce evil, while ordinary man without power but able to engage in voluntary cooperation with his neighbors will produce good, requires analysis and thought, subordinating the emotions to the rational faculty. (Friedman 1994, xii)

Hayek (1994) showed how collectivist ideologies, like socialism, necessarily led to central planning and to the loss of political freedom in the society. Following this, central planning and totalitarian government led to high levels of inequality before the collapse of the system.

Hayek also showed that welfare could not be achieved by central planning, for welfare “depends on great many things that can be provided in an infinite variety of combinations.” (Hayek 1994, 64) In addition, welfare has different meaning and different conditions for each member of the society. He concluded that if each person’s welfare was achieved in many different way with needs being different for the members of the society, central planning would have to deal with so many variables that it would be impossible to establish a “social optimum” in production. In addition, maximizing “general welfare” should be done using limited resources. For this reason, the needs of one group or individual can be fulfilled only at the expense of others, which means that central planning should be able to rank order the different needs of different individuals, and compare the importance of, say, one person’s need for health care to another person’s need for housing.

Facing these difficulties, along with their frustration, the central planners have two choices: admit the impossibility of the attempt or impose their own values on the whole society. Communist leaders chose the second option, but they soon realized that they could not implement their plans without coercive orders. Therefore these leaders could not really define “general welfare” even among themselves. I discuss the consequences of the second insight later. The impact of the coercive orders in production is discussed in the following section.

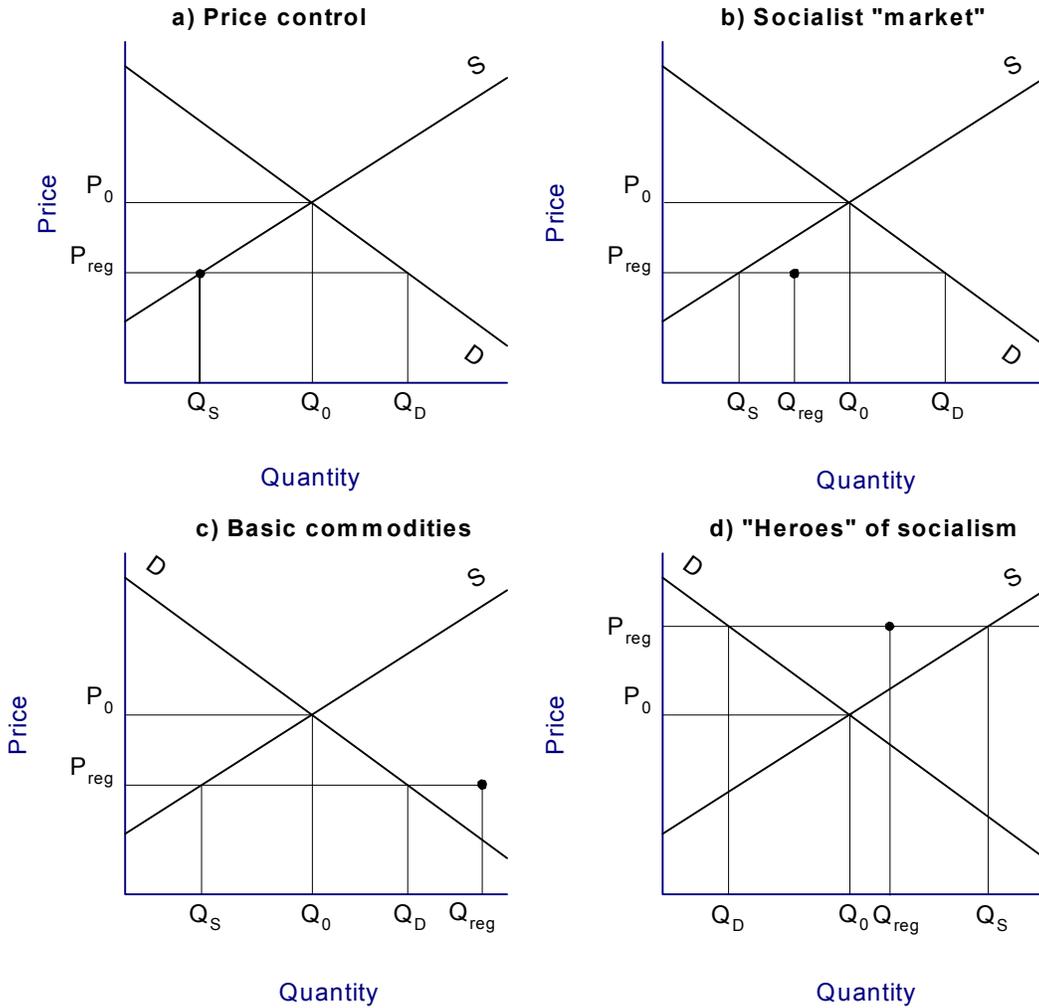
### **1. Market Forces and Socialism**

The inefficiency of the centrally-planned economy was a fundamental reason for the high hidden inequality in socialism. In this section I analyze the sources of this inefficiency.

In a centrally-planned economy, that planning does not ensure production at prices and quantities determined by the market equilibrium. Since socialist leaders denied the importance of market forces, they did not even attempt to find or estimate these equilibrium values. Their stated goal was to provide basic goods in sufficient quantities at a low price by directing production resources from luxury goods to the production of these basic goods. Pricing was based on a kind of cost-based calculation in which unprocessed raw materials had practically no value. Since profit was regarded as a sin, and the difference between the cost of capital and real profit was not understood, the cost of capital was not included in the calculations. The means to achieve this goal were price control measures and dictated production quantities.

Central planning over a long time distorted the behavior of producers and consumers alike while completely destroying the feedback mechanisms of the market. As a result, socialist economies displayed all kinds of government failures in their economy besides inefficiencies in classical price control. The most important government failures are displayed on Figure 5.1.

Figure 5.1. Government Failures in Socialism



$P_0$  and  $Q_0$  are equilibrium price and quantity,  $P_{reg}$  is regulated price,  $Q_{reg}$  is regulated quantity,  $Q_D$  is the quantity demanded at the regulated price, and  $Q_S$  is the quantity the producers would be willing to produce voluntarily at the regulated price.

Part a) of Figure 5.1 is the classic case of price control. This basic measure was among the first implemented measures in all of the socialist countries after the communist takeover. Shortages appeared quickly, not only because of World War II. Requisition of agricultural products was common practice in socialist countries during the 1950s but ended by the 1960s only because of forced collectivization of farms.

Central planning has two solutions for shortages: rationing and dictated production quantities. Both were used widely in socialist economies. Rationing, however, had to be a short-term solution, because it made the contradictions of the system visible.

Therefore central planners tried to avoid rationing by finding other solutions – any solution – to shortages, at least in the cases of basic commodities. Since dictated production quantities seemed to solve shortage problems, they became prevalent in socialist countries. This situation is displayed in part *b)* of Figure 5.1 with a regulated quantity slightly below the market equilibrium. A real market did not exist, making it hard to determine whether the actual regulated quantities were below or above the already non-existing market equilibrium. This quantity must have been higher than the quantity voluntarily supplied by the producers ( $Q_S$  on Figure 5.1), because the producers had been willing to produce the required quantity, there would have been no need for dictated quantities. Regardless of this, people still had to wait in lines and to pay bribes to shopkeepers for what they wanted. Therefore, the dictated quantity must have been lower than the quantity demanded at the regulated price. On the other hand, the  $(Q_{reg}; P_{reg})$  point could be anywhere in the positive quadrant of the price-quantity reference system. The most common extremes are shown in parts *c)* and *d)* of Figure 5.1.

Part *c)* illustrates the case of certain basic commodities, like white bread and milk in plastic bags in Hungary, or cornmeal and bottled milk in Romania. Each country had its own “basics” probably based on the taste or value judgment of its first “great leader.” For these products, dictated quantities were well above the demanded quantity even at the regulated price. These measures resulted in some strange situations. For example animals were fed on bread not only in household plots, but sometimes even in cooperatives getting their “supply” of unsold bread directly from the shops. In Hungary, milk packed in plastic bags could not be sold the next day, so it had to be destroyed. These goods, however, were only a few selected favorites of the regime, considered to be essential not by the people, but by the government.

At the same time many other products, considered to be basic in more developed countries, were not available even for a higher price. To estimate the supply and demand for banana or oranges, for example, on any figure would be difficult. Oranges were sold at Christmas and at Easter only in many of these countries; bananas appeared at Christmas only. Even in these limited day periods, the prices of these fruits were regulated and the average citizen could not buy more than a few pounds. In contrast, I remember a man in my village saying that he had made brandy from bananas. In addition,

military officers participating in live firing missile exercises in the deserts of Kazakhstan frequently told stories about very cheap watermelons in huge quantities in the Caucasian region. This watermelon production was dictated to supply the whole country but there were no trucks and gasoline to deliver the watermelons to the North.

Still, basic commodities were not the most inefficient segments of the socialist economy. The “heroes” of socialist economies were the military and the heavy industry. The logic of central planners was, in these cases, to produce more in these industries no matter how much it cost the country. While initially the casualties of World War II justified the necessity of forced development in heavy industry, these industries became too important later claiming more and more resources. These “heroes” are shown in part *d)* of Figure 5.1. As the figure shows, no one wanted these products at the price the state paid for them, except the members of top nomenklatura who received them free of charge. These goods included huge Soviet cars with the gas consumption of an airplane or a ship, unbreakable “military” wristwatches, or nice shotguns and hand-crafted luxury ornaments. Nevertheless, the most important products in this category were products of the defense industry and the “services” of secret police organizations. Since none of these countries were threatened by external aggressors, except maybe other socialist countries, communist elites needed these goods and services to be able to stay in power. On the other hand, these industries made a good profit on this production, therefore becoming influential, especially in the former Soviet Union. In fact, the existence of the military industrial complex was one of the reasons for the slower development and democratization of the former Soviet republics during the transition.

## **2. The Need for Economic Indices**

According to the logic of central planning, if planning worked, there would be no need for economic indices. In other words, measuring production in money terms would not be necessary when the government set both prices and quantities. As a consequence of this logic, socialist economies did not use the United Nations (UN) System of National Accounts (SNA) during the socialist regime. They used the material product system that was based on production quantities instead of values expressed in money terms (Estrin, Urga, and Lazarova 2001; Campos 2001). The question of why these countries started to use the UN SNA *before* the transition seems to be important.

Signals of a serious economic crisis were already visible during the 1970s and 1980s. Technological development was slow and the difference between the socialist block and the West became larger and larger in this field. Many socialist countries experienced serious shortages in almost everything, especially in the Soviet Union and in Romania during the 1980s. Hammond, a researcher who had spent a few months in Moscow in 1966, described the situation saying, “I soon adopted a basic rule of Communist society: ‘If you see something for sale that you want, buy it, because tomorrow there probably won’t be any.’” (Hammond 1966, 320)

On the macro level, the burden caused by the inefficiency of central-planning was also visible in the Soviet Union by the mid 1960s.

An exhibition boasting of Russia’s agricultural achievements seemed a bit ironic, because the food situation that year was the worst the country had seen in a long time. Indeed, the crop failure was so serious that Russia was forced to buy wheat from the United States. (Hammond 1966, 319)

Hammond also cited his conversation with a Russian professor mentioning food riots in Novocherkassk in 1962. These problems, however, could not be reflected in the numbers of socialist statistics. In this sense, registering steadily increasing production quantities, and fulfillments and over-fulfillments of plans was the ideal method to show development where there was no development at all.

Using the right kind of method to cover the problems in statistics, however, did not solve these problems. Inefficiencies of socialist economies forced them to look for resources elsewhere. “Exporting revolution” did not help because central planning destroyed the economy in all of the countries newly subscribing to the collectivist ideology. The only way to sustain the regime for additional decades was to borrow from Western banks, governments, and international financial institutions. Since these lenders required economic indices in the form accepted by the rest of the world, socialist countries first used the material product system and the System of National Accounts parallel to each other. These countries then finally abandoned the material product system before the political changes.

### 3. Statistics in Socialism

Switching to a new system of aggregating numbers from the same sources caused little change to the deceiving nature of socialist statistics. Filer and Hanousek (2002, 234) caution about the consequences of the differences between Western and socialist accounting standards and the danger of seemingly identical meanings of totally different variables. Campos argues that socialist statistical offices, originally set up for measuring quantities, “were poorly equipped to deal with issues such as price changes and unemployment.” (Campos 2001, 667) Campos also observes that fulfilling plan targets, the main incentive of socialist statisticians, led to overreporting the results.

In fact, the newly implemented economic indices had no real meaning in centrally-planned economies anyway. This was the case since in an environment where all prices and production quantities are regulated, calculating GDP values from five-year plans would have been just as good as measuring them using sophisticated statistical methods. Once the key numbers for the next period were established by the planners, it was easier to derive false data to support these numbers than to measure something which should yield the same results assuming that planning was conducted in the proper way. Since statistical offices did not have the power to question the sensibility of the plans, providing the *right* input for calculating aggregated indices was safer than providing the *real* one.

In summary, pre-transition statistical data cannot be used to describe the real economic and social conditions of the socialist era. Therefore, the researcher has to turn to other sources to reconstruct the real past. Unfortunately, practically no useful independent data sources existed for these countries, because they were different from many developing countries having insufficient statistical capabilities. While in the case of many developing countries, a weak but willing state would probably welcome independent researchers from developed countries, in socialist countries the state was strong enough to prevent most if not all independent research.

For the reasons above, experience of individuals and generalizations from typical examples are the only possibilities of reaching the truth. I will rely mainly on these tools in the next section to describe the sources and real levels of inequality in the socialist era.

## **B. EXAMPLES OF HIDDEN INEQUALITIES AND INCOME TRANSFERS IN SOCIALISM**

When price regulation causes shortages, people always make up the difference between the low regulated price and the equilibrium price by standing in lines, paying bribes to shopkeepers, or using other practices. While in a democracy all citizens have to make up this difference some way, it was not the case in socialism. The reason for this was the one-party system. Since no legal political forces existed outside the communist party in these countries, no control was available on political power. Although all of these countries had a certain kind of legislative body, it was subordinated to the communist party through the party membership of the legislatures. As a result, real decisions were made by party leaders, who took no direct responsibility for these decisions. This system led to a plethora of privileges for top state officials and party members at all levels with privileged access to goods and services among them.

Moreover, privileges often meant not only privileged access, but also different prices. Since members of the nomenklatura disposed of different portions of scarce resources, they frequently used their connections to receive and provide favors to each other at the expense of the rest of society. In addition, this group was not only able to use these resources but also to overuse them or give them away, due to lack of control over the communist party. The only price they had to pay for these privileges was their loyalty to the regime, which was more important than actual party membership.

### **1. The Real Value of Privileges**

While the extended system of privileges obviously had an impact on income inequalities in the socialist era, this impact did not appear in pre-transition income inequality measures. Referring to the effect of subsidies on essential items and the quality of vacation homes for the top party brass, one author, Milanovic (1996, 173) argues that these privileges would not have altered income inequality measures to a great extent, saying that the value of these privileges were exaggerated by others:

Elite privileges were exaggerated both by indigenous population, because of the secrecy in which privileges were held, and by overly credulous Western analysts. In effect anybody who has visited vacation homes previously kept strictly off-limits for all but the top Party brass can

testify, their level of comfort and service is below that of an average Holiday Inn. (Milanovic 1996, 200)

Undoubtedly using a vacation home, which was rather high quality by socialist standards, for a couple of weeks each year free of charge could still make a difference when comparing the living conditions with those of a 65-year-old farmer whose small estate had been nationalized, forcing him to work as a night-watchman at the local cooperative instead of enjoying a state pension. Even more expressive about the real order of magnitude of differences is the description of the Palace of the People in Bucharest by Tad Szulc.

During the past decade tens of thousands of workers slaved to satisfy Ceaușescu and his wife, Elena, by creating gold-leaf walls, crystal chandeliers, marble columns, intricate parquets, handwoven carpets. Their reward: breadlines and winters without heat. With more than a thousand rooms the palace is one of the largest buildings in the world. (Szulc 1991, 5)

This palace, cynically dedicated to the people, was not the only one inhabited by the Ceaușescu family. Living in luxury palaces built or nationalized by the state was not the only privilege enjoyed by the nomenklatura in the socialist countries. Furthermore, although these visible monuments of the socialist regime had larger emotional impact than many others, secrecy did not play a role in these cases. A palace in the center of Bucharest, the Kremlin in Moscow, yachts of party leaders in Tihany, Hungary, or hunting resorts with thousands of acres cannot be kept secret.

Another set of privileges that researchers tend to underestimate is the special treatment in health care, education, and housing, exceptions to rules about traveling abroad, customs, and the possession of foreign currency. All of these exacerbated income inequality. These differences were less visible for the general public and also more difficult to understand while they were far more important in preparing for the political changes and privatization. The following sections discuss some of these differences.

## **2. Corruption**

Chapter three already cited the findings of Gupta, Davoodi, and Alonso-Terme (1998) on the impact of corruption on income inequality. In their article, the authors argue that corruption increases income inequality through its negative effect on economic

growth and the progressivity of the tax system, and through consistent inequalities in asset ownership and access to education. At the same time researchers have found corruption to rise during the early years of transition (Goorha 2000, World Bank 2000a), especially in connection with privatization.

When relating the effect of corruption on the privatization process, I believe that since the gain in personal wealth was not counted as income in the surveys in transition countries, the effect of corrupt practices during privatization did not have an immediate impact on income inequality in the early years of transition. On the other hand, corruption in public administration, health care, education, or jurisdiction directly affected income inequality in both the pre-transition and transition period with this kind of corruption becoming prevalent in the socialist era. Measuring this corruption, however is much more difficult than measuring corruption in privatization, or in business practices in the transition period.

Interestingly, both Goorha and the study of the World Bank identify the origins of today's corruption in pre-transition practices. These sources cite, as the cradle of today's practices, the formation of the *nomenklatura* through the influence of communist parties that appointed individuals to key positions. The World Bank study also mentions the culture of state intervention among the origins of corruption together with the rapid devaluation of the salaries of bureaucrats during the early years of transition. Despite this, none of the above authors concluded that corruption must have been higher in the era when legislation and jurisdiction were inseparable from the executive branch of the government with the Communist party controlling all of them as well as the researchers' access to data on these countries.

Corruption in privatization was only one aspect of corruption, which was relatively easy to measure in a new era when conducting independent surveys was already possible. Focusing on corruption related to privatization might have caused researchers to assume that there had been little corruption in the past. In fact, any connection between corruption and privatization in the socialist era did not exist for one main reason: the socialist era had no privatization. Furthermore, shortages and artificially-low official prices, the existence of privileges and black markets, and the uncontrolled power of bureaucrats all helped corruption to thrive in an era of lies and

nationalized plunder. People without connections had to pay unofficial service fees for practically everything. This system of bribery became so prevalent during the socialist era that few people in the socialist countries considered it as corruption. These conditioned reflexes, not political liberalization and termination of direct state control, are the main driving forces behind corruption in the transitional economies today.

### **3. Health Care**

Informal payments in the health care sector also received attention in the transition period as serious impediments to health care reform (Lewis 2000). The research shows over 60 percent frequency of informal payments in former Soviet republics, with an extreme 91 percent rate in Armenia. Informal payments are also reported in most Eastern European countries.

In her 2000 article, Lewis argues that while informal payments were fostered by the communist system, in which government financing, delivering and overseeing of health care services led to government failure, they may have proliferated because of subsequent contraction of public resources. This presumed increase or proliferation, however, is not real since the perceived contraction of the health care sector is again based on socialist statistics. While the contraction may be real in terms of the numbers of doctors, nurses, hospitals, and x-ray machines, improvements in training, and the quality of equipment were unaccounted for in these figures. During the transition, private practices appeared as costly, but high quality alternatives. Hospitals and clinics now have access to advanced, computerized diagnostic equipment, better pharmaceutical products and therapeutic aids. Doctors and nurses can read Westerns professional publications and participate in exchange programs. In addition, whenever statistical data from socialist countries are referred to, the researcher has to consider that the purpose of these statistics was to report progress in achieving planned goals even without any real progress.

Regarding informal payments, the author differentiates between discretionary payments of gratitude and required contributions. When making this distinction, she argues as follows.

A problem area is distinguishing between informal payments and gratitude payments. It is common practice in parts of Eastern Europe, and in the Commonwealth of Independent States (CIS) countries, to give gifts

or payments to physicians as thanks for their services. The difficulty is determining when a gratitude payment is discretionary and when it is a required contribution. Some qualitative research has explored this question, but circumstances vary. What has emerged is evidence of an increasing necessity to compensate providers, over and above gratitude payments. (Lewis 2000, 1)

Here again is a presumed increase in informal payments. In fact, these gratitude payments have the same motive as informal payments. In low inflation environments, the patients knew how much they had to pay for different services, and the doctors knew that they would be paid what they expected. Two things changed this situation during the transition: inflation and tax reforms. With high inflation, the informal fees of different services should be adjusted quickly so that the usual informal channels of “spreading the word” about the increase became insufficient. At the same time, tax reforms made the official contributions to the health care system visible for the public. Being aware of how much was paid in social security taxes caused people to become less willing to pay.

Finally, the following story from a letter from my father clearly illustrates that ex-ante payments and ex-post “gifts” are really the same. A friend of my father had been operated on for a hip-joint prosthesis on both legs. First, he was operated on in Székesfehérvár, Hungary. The doctor received 20 thousand Forints in an envelope. When he opened it, he said to the wife of the patient that he had expected more. Before the second operation the family asked the doctor again who told them that his fee is 100 thousand Forints. They chose another doctor in Veszprém, Hungary who also received 20 thousand Forints and he did not say that it was too little (Rózsás 2002).

People regularly paid for health care in socialist countries. Referring to such payments as gratitude instead of bribe was only rationalizing a behavior that most people disagreed with. On the other hand, no payment was required from the well connected, because they could do favors for the doctors and nurses at the expense of the state. In addition, well-connected people did not wait in lines while the average citizen could not even make an advanced appointment. There were also special hospitals for the privileged with better equipment, more trained personnel and better collateral services. Some of these institutions were sanatoriums for follow-up treatment. People with connections and people able to pay the bribes used these facilities as holiday resorts on a regular basis.

Since these institutions were also part of the state provided “free” health care system, the fee was either very low or no fee was paid officially.

Another form of discrimination was to prescribe different medicines for privileged and non-privileged people with the same health problems. In more difficult cases, differences in methods and available equipment were also evident. While for the privileged elite even an expensive operation in a Western hospital would have been available at government expense, the hip prosthesis implant described above would not have been possible for this patient before the transition.

#### **4. Education**

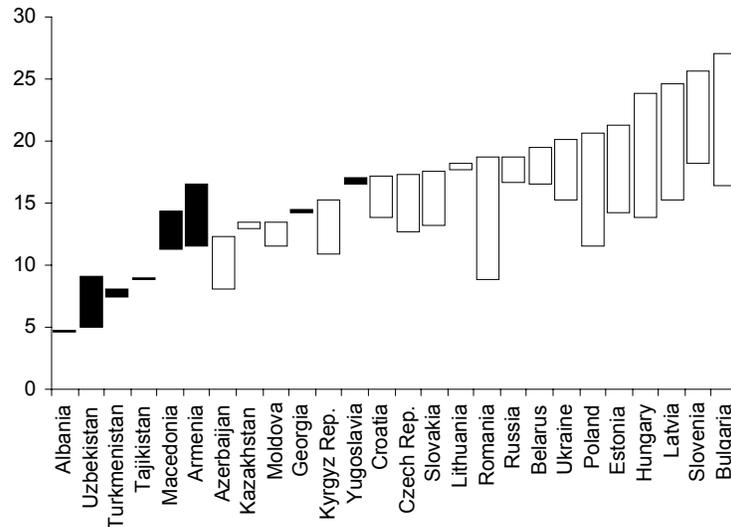
The second chapter cited the work of Mickelwright (1999) who observed an increase in the ratio of household education expenditures per child in the top decile to expenditures per child in the bottom decile of per capita income in Slovakia and Bulgaria (Mickelwright 1999, 365, Figure 7). Based mainly on this observation, the author argued that access to education became more restricted for low-income families during the transition. In this section, I challenge his argument showing that the increasing difference in education expenditures only means that the elite are presently spending more on education because spending more maintains their advantage in education.

A recent study of the World Bank on the challenges faced by transition countries in the field of education (World Bank n.d.) also focuses on problems that arose during the transition, depicting the communist era as an ideal world from the aspect of education. While the earliest data are from 1989, the study reports enrollment rates in tertiary education<sup>15</sup> for the transition period. The reported enrollment rates are displayed in Figure 5.2.

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<sup>15</sup> The study defines tertiary education as follows: “Education programs offered to students who have successfully completed prerequisite studies at the upper secondary level. There is usually opportunity for post-secondary technical as well as university training. Program completion is marked by the awarding of a university degree or a recognized equivalent qualification.” (World Bank n.d., 136)

Figure 5.2. Change in Enrollment Rates in Tertiary Education in 26 Transition Countries between 1989 and 1997 (Percentage of 18-22 Age Group, Data from World Bank n.d., Table A11)



Earliest and latest years for the following countries are as indicated in parentheses: Turkmenistan (1989-1995), Macedonia (1991-1994), Armenia (1989-1996), Yugoslavia (1989-1996), Croatia (1991-1996), Estonia (1990-1997), Slovenia (1989-1996). Empty bars indicate growth, shaded bars indicate decline in enrollment rates.

As shown in the figure, enrollment rates have increased in most transition countries in tertiary education, even in some of the otherwise weakly performing former Soviet republics. This increase shows how the opportunities to study became more evenly distributed in society compared to the communist past, when all efforts were concentrated on building a static society with emphasis on basic education and barriers to higher education. Important to notice is that the motive for emphasizing basic education was not based on philanthropy. The main purposes were to build loyalty to the regime and to maintain the hierarchy of society. The main problem of central planners in this field was a direct consequence of assuming the role of organizing the economy. With total control of the economy, communist leaders had to realize that they became responsible for assigning people even to the most menial jobs. In the words of a Hungarian government official, the question is “who will get the hoe if everybody studies?” Although most of the early leaders of the socialist countries were not highly educated, this ruling elite soon

realized that privileged access to education was an important factor in maintaining their power. The barriers built in the educational system served this purpose efficiently.

On the other hand, education had to be free for the sake of socialist rhetoric. As result, free higher education, available for everybody in theory, benefited the elite even more than a higher education with high tuition fees. Different mechanisms were built in to the entrance exam process facilitating a selection in favor of the privileged groups. Communist decorations, party membership of the parents, and references from the secretary of the local section of communist youth organizations all played a part in the entry process. In order to avoid brainwashing, my own “camouflage” was a membership in the communist youth organization in my village instead of in the high school. With this step, I could avoid both repeated questions about why I am not a member of the communist youth organization and active participation.

These selection methods, combined with free higher education, worked well despite providing some limited opportunities for students outside the privileged groups as observed also by Mickelwright.

Studies and data emerging in the 1990s, however, have confirmed that as in some other aspects of life in the socialist system there were considerable disparities in educational opportunities and achievements. Access to upper secondary and tertiary levels of education showed many of the differences associated with social class background that are found in Western countries. ... In both countries [Hungary and Poland], the children of the highest social class were almost four times as likely as the average person to obtain an academic upper secondary or tertiary qualification, while children from other non-manual backgrounds were about twice as likely to do so. This fits strikingly with the pattern shown for Western European countries. (Mickelwright 1999, 351)

One important distinction has to be made, though. In Western countries, parents or students had to pay more for better education.

## **5. Housing Programs**

Subsidized housing was another forgotten source of inequality in socialist countries. Parallel to the forced industrialization in the late 1950s and the 1960s, socialist countries started massive residential construction programs in the cities. The main purpose of these housing programs was to provide subsidized housing for the working

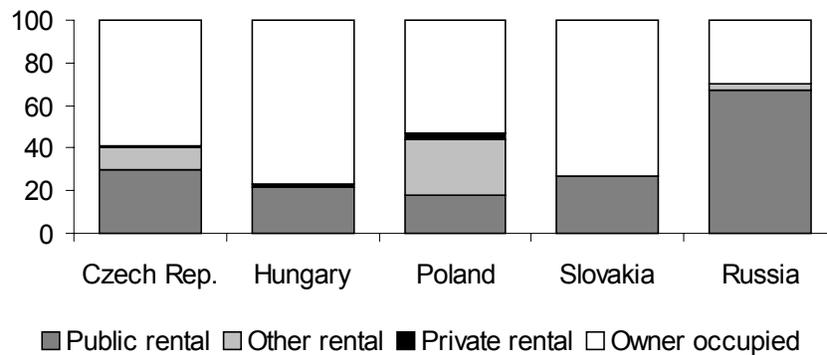
class, at the expense of the rural population and the homeowners in the cities. The new housing units were usually owned by the state and administered by the city councils. While the allocation of these units was characterized by the usual corrupt practices of the socialist regime, the rents were very low. In contrast, instead of subsidized housing programs villages experienced forced collectivizing of privately-owned farms and nationalizing of livestock and farming equipment. Construction programs slowed down by the 1970s, but housing in the cities was still heavily subsidized by the state with rents well below the cost of maintenance. In Romania, state residential construction reached the villages also in the 1980s. In most cases, however, Romania's housing programs were forced relocations instead of subsidies in the case of rural population, because construction was started by destroying family houses. As a result, many villagers were forced to live in four or five-story concrete panel buildings without central heating, carrying firewood by foot to their apartment every day.

Despite these programs, the share of the population living in state-owned apartments was only around 20 % in most Eastern European countries, with a substantially higher rate in the former Soviet republics, as illustrated in Figure 5.3. In his analysis on changing finance of housing in transition, Diamond describes the reason for this difference as follows:

Until 1991, Russia, as part of the Soviet Union, had one of the most regulated housing markets in the world. Housing construction and allocation was under total state control. The only activity that could be called market-oriented was informal and hidden.

Because the emphasis was on state-owned rental flats managed either by state enterprises and organizations and allocated mainly to their employees, or by local Soviets (municipalities), nearly 80 percent of the stock in cities and towns belonged to the state. However, it was still possible (*generally in rural areas*) [emphasis added] to obtain land for construction of single-family houses as long as that construction was in compliance with strictly regulated norms and rules. (Diamond 1999, 125)

Figure 5.3. Distribution of Housing Units by Status in Selected Transition Countries in 1990 (Data from Diamond 1999, pp. 37, 63, 86, 105, 125)



According to the data, private rental was either extremely rare or non-existent. In contrast, shortages in state-provided housing forced many people to rent rooms or apartments from individuals. This practice, however, had been illegal or quasi-illegal in the socialist era. On the other hand, private rentals from individuals had a significant impact on income inequalities in both the pre-transition and the transition period. In the pre-transition period, income from subletting rooms or apartments was an invisible income transfer, often from commuters living in villages to the already subsidized part of the urban population. This transfer caused an unreported increase in income inequality. For the transition period, income from sublets has been heavily underreported in income surveys, since this income is easy to hide from the tax authorities. In the transition period, however, this income transfer may cause a decrease in income inequality, because in many cases the landlords are low-income individuals living in former industrial cities that suffered most from recession.

## 6. Cities vs. Villages in Socialism

The level of housing subsidies was not the only difference between cities and villages under the socialist regime. Basically all urban development had been at the expense of the rural population. While income from farm self-employment is usually counted in income surveys (see Table 4.1), the value of subsidies not directly allocated to individuals is not counted. On the other hand, most of the schools at the level of secondary education or above were in cities, even if they trained workers for the

agriculture. Health care institutions and public administration were also concentrated in the cities. These were, however, not the most serious factors shaping the differences between the rural and urban population.

While concentrating on forced industrialization, central planners overlooked a less interesting, but more important sector of the economy: agriculture. As a consequence of this failure, socialist countries experienced serious food shortages during the 1950s. Since land was still privately owned, communists found private ownership to be the reason of food shortages. Their solution was to fulfill the needs of the cities by requisitions in the villages. In many cases, they took even the seed and workstock needed for the next production year. When the communists realized that requisitions did not solve the problem, they turned to forced collectivization, practically turning landowners into slaves of the state. Neither the impact of these measures on inequality, nor the cost of replacing this capital, which was often paid by the former farmers in terms of money and overtime work, was counted in income surveys of socialist statistics. A good illustration of this gap between the city and the village can be found in Berend's description of the reforms in Hungary during the early 1980s, when the communist government experimented with new concepts to incentivise workers of state-owned companies.

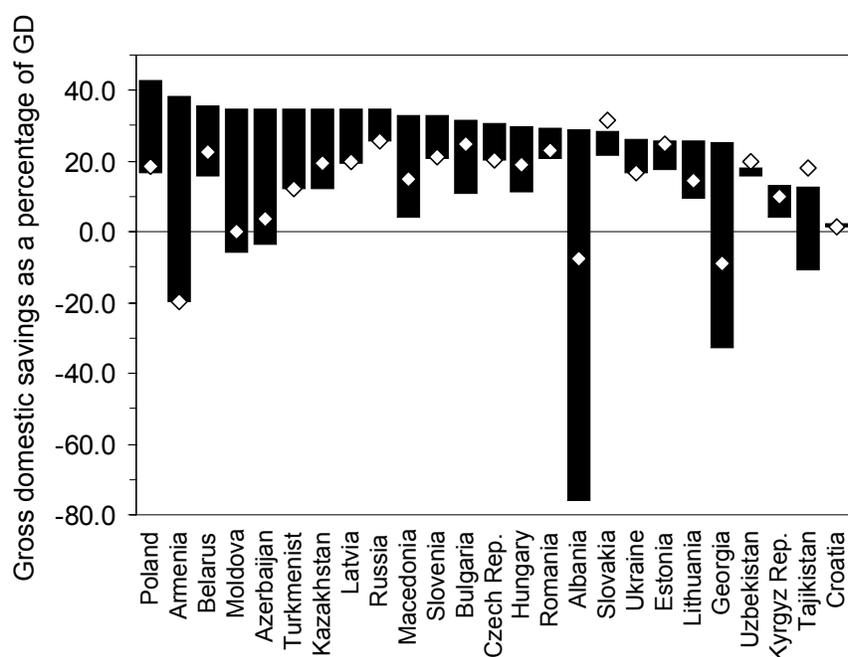
In the state-owned large industrial enterprises, worker-engineer cooperatives were established. Members sign contracts with their own companies, whose machinery and tools they use. They do overtime on their own for considerably higher pay, increasing labor input significantly. The result is that while legal working hours had been curtailed to 40 hours per week, the activities of these cooperatives and individuals increased the total working hour on a voluntary basis. *Previously this phenomenon was observable only in agriculture, where half the number of those employed in industry contributed the same number of working hours as the industrial work force.* [emphasis mine] (Berend 1990, 400-401)

## **7. Savings**

Lost savings have probably been the most common reason for nostalgia during the transition. Savings provided a perception of security in the past, and savings in socialist countries were “among the highest in the world, averaging about 30 percent” (Denizer and Wolf 2000, 446). During the first few years of transition, however, saving rates dropped dramatically in the transition countries as shown in Figure 5.4. Remarkably,

these changes followed the same pattern as many other variables like inequality, economic growth, or per capita GDP to name a few. In the pre-transition period, socialist countries looked like a homogenous group with economic indices corresponding to the socialist ideology. Shortly after the political changes, however, this exemplary uniformity ceased to exist with saving rates reflecting much worse conditions during the early years of transition than in the pre-transition era. The correlation between the saving rates in 1989 and in 1995 is weak with an  $R^2$  value of 0.0039.

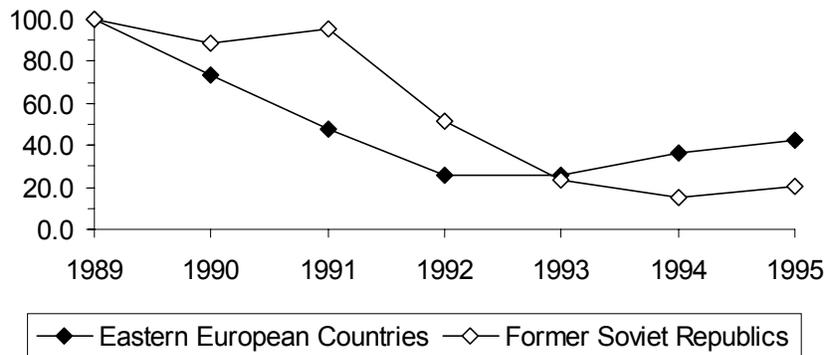
Figure 5.4. Changes in Saving Rates in Selected Transition Countries between 1989 and 1995 (Data from Denizer and Wolf 2000, Table 1)



Bars indicate the decrease in saving as a percentage of GDP between 1989 and the year with the lowest saving rate. Diamonds indicate the saving rate in 1995. The starting year for Croatia and Ukraine are 1991 and 1990 respectively.

Another characteristic of the changes was that the rapid decrease in the saving rates coincided with the first two or three years of the transition in both the Eastern European countries and the former Soviet republics as shown on Figure 5.5. While the saving decline started in 1989 in the former independent socialist countries of Eastern Europe, the former Soviet republics experienced no decline until the collapse of the Soviet Union in 1991.

Figure 5.5. Average Savings of the Eastern European Countries and the Former Soviet Republics between 1989 and 1995 as a Percentage of the Savings in 1989 (Calculated from Denizer and Wolf 2000, Table 1)



This coincidence supports the argument of Denizer and Wolf (2000) that the reason for the rapid decrease in the saving rates was involuntary saving in the pre-transition period. Since the access to goods and services depended on privileges and connections in the centrally-planned economy, those not privileged or connected could not spend on goods they needed. As a result, these citizens were able to save, changing their perceptions about the real inequalities in the society.

During the transition to a market-oriented economy, these barriers ceased to exist so spending on goods previously unavailable became possible. At the same time, however, high inflation devalued these savings, giving the impression of growing poverty. An important point in this case, however, is that market liberalization did not increase poverty and income inequality. Savings in the socialist era could not be spent; therefore, their real value was well below the perceived value. In other words, the part of income saved during the socialist era was less valuable for people without privileged access to certain goods, causing income inequality in the pre-transition era to be underreported.

## 8. Privatization and the Last Decade of Socialism

It was not an accident that socialist countries started to experiment with reforms from the mid 1970s. While the oil price crisis seems to be an obvious explanation, it was

not the real reason. In fact, the escalation of oil prices in 1974 even helped the Soviet Union because of its huge oil reserves. The real reason was different. World War II caused serious losses for the Soviet Union and also for the new socialist countries of Eastern Europe. While the Soviet Union tried to cover its losses by forcing some of the Eastern European countries to pay compensation, these countries turned to nationalizing the industry for revenue. Nationalization partly provided the funds for war compensation to be paid to the Soviet Union, and the material basis of the new socialist regimes. On the other hand, nationalization did not create wealth or raise the capital assets of these countries. As a result, socialist countries experienced their first economic crises as early as the late 1950s. Since central planning did not create the incentives necessary for economic development, socialist leaders turned to the proven method of taking property by force again. This time they quasi-nationalized the agriculture sector by forced collectivization during the 1960s. By collectivizing, however, they exhausted their last reserves. There was nothing to take and nobody to take from any more.

At this point, central planners had two choices. They could either satisfy their needs by further expansion to countries outside the socialist block, or incentivise people by letting them own private property beyond immediate consumption purposes. The first option was not sustainable because wherever socialist economic principles were introduced, they destroyed the economy of the given country. As a result, economic liberalization remained the only option. On the other hand, communist leaders or beneficiaries of the socialist regime did not always recognize these problems. Reforms in Czechoslovakia, for example, led to a Soviet-led intervention of Warsaw Pact countries in 1968. Another example is the case of Hungary, where the reforms of 1968 caused internal social conflicts as well as a rapid rise in acknowledged inequalities. As Berend stated, “before 1968 the ratio between the lowest and highest salaries was 3:1; it quickly changed after that year to 9:1.” (Berend 1990, 397)

Major changes, however, could not be postponed for a long time. Starting in the early 1980s, socialist countries followed similar paths of reforms directed by the communist governments. The first step was the creation of small, semi-independent production units within state enterprises as described by Berend (1990) in the case of Hungary. These units were composed of employees who performed certain tasks as

regular employees and others on a contracted basis. Although these units created an incentive for overtime work, they had serious disadvantages. The main problem was that employees when working in these production units used the same equipment provided by the same company as in their regular jobs. They were also better paid for contracted tasks. As a result, these employees became practically counterproductive in their regular jobs in order to guarantee that they could perform the same tasks as contracted work later.

Parallel to the introduction of these production units, socialist governments allowed some primitive forms of small private enterprises. Connections or bribes, however, were essential when applying for a license. As a result, communists often became the first “successful entrepreneurs” in an environment without competitors, as in the case described below:

In the wine country south of Budapest, I meet Gábor Kemény in the little town of Izsák. Kemény, a former Communist Party member, is Izsák’s most successful entrepreneur. He owns a pleasant restaurant named Fekete Bárány (Black Sheep), the general store, and the local gas station. He makes wine and champagne on land leased from the local cooperative. He would like to expand his financial empire, and believes that all the land confiscated by the communists should be returned to its original owners. (Szulc 1991, 25)

Another component of preparing for the transition period was the increase of consumer prices, resulting in high inflation in the last decade of the pre-transition period and the erosion of the real value of savings for those unable to spend their money on goods and services due to shortages. Some of these savings were also spent on shopping trips in Western Europe, mainly Austria, Germany and Italy during the last few years of the socialist regime and the early years of transition. The intensity of this shopping tourism also indicates that the lack of access to desired consumer goods, not socialist frugality, was the reason behind savings in the pre-transition era.

Parallel to the process of the devaluing savings, communist leaders of the former socialist countries prepared for privatization. Enterprise reforms starting in the 1980s, and in some countries even earlier, were aimed at “lightening the amount of control of planners” (Nellis 2002, 3). The stated goal was to create incentives through more

autonomy. On the other hand, these measures had a serious side effect observed by Estrin (2002), which was probably intentional.

Under communism, the monitoring of management and the incentives for efficiency were already weak. But with the collapse of central planning and the lack of any other external constraints, managers and insiders in transition economies gained almost total discretion to follow their own objectives, leading to “asset stripping” by managers, job and wage guarantees for workers and rent absorption by all parties. This pattern was exacerbated in countries with well-entrenched black economy and sometimes led to a virtual “capture” of the state-owned apparatus, including the natural resource and utility sectors, by unscrupulous managers. (Estrin 2002, 107)

Given that the elite was well-positioned and that the public wanted changes, the first wave of privatization passed over quickly. Fearing that the reform process may turn around, most researchers and external advisors also preferred rapid massive privatization to a slow, but maybe more considered process advocated by Kornai (1990). This speed, however, had a price. In Russia, for example, “The need to reward the key stakeholders had led to firm managers and workers, ‘insiders’ as they became known, ending up with a dominant 2/3 of the shares in about 2/3 of all firms divested.” (Nellis 2002, 50)

Another important aspect of privatization was the exclusion of foreign purchasers. With the exceptions only of Hungary and Estonia, where foreign capital purchased about 20 and 50 percent of the privatized assets respectively, foreign investors were unable to participate in the privatization (Estrin 2002). While this exclusion was mainly attributed to a public aversion to foreign ownership, I believe that it was due more to aversion by the elite. Their interest was in convincing the public about the advantages of excluding foreign investors. With this measure, the elite eliminated competition from foreign investors in order to achieve better prices for their purchases. Another advantage of excluding foreign investors was that it was easier to hide valuable information from the public.

Ingrown reflexes from the socialist era and the willingness of the old-new elite of the early transition, who continued the practices of the past in order to take advantage of their position in the government, also affected the outcomes of privatization as illustrated with an example from the former Czechoslovakia:

At the last moment some cracks had appeared in the Stalinist walls: Officials in Prague in May 1990 noted that from late 1988 workers in large firms had been allowed to select their managers, from a list of three presented to them by the branch ministry. They said they had regarded this as a revolutionary change at the time. What was striking, however, was that the post-communist regime reversed this decision in April of 1990, and reinstated managerial appointment solely by the branch ministries. Why? Because ‘the professors and researchers’ who made up the new administration accepted – unlike the Poles, with their longer history of struggle and suspicion, and the availability of alternatives – that *it was the state that had to define and allocate property rights* [emphasis mine]. (Nellis 2002, 24)

In his 2002 article, Roland argues that while privatization policy favoring insiders could result in a high concentration of wealth and power, the objection to such concentration may not be the ultimate reason. These privatization policies themselves could be the results of prior rent-seeking activities during the pre-transition period. The above quote also supports this second statement: not the policy choices of the transition period, but the efficiency of the elite to position itself was the main determinant of today’s differences in the transition countries. In other words, privatization did not increase inequality; it only made it visible and measurable. The control over the same wealth had been more concentrated before the transition than in the transition period; it only changed its form from political control to a control based on ownership.

As seen in the first part of the chapter, statistical data from the socialist era did not provide a valid base for comparison between the socialist and the transition period. Economic indices were meaningless in a centrally-planned economy and the purpose of statistics was to justify the existence of the regime – not to reveal its real character. As a result, the methods used were unreliable and inaccurate, while suitable to hide a bias in the order of magnitude comparable to the measured changes in worst-case scenarios. In addition, the socialist economy and society had built-in mechanisms to hide huge income transfers from even the most accurate survey methods. Consequently, the ultimate source of the inequalities was neither the economic or political liberalization, the transformation from a centrally-planned to market oriented economy, nor any other aspect of the transition process. Rather, what caused the inequality was uncontrolled political power in

the socialist era. Being uncontrolled, this power provided the opportunity to concentrate on the benefits of the economy through legalized pillage of private property, the promotion of corruption and the system of privileged access to consumer goods.

In summary, inequalities in real disposable income were so high in these societies, and survey methods were so unreliable that, even if the real inequality measures of the socialist era cannot be reconstructed, a real increase in income inequality is not likely.

## **VI. CONCLUSION AND RECOMMENDATIONS**

Despite the unprecedented gain in economic and political freedom in most transition economies of Eastern Europe and Central Asia, nostalgia for the communist past still lingers on even in the most advanced countries of the region. Since the apparent increase in income inequality is among the most important factors fueling this nostalgia, this thesis examined the different factors behind this increase in the previous chapters.

The purpose of this last chapter is to summarize the most important findings of the analysis, and to introduce the policy implications for the transition countries and the international organizations participating in the development process.

### **A. CONCLUSION**

In the past few years, research on transition economies found that income inequality increased in spite of a parallel liberalization of political and economic life in the former socialist countries of Eastern Europe and Central Asia. Together with the possible role of stated egalitarian values of socialism (Gradstein and Milanovic 2000), higher skill and education dependency in wage inequalities (Milanovic 1996, 1999, Kattuman and Redmond 2001), the emergence of the private sector, unfocused government transfers, a growing difference between urban and rural populations (Milanovic 1996, 1999), and the growing share of an unofficial economy (Rosser, Rosser, and Ahmed 2000) all were factors identified as the main causes of the apparent increase.

Since the observed increase in inequality occurring parallel to political liberalization contradicted previous findings in other regions (Gradstein and Milanovic 2000), and many authors warned about poor data quality (Milanovic 1998, Rosser, Rosser, and Ahmed 2000), overlooked factors (Kattuman and Redmond 2001), and the effect of special circumstances (Ferreira 1999), the apparent increase of income inequality was suspect and required further analysis. In order to assess the validity of the results, I have researched various factors that have an effect on either the level or the measure of income inequality.

In this analysis I found that the reported negative effect of political liberalization on income inequality is probably not valid for the following reasons.

- First, as it was shown in the third chapter of the thesis, important factors other than democratization had a substantially stronger effect on income inequality than that of political liberalization. For this reason, the conclusion that income inequality increased despite the political liberalization is more likely.
- Second, the effect of the changing measurement methods, mainly because of the poor characteristics of socialist survey methods and practices, was highly underestimated. As was shown in the fourth chapter, economic indices of socialist statistics were meaningless, and the Soviet-type survey method provided an opportunity to hide differences in the magnitude of the worst cases found in the transition period. Additionally, the employees of state statistical offices were incentivised to produce the survey results predicted in the five-year plans, while independent researchers had practically no access to data not manipulated by state officials of these countries. The most important implication of this chapter is that the bias could be big enough to account for the apparent increase in income inequality.
- Finally, the fifth chapter described several “officially non-existent” income redistribution mechanisms prevalent in the pre-transition period. These mechanisms were powerful enough to create and maintain a much higher level of income inequality than what was found in the transition period. Moreover, most of these mechanisms also had the effect of hiding the differences they had created. In addition, programs that increased income inequality by helping some of the higher-income people looked to the outside world like programs that actually helped the poorest. The reason is that most of these countries were much poorer than the official communist propaganda reported. Therefore, a program that subsidized, say, petty party functionaries and miners, who were poor by Western standards, actually transferred wealth from the poorest to the second-highest tier in communist society.
- In conclusion, while the accumulated inequalities of the socialist era became visible and measurable in the transition period, a real overall increase in income inequality throughout the region is not likely. On the other hand, some of these countries, especially those rich in natural resources, might have

experienced a real increase in income inequality for reasons other than political and economic liberalization.

Beyond being a source of nostalgia for the communist past, income inequality in transition countries is important as a measure of poverty and an indicator of the “state of affairs” in these countries. The equality of income and wealth, however, is only one aspect of welfare and not the most important. In fact, the causes of income inequality are more important than the level of income inequality itself.

Adam Smith (2000, xxiii) identifies annual labor as a source of wealth for a nation. In ideal circumstances, the same should also be true for the wealth of an individual. In other words, the first cause of inequality is the labor of different individuals. People have different abilities, skills and interests and they also have different preferences. Some of them value free time more than material wealth, others prefer studying until their late thirties to starting work in an auto repair shop at the age of eighteen and have a beer in the evening instead of reading another book. Some people prefer a constant growth in the quality of their lives; others prefer to spend more when they are young. These differences are not necessarily large, but over a long time they make a visible difference in income and wealth. In a market economy, higher income means that the labor of a particular individual is valued more by the society than that of others. These differences are beneficial because they help create incentives to work and form the composition of labor force matching the needs of the society. While this component contributes to an increase in income inequality in the transition countries, an increase for this reason is beneficial to the average citizens.

Another cause of inequality is the difference in the willingness to take risk. Some people are willing to take a substantial risk in order to have a high income or gain. They may either succeed or fail in their ventures, increasing inequality in both cases. Since taking risks is often necessary to fulfill certain needs, an inequality from this source is also beneficial in a free society. In the socialist era, however, taking risk for honest financial gain would have drawn unwanted attention to the entrepreneur from the authorities. On the other hand, no venture was risky for the members of the nomenklatura and the well connected because of their uncontrolled access to state resources. As a

result, taking risk for economic reasons was not characteristic of socialist countries; therefore, this component also contributes to an increase in income inequality in the transition countries for the benefit of the average citizens.

It is important to notice that both mechanisms described above are based on voluntary actions. Therefore, they benefit the average citizens by providing more options to choose from. The third cause, however, has a different nature. Besides working harder or taking more risk, wealth can also be redistributed by taking the property of others by force. As seen in Chapter 5, this factor had a determining role in shaping the inequality of income and wealth in centrally-planned economies. In addition, this plunder was often legally conducted by the state in an industrialized manner. Since plunder does not create wealth, but only redistributes it and reduces it in the process, its effect on income inequality is stronger than that of other causes. With economic and political liberalization, the increase in income inequality originating from plunder can be decreased substantially. Since plunder was prevalent in centrally-planned economies, liberalization should result in a substantial decrease in income inequality even if other factors contributed to an increase. Therefore, an apparent increase in the measures of income inequality can be the result of two reasons.

First, the huge systemic bias in socialist statistics and the improvement in survey methods could make a decrease in income inequality appear as an increase. Second, the economic and political liberalization could be smaller or less effective in some transition countries. One reason for the latter is cultural. After decades of socialism, people in these countries have little experience with democracy and freedom. Therefore, even if they have the means to control their politicians, they may not be able or willing to do so. On the other hand, their elected leaders have little interest in teaching people how to claim their rights, since the remaining old mechanisms of the socialist regime benefit them now.

## **B. RECOMMENDATIONS**

“The only way to increase a nation’s real income is to increase its real output.” (Henderson, 2002, 26) Therefore, policy makers and external advisors of transition economies should concentrate on economic growth rather than the equality of income and wealth. In a market economy, income inequality creates incentive to work harder, study

more, and take sensible risks, and it contributes to economic growth. On the other hand, inequality caused and maintained by plunder discourages people from working or studying more and hinders economic development. Therefore, further research should focus on the causes of inequality instead of its level, with special attention on corruption and income redistribution through government transfers.

After decades of socialism, people in the transition countries cannot always differentiate between inequalities caused by different factors. For this reason, eliminating income inequality from corruption, fraud, abuse of power, and unjustified government transfers is even more important in these countries. First, people would understand the benefit of income inequality from other sources if they were not overwhelmed by the negative consequences of the abuses described above. Second, incentives generated by justified inequalities would facilitate further economic development, stabilize the present achievements and help people understand democracy and freedom through encouraging honest enterprises.

In order to achieve these goals, governments of transition countries need to change their present policies substantially. The economic miseries caused by more than four decades of central government planning cannot be cured with other government programs. Since the apparent increase in income inequality is at least suspect, if not spurious, it does not justify preventing further economic and political liberalization. As seen, most of today's problems have their roots in the socialist past extending to government programs based on false benevolence, with unreliable data further maintaining them. The only possible way to improve the living conditions of the people of these countries is not further government intervention but further economic and political liberalization.

Instead of nurturing nostalgia, governments and legislators of the transition countries should abolish unnecessary restrictions on their economy, eliminate subsidies and decrease taxes, and cut back on the overgrown and inefficient system of government transfers, including social security. Additionally, transition countries should reinforce public administration and jurisdiction through extended training of government officials, and determined measures against corruption and fraud.

Transition governments, however, cannot make these changes alone and democracy will not work without the active participation of its citizens. People have to stand up for their rights and claim control over their own lives. They need to understand that controlling their government's activities is not only their right but also their responsibility. People in these countries, who feel disappointed comparing their lives to the life in wealthier, more developed countries have to understand that they cannot measure progress by comparing their life to that of other nations. They have to compare the present to the past to see what they have achieved in a short time. They did not miss today's luxuries before the transition only because they had no access to them. They have not lost anything by having more freedom. The nostalgia for the communist past has to be replaced by the nostalgia for the past when the greengrocer on the corner wanted to make her fellow citizens happy because she was dependent on their money to make a living. In contrast, in the socialist era the central government determined whether they were eligible for something they had already paid for in taxes they were not even aware of.

Unfortunately, the average citizen in the countries of the region have little and inferior experience in the use of their civil liberties and democracy. For this reason, citizens may not be able to use their opportunities to the fullest extent while they are reluctant to actively control politicians between the elections. On the other hand, governments of these countries are both unable to improve, and actively against improving, these capabilities of their citizens. Therefore, these countries need external help to build stable democracies and facilitate economic and social development. This external help could come from international organizations. When setting agendas for further liberalization, however, these entities should not be blackmailed by the highly visible and displayed poverty and miseries in these countries. In the last few years they have already focused on the fight against corruption. This policy should be continued and reinforced. On the other hand, emphasizing education in the field of using political liberties would be an effective policy element for the international organizations active in these countries. Since real and lasting changes cannot be achieved without changing the attitudes of the average citizens in the transition countries, supporting the education for political awareness of the average citizens is probably the most important component of any policy for further development and poverty reduction.

There are many ways to do this. Scholarships and exchange programs to Western colleges and universities are among the most effective. On the other hand, most students in the transition countries are not prepared for successfully competing for these scholarships; therefore, the benefits of these programs are often concentrated on the beneficiaries of the communist regimes. Similar programs at lower levels of education would probably be more effective. For example, essay contests for high school students and students of elementary schools and technical schools, rewarded by language courses in Western countries, would be among the most effective means to achieve long-lasting changes.

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