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GEÇİŞ EKONOMİLERİNDE EKONOMİK BÜYÜMENİN BEDELİ GELİR EŞİTSİZLİĞİ Mİ?

IS THE PRICE OF ECONOMIC GROWTH IN TRANSITION ECONOMIES INCOME INEQUALITY?

Dr. Öğr. Üyesi Hatice KÜÇÜKKAYA

Aydın Adnan Menderes Üniversitesi, Aydın İktisat Fakültesi, Ekonometri Bölümü, Aydın / TÜRKİYE, ORCID: 0000-0002–9938-9794

Dr. Öğr. Üyesi E.Yasemin BOZDAĞLIOĞLU

Aydın Adnan Menderes Üniversitesi, Aydın İktisat Fakültesi, İktisat Bölümü, Aydın / TÜRKİYE, ORCID: 0000-0002-9409-8509

ÖZET

Gelir eşitsizliği konusu son yıllarda literatürde üzerinde sıkça durulan konulardan biri olmakla birlikte, geçiş ekonomilerini gelir eşitsizliği açısından inceleyen çalışmaların azlığı bu çalışmanın temel hareket noktası olmaktadır. Geçiş ekonomilerinde, geçiş sürecinin ilk yıllarında (karşı karşıya kaldıkları ekonomik durgunluk ile birlikte) milli gelirlerinde önemli daralmalar gözlemlenmiştir. Bu ülkeler, piyasa ekonomisine geçiş bağlamında dışa açılma temelinde politikalara yönelmişlerdir. Bu yönelim ülkelerin tüketim kalıplarını da etkilemiştir. Geçiş süreci ile birlikte ülkelerin gelir dağılımı bozulma yönünde bir sürece girmiş ve gelir dağılımındaki eşitsizlik artmıştır. Burada önemli olan, ülkeler arasında geçiş sürecinin gelir eşitsizliği yönünden ortaya koyduğu farklı sonuçlardır. Bu nedenle, çalışmada 1990 sonrası dönem için gelir eşitsizliği trendini etkileyen faktörleri belirlemek ve bu faktörlerin etkisini tespit edebilmek amaçlanmaktadır.
Anahtar Kelimeler: Gelir eşitsizliği, Geçiş ekonomileri, GMM

ABSTRACT

The income inequality issue, along with being a highly debated subject in the literature recently, and the inadequate number of studies focusing on the transition economies with regards to income inequality constitute the starting point of this study. In the transition economies, significant constrictions in national income have been observed in the early years of transition (along with the economic stagnation). These countries have followed international expansion policies within the context of transition to market economy. This orientation also affected the consumption habits. With the transition process, the income distribution in these countries started to deteriorate and inequality in income distribution rose. Therefore, with this study, it is aimed to determine the factors which affected the income inequality trend for the post 1990 period and to discern the effect of these factors.
Keywords: Income inequality, Transition economies, GMM

1. INTRODUCTION

From the point of studies that we investigate income inequality trends of the transition economies, since the beginning of the transition, inequality has experienced a sharp increase in these economies. There is

a vast literature concerning the relationship between income inequality and economic growth. We want to draw attention to this relationship in the transition economies.

The reason why we focused on the transition economies is that the rise in income inequality accompanies the rise in economic growth. Our research covers the time period between 1990, when most of the countries studied here are taken as transition economies, and 2015, which is the year of bigger numeric values in both income inequality and economic growth. Although, starting with the collapse of Berlin Wall, Former-Soviet republics experienced economic slow-down, it seemed that a prima facie disadvantage for these countries turned out to be a positive economic growth. There is another eyecatching point that for the mentioned period, the transition economies aimed to increase the living standards; nevertheless, the outcome was the increasing income inequality due to planned economies.

Existing literature about the relationship between income inequality and economic growth focused on testing with Kuznets hypothesis. Differing from those, this paper observes this relationship by panel data estimation techniques with econometric models from new studies.

The plan of the paper is as follows. In the next section, economic performances of the transition economies during the period 1990-2015 are elaborated in a more detail way. Section 3 presents data and methodology. Econometric models and estimation techniques are also introduced in this section. While Section 4 presents empirical findings of the paper, Section 5 is allocated for conclusion.

2. ECONOMIC PERFORMANCES OF THE TRANSITION ECONOMIES SINCE 1990

There are various perspectives about economic performance of the transition economies. One of those, Svejnar (2002:7) claims that the transition economies have not performed as well as many had expected. Economic performance has also showed variance widely across the transition countries, with central European countries of Poland, Slovenia, Hungary, Slovakia and the Czech Republic generally performing better than the Baltic states of Estonia, Latvia and Lithunia and the Balkan states of Bulgaria and Romania, which performed better than Russia, Ukraine and other countries in the Commonwealth of Independent States. Contrary to this opinion, Wan (2002:1) indicates that changes in the fundamental of various economies and availability of new datasets naturally give rise to different perspectives and may call for different approaches.

At this point, we need to discuss the definition of the transition before going on any further. With the fall of the Berlin Wall unexpectedly, there was no preexisting theory of the transition. After the fall of the Berlin Wall former socialist countries' transition period has started. The transition period is also especially complex when compared to other economic events and issues (Roland, 2001: 29-30).

If we start research on the transition with Milanovic's assesment, the transition period leads to both political developments and economic fluctations. Social costs of political development in this period can be demonstrated in three categories. The first category is the costs associated with decreases in output due to the change of the system and to macroeconomic stabilization. These costs contain lower incomes, higher income inequality and greater poverty. Second cost is associated with the job-loss due to the transition. Poverty sometimes keep company with job-loss, but not all the time. Third costs are associated with civil strife. Costs of lives lost, people becoming refugees and destruction of property can be handled in this category.

Svejnar (2002) adds several reasons that affect the performance of the transition economies negatively. Some of these are: advanced Western economies did unusually well in the 1990s, the economic problems associated with the transition were widely underestimated and policymakers made a number of questionable choices. He also draws attention to the case that the transition economies have not performed as well as many had expected. In addition to these, economic performance has also varied widely across the transition countries.

In between these approaches, Kaasa (2003) has focused on the factors influencing income inequality. These factors are enumerated as: economic growth and the overall development level of a country, inflation and unemployment as macroeconomic factors, demographic factors, political factors and historical, cultural and natural factors. Kaasa also has drawn attention as the transition processes

continue, income inequality will probably decrease. Following fifteen years, this issue has not happened as Kaasa expects.

Concentrating on the relationship between economic growth and income inequality specifically, there are Wan (2002), Sukiassyan (2007) and Cingano (2014). Wan (2002) examines this relationship by testing Kuznets hypothesis both using linear and nonlinear models. Sukiassyan (2007) has reexamined various dimensions of relationship between economic growth and income inequality in the specific context of the transition economies. Despite the fact that these countries shared many similar characteristics as having low levels of inequality at the beginning of the transition period, over time they diverged considerably.

As mentioned above, it is clear that there has been important progress with regards to economic studies on transition; however, considering the scarcity of studies focusing on the transition economies with respect to income inequality, with this paper, we aim to extend the analysis including income inequality in order to fill this gap.

3. DATA AND METHODOLOGY

In the empirical studies which concern about income inequality, the data issue has mostly been a problematique. In the 1990s, Deinenger-Squire (1996) database has been used in a wide range of empirical literature. However, in recent years, various databases have become prominent. Some of these are; Unu-Wider World Income Inequality Database (WIID), The Standardized World Income Inequality Database (SWIID), The World Wealth and Income Database (WWID), University of Texas Inequality Project (EHII) and The Chartbook of Economic Inequality. On the other hand, the significant point in the analysis is what the aim of the study is and whether the calculation method of Gini coefficient deals with the subject appropriately. In this context, aforementioned databases and those used in the literature have been investigated and All The Ginis (ATG) database has been found convenient for this study. Ginis for all countries were taken from this database which has been compiled by Branko Milanovic (Bozdaglioglu & Kucukkaya).

GDP growth (GRO), GDP per capita (GDP) and population series are compiled from World Bank database. GDP growth is the annual percentage growth rate of GDP which is based on constant 2010 US dollars. GDP per capita data are also in constant 2010 US dollars. Population data belongs to total population, which counts all residents regardless of legal status or citizenship.

In this study, 5-year data, belonging to 28 transition economies over the period 1990-2015, has been utilized. Because of the inequality data unavaliability in countries Bosnia and Herzegovina, Mongolia and Tajikistan; sample is reduced to 28 countries. Multi-year (5) data has been compiled for analysis, because gini coefficient in one country does not vary in a year. So, income inequality data in annual form is stable for using panel regressions. Therefore, classic panel estimations such as OLS are not preferred for this study.

Just before mentioning estimation method, summary statistics of variables used in models are presented in Table 1.

Table 1. Summary Statistics of Variables

All countries (28)	**1990**	**2015**
Gini		
Min.	0.18	0.24
Max.	0.38	0.40
Mean	0.26	0.32
Std.Dev.	0.05	0.05
GDP(2010$)		
Min.	1967420993	6082952726
Max.	1413889424698	8908300585868
Mean	170426894515	456346775948
Std.Dev.	346355748376	1655222834290

All countries (28)	1990	2015
GRO (%)		
Min.	-14.79	-9.77
Max.	35.38	8.00
Mean	-2.09	2.74
Std.Dev.	10.85	3.65
GDPpcap		
Min.	446.23	1021.16
Max.	13948.21	23779.88
Mean	3869.32	8858.88
Std.Dev.	3268.84	6505.84
Population		
Min.	1569174	1315407
Max.	1135185000	1371220000
Mean	57320672	66866996
Std.Dev.	209513580	252861865

As Table 1 reports Gini coefficients have risen in 2015 when compared to 1990. This issue can be interpreted from minimum, maximum and mean values. The transition economies have experienced 0.18 Gini coefficient at minimum level in 1990, whereas this value has been recognized as 0.24 in 2015. An increase in minimum value of Gini coefficient is accompanied with those in maximum and mean values of Gini coefficients.

All the transition economies have received increase in value of annual economic growth rates. Annual growth rates have risen in absolute terms in 2015 in comparison with 1990. One value that indicates the annual growth rate of Turkmenistan in 1990 can be interpreted as outlier. This value also affects the maximum values of economic growth rates in 1990. If this value is excluded, it can be said that the transition economies have grown positively in the period 1990-2015. In addition to mentioned economic growth rates, GDP per capita series have also risen in this period. Rise in the standard deviation of GDP per capita series can be also evaluated as closely related with a rise in inequality.

Although summary statistics provide preliminary information about the relationship between income inequality and economic growth, to scrutinise the relationship, we want to look at the graphics of these variables together. Figure 1a to Figure 6b denote that metioned series keep company together.

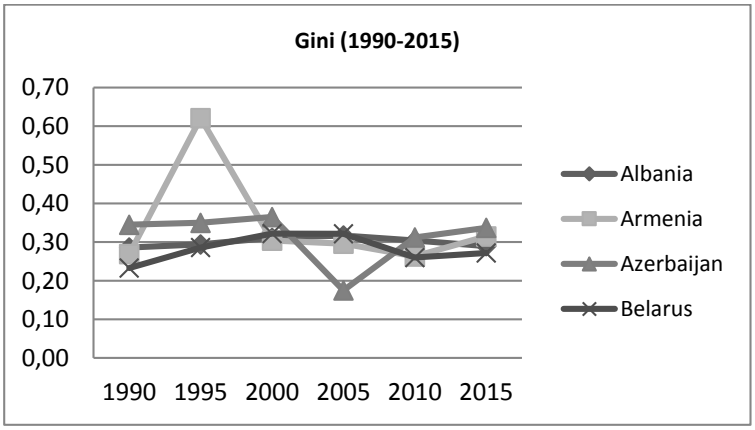

Figure 1a. Gini Coefficient Values 1990-2015

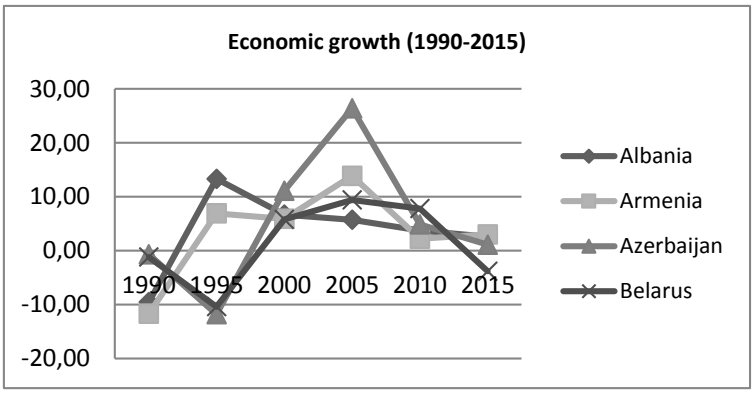

Figure 1b. Growth Values 1990-2015

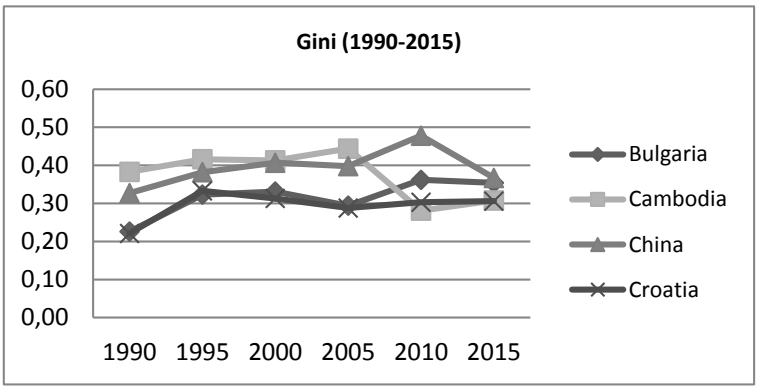

Figure 2a. Gini Coefficient Values 1990-2015

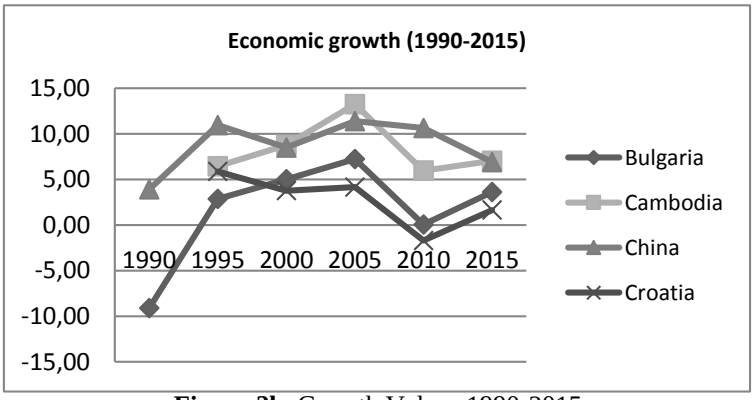

Figure 2b. Growth Values 1990-2015

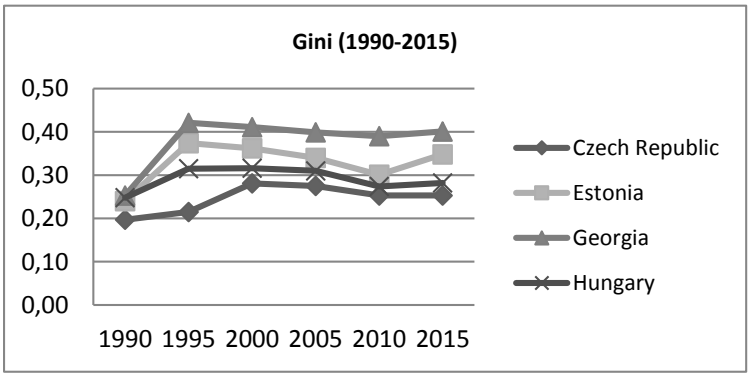

Figure 3a. Gini Coefficient Values 1990-2015

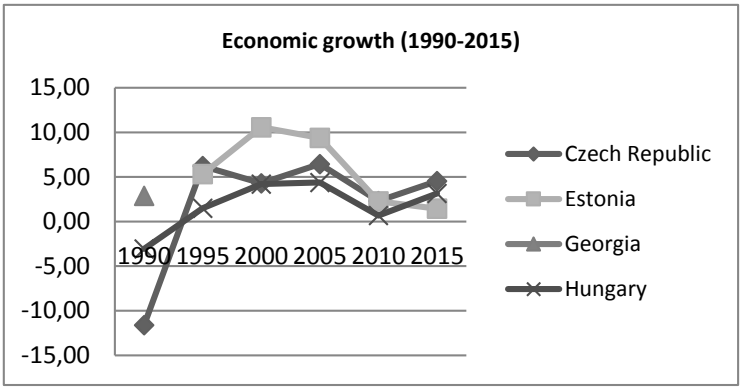

Figure 3b. Growth Values 1990-2015

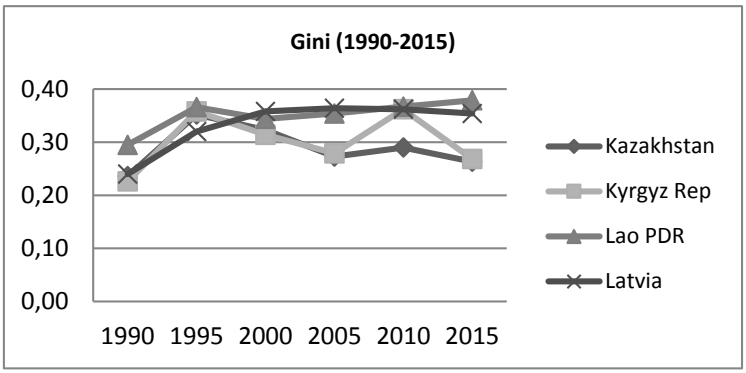

Figure 4a. Gini Coefficient Values 1990-2015

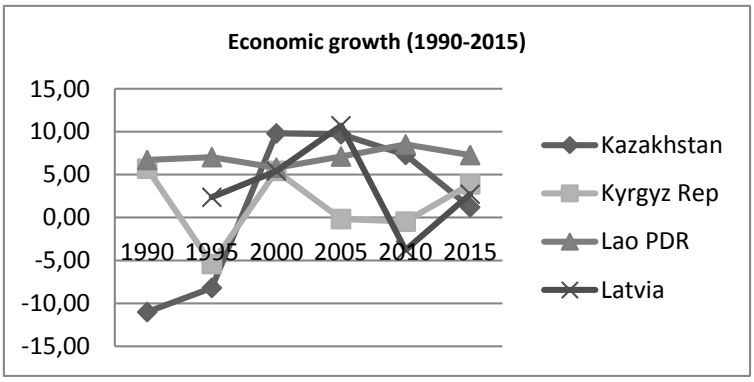

Figure 4b. Growth Values 1990-2015

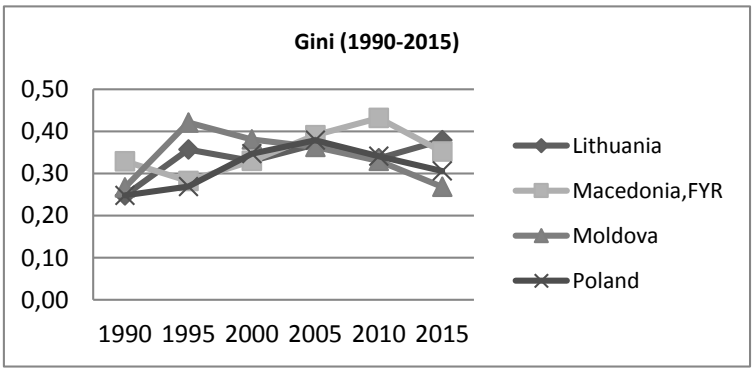

Figure 5a. Gini Coefficient Values 1990-2015

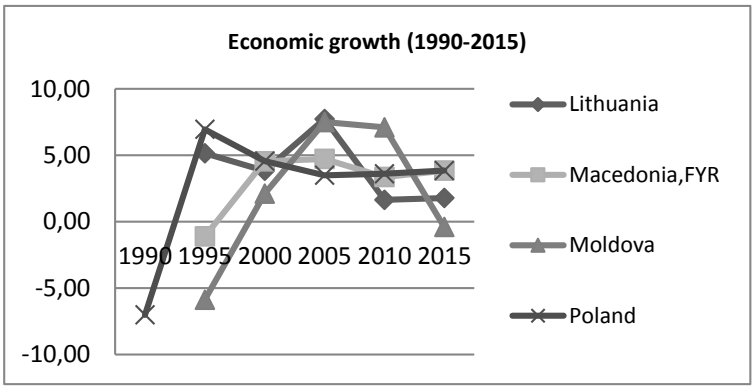

Figure 5b. Growth Values 1990-2015

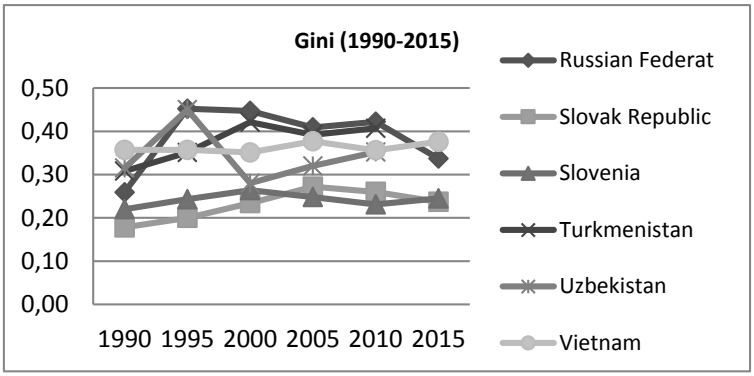

Figure 6a. Gini Coefficient Values 1990-2015

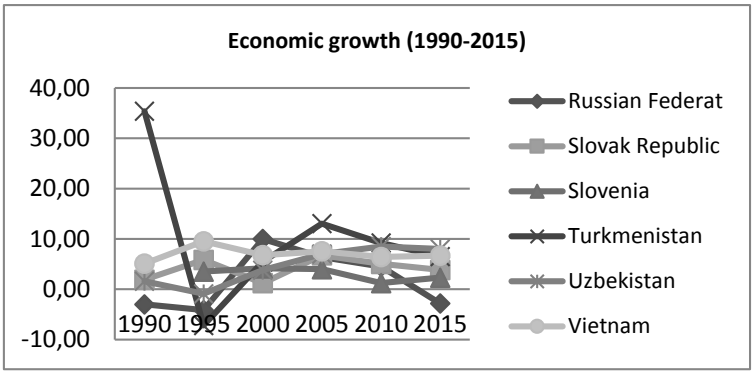

Figure 6b. Growth Values 1990-2015

Figures 1.a-6.b show the values of gini coefficients and economic growth rates of 28 transition economies. From all figures above, it is clearly seen that the series demonstrate similar trends. This means that if gini coefficients tend to go upwards, economic growth rates also go upwards in the same period. This concertedness of series has motivated us to estimate the model with Generalized Method of Moments (GMM) technique. Because of some of transition countries which started their transitions earlier, they have undergone earlier stabilization factors than the others. The relationship between economic growth and income inequality can be affected from several variables such as GDP per capita, population and lagged of gini coefficient and GDP per capita series.

3.1. Methodology

In order to estimate the relationship between the economic growth rate and income inequality we use four models to observe the effects separately. Belonging to 28 transition economies over the period 1990-2015 data has been utilized in this study by the following standard equation.

$$GRO_{it} = \alpha + \beta \ln(Gini_{it}) + \eta_i + \xi_t + u_{i,t} \qquad \text{(2SLS weighted)} \qquad (1)$$

Data of variables have been compiled multi-years (5 years) for this analysis, for gini coefficient in one country does not vary in a year. Therefore, income inequality data in annual form is stable for using panel regressions. Classic panel estimations such as Ordinary Least Squares (OLS) are not preferred for this study. Because of the fact that OLS estimations have certain deficiencies on some models, dynamic panel models are developed for the models including lagged values of dependent variable. Among those models, Anderson and Hsiao (1982), Arellano (1989), Ahn and Schmidt (1995), and Arellano and Bond (1991) can be named.

On this context, Arellano and Bond proposed a generalized method of moments (GMM) technique which is more efficient than the Arellano and Hsiao (1982) estimator. Arellano and Bond (1991) argue that additional instruments can be obtained in a dynamic panel data model if one utilizes the orthogonality conditions that exist between lagged values of dependent variable and the disturbances. Finally, the estimator results with two steps, after these steps acquired, dependent variables from two equations are asymptotically equivalent if the disturbance terms are iid (Baltagi, 2001: 130-131).

In addition to these, GMM estimator estimates the optimal weight matrix. Sometimes this can lead to severe downward bias in the estimated standard errors for the GMM estimator. For this reason, Frank Windmeijer has proposed a method that appears to work well (Söderbom, 2009: 24).

Wooldridge (2001) asserts that the Two-Stage Squares (2SLS) estimator is the most efficient estimator. The 2SLS estimator is obtained by using all the instruments simultaneously in the first stage regression. Because of these assertations of Windmeijer and Wooldridge, equation 1 is estimated by both 2SLS estimator and Winmeijer correction. Thus, equation 1 is reestimated as equation 2:

$$GRO_{it} = \alpha + \beta \ln(Gini_{it}) + \eta_i + \xi_t + u_{i,t} \qquad \text{(Windmeijer)} \qquad (2)$$

To observe the effects of economic growth on income inequality two more models are estimated. These equations are as follows:

$$lnGini_{it} = \alpha + \beta(GRO_{it}) + \eta_i + \xi_t + u_{i,t} \qquad \text{(Windmeijer)} \qquad (3)$$

$$lnGini_{it} = \alpha + \beta \ln(GDP_{it}) + + \gamma \ln(GDP(-1)_{it}) \eta_i + \xi_t + u_{i,t} \qquad \text{(GMM)} \qquad (4)$$

By estimating Models 3 and 4, bidirectional effects of the income inequality-economic growth can be investigated. We additionally include instrument variables per capita GDP and population in Model 1, and lagged value of gini coefficient also added as instrument in Model 2. Per capita GDP, population and lagged value of gini coefficient are also used as instrumental variables in Models 3 and 4. These instrumental variables are the most frequently used and discussed ones in the literature.

4. EMPIRICAL FINDINGS

In Table 2, GMM estimation results where the first coloumn in the table shows the results of estimations of concerning the estimation techniques are presented, while second coloumn shows the variable(s) which is(are) used as explanatory variable(s) in that model, and the last three columns demonstrate the estimates respectively the coefficient, t-statistics and p-values of the variables.

Table 2. Estimation Results

Model	Variable	coefficient	t-statistics	p-value
Model 1 (2SLS weighted)	lngini	-2,821493	-5,569663	0,0000***
Model 2 (Windmeijer)	lngini	11,68786	2,446917	0,0156***
	c	17,18291	3,225336	0,0015***
Model 3 (Winmeijer)	gro	0,0068512	2,208010	0,0288**
	c	-1,397096	-9,816816	0,0000***
Model 4 (GMM)	lnGDP	0,571629	2,201809	0,0293**
	lnGDP(-1)	-0,659341	-2,364363	0,0194**
	c	0,913592	1,245782	0,2149

Note: *,,*** ** denotes 10%, 5% and 1% significance levels respectively.

Model 1 in Table 2 represents the model estimation with GMM technique weighted 2SLS when the only explanatory variable is gini coefficient. Thus in Model 1, the effect of income inequality on economic growth is tested. Gini coefficient is statistically significant at 1% significance level and negative in this model. This means that when income inequality increases in the transition economies, economic growth decreases in these countries.

When the same model is estimated with Windmeijer correction, the estimation is named as Model 2. Model 2 is estimated with an explanatory variable, which is gini coefficient, and including a constant term, *c*. Gini coefficient and constant term are statistically significant and also positive at 1% significance level. This model represents the sign of relationship between income inequality and economic growth more reliable. In Model 2 a rise in income inequlity ends up with a rise in economic growth in the transition economies during the period 1990-2015.

To see the effect of economic growth on income inequality in the transition economies, the Model 3 is composed again using Windmeijer correction. Per capita GDP, population and lagged value of gini coefficient are also used as instrumental variables in this model. We can see the positive relationship between economic growth and income inequality as mentioned in Model 2. In this way, we can check the robustness of the relationship. Model 3 represents that a rise in economic growth also ends up with a rise in income inequality at 5% significance level.

To continue to check the robustness of models, in Model 4, Per capita GDP and lagged per capita GDP series are used as economic growth. GDP per capita is statistically significant and negative at 5% significance level. This also can be interpreted as when economic growth rises in the transition economies, income inequality also rises there. The negative sign of the lagged per capita GDP series can be interpreted as income inequality is affected negatively by lagged per capita GDP values. In this model the same instrumental variables are used as in Model 3.

5. CONCLUSION

In this paper the relationship between income inequality and economic growth has been examined in the specific context of economies undergoing transition, namely from centrally planned economies to market systems. At the beginning of the transition process, these countries seemed to share similar characteristics, to illustrate; they had low levels of both income inequality and economic growth rates. When taking a look at the Figures 1a to 6b, it can be seen that transition economies have experienced increases in economic growth and income inequality.

We apply several estimation methods that have been employed in the literature with very different perspectives. In this regard, a new data set on income inequality called All The Ginis has been used for estimating models in this paper. For the main point of the analysis is whether the calculation method of Gini coefficient deals with the subject appropriately. In this context, aforementioned databases which are applied in the literature have been investigated and All The Ginis (ATG) database has been found convenient for the purposes of this study.

In Section 3, to test the relationship between income inequality and economic growth in transition countries, four models are estimated. The reason of the variety of models are explained in a more detail way in the section, in as much as models are diversified in order to estimate the relationship appropriately. The main difference of this study compared to the other studies in the literature is that this relationship in transition economies is estimated with updated econometric models. For considering the studies in the literature, it is seen that only tables and not updated methods are employed as country groups. On the other hand, for our study, updated econometric methods are used for all the transition economies (only three of them are excluded because of the lacking data). In addition, due to deficiencies of Panel OLS method, in this study GMM and 2LS methods are utilized with Windmeijer correction, unlike the other studies.

We find a negative relationship between income inequality and economic growth in the first model. Even though, this model is not so wrong in econometric manner, after a new correction in the literature, the model is corrected accordingly and then estimated. However, when the model is corrected with a new approach asserted by Windmeijer, the positive relationship is found more reliable and robust. In this sense, the estimated Models 2, 3 and 4 are more robust relatively to the Model 1. In other words, it is argued that the Model 1 become more robust with updating new methods in econometrics.

In Model 1, the effect of income inequality on economic growth is tested. Gini coefficient is statistically significant at 1% significance level and negative in this model. This means that when income inequality increases in transition economies, economic growth decreases in these countries. When the same model is estimated with Windmeijer correction, the estimation is named as Model 2. Model 2 is estimated with an explanatory variable, which is gini coefficient, and including a constant term, c. Gini coefficient and constant term are statistically significant and also positive at 1% significance level. This model represents the sign of relationship between income inequality and economic growth more reliable. In Model 2, a rise in income inequlity ends up with a rise in economic growth in transition economies during the period 1990-2015.

To see the effect of economic growth on income inequality in transition economies, the Model 3 is composed again using Windmeijer correction. Per capita GDP, population and lagged value of gini coefficient are also used as instrumental variables in this model. We can see the positive relationship between economic growth and income inequality as mentioned in Model 2. In this way, we can check the robustness of the relationship. Model 3 represents that a rise in economic growth also ends up with a rise in income inequality at 5% significance level.

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To conclude, the empirical findings of this paper demonstrate that there is bidirectional relationship between income inequality and economic growth. The estimated effects also support the figures which show the relationship during same period. To illustrate, while that transition economies have grown economically positive in the period 1990-2015 is incontestable, it can not be argued that income has been distributed equally in these countries in the same period. Therefore, in transition countries, along with encouraging economic growth as economic policy, it is asserted that fair distribution of income should accompany the economic growth.

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