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ECONOMIC GROWTH A CATALYST TO INCOME INEQUALITY: AN EMPIRICAL STUDY OF RUSSIA

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ABSTRACT

The main objective of the study is to empirically examinethe impact of income inequality on economic growthof Russian Federation. Annual time series data has been taken from 1988 to 2017. Phillips-Perron test is applied to make the data stationary at level and first difference. ARDL Bound approach to cointegration is used to check the long run relationship between income inequality and economic growth. The long run and the short run results show that there is a positive and significant impact of income inequality on economic growth of Russia. Furthermore, the error correction term (ecm) is statistically significant at 5% and has a negative sign. The value of ecm is -0.80 which shows that 80% of the disequilibrium in the level of Gross Domestic Product (GDP) of the previous year's shock adjust back to the long run equilibrium in the current year.

INTRODUCTION

Communism and capitalism are the two completely different notions and the biggest rival of each other the world has ever experienced. All people are equal in term of class, all the property is owned by the government and each individual are paid or rewarded according to their needs and abilities, comes

under the domain of communism. Karl Marks and Friedrich Engels are considered to be the founder of communism. In 1848 the "communist manifesto" brought paradigm shift and appealed the labor class who was being exploited. Gradually the notion of communism started to make its place in Asia, Eastern Europe, Africa and South America.

On the other hand, capitalists are of the view of private ownership of capital and production inputs, competition between producers and role of the government is partial or rather minor. Succinctly, the theme of capitalism is to use wealth to create more wealth. The key proponents of capitalism were Adam Smith, David Ricardo and Milton Friedman. Capitalism was initiated from Netherlands and with the passage of time it became the most favored system of almost all the countries.Socialism and communism systems have been outperformed by the capitalism (Muller, 2013). This so called "exquisite" system is the root cause of income inequality throughout the globe. Astonishing fact is that eight individuals claim as much riches as 50 percent of the worldwide population of 7.4 billion, and in the USA, the most extravagant 1 percent possess 34 percent of the riches and the most extravagant 10 percent claim 74 percent of the riches (Hodgson, 2016).

Novokmet, Piketty, andZucman (2018) conducted a survey based study on Russia and China. Their results revealed that inequality in Russia has increased more than China and other ex-communist countries. The objective of the present study is to investigate the impact of income inequality on economic growth of Russia in the era of capitalism. Moreover the present the present study argues the extent of income inequality in Russia before and after the communism.

The relationship between economic growth and income inequality is still a reaershable question as the theory presented by Kuznet (1955) the inverted U shaped relationship exists between them. On the other hand the studies from the differentcountries revels the contrary conclusion. The income inequality and economic growth both showing different relationship for developed, developing and underdeveloped countries.

This study is organized as follows:
Section 2 describes the literature review and theoretical framework. Section 3 presents the data and methodology. Section 4 highlights the results and discussion whereas section 5 is dedicated to conclusion and policy recommendation.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Most of the researchers are of the view that communism is a system which is an impediment in economic growth. Chen (2010) argues that the GNP of china grew at the rate of 8.5% until 1994 since the start of the reform in 1978. We agreed but retrospect, the fact is that China in very short time span has lifted so many people out of poverty than any other system in the world.[4] Shleifer

[4] **World Economic Forum**

and Treisman (2005), argued that when communist party relinquish from the political and economic system of Russia, the economy changed and started to increase impressively, the goods and services produced to please the consumers. They argued that Russia is no longer an "evil empire" who used to threaten his own people and the rest of the world. The point we want to raise is that economic goods are produced for the pleasure of consumers or people to consume but on the other hand the rise in the price of those good give lucrative to the owners of the capital and eventually their pockets fill and the poor people can only desire for such goods.

Communist system is being highly abandoned by the capital class, landlords, and puppet politicians so as to open way for the capitalist system. A system in which privatization is the utmost ingredient as the work of Filipovic (2005), analyzed that privatization improves economic efficiency, stimulate investor to invest more and create opportunity for new technology. Another paper written on the same domain by Audretsch and Thurik (2000) empirically found that lower level of unemployment can be seen in countries that have been experiencing shift from the managed to the entrepreneurial economy. Their finding is robust because of the fact that owners want to expand their business and hire more employees in order to get more profit which eventually results in low level of unemployment.

Link between economic growth and income inequality

A work of Joshi (2018) shed light on the relationship between economic growth and income inequality for India. The result of the study revealed that income inequality entered the equation with a negative sign and is statistically significant in case of selected states of India. Rodgers (2018) examined income inequality and economic growth for India. He argued that that long run pattern in India was for economic inequality to decay until the 1980s, however income inequality has since been rising, particularly in urban territories. Wages have been rising and absolute poverty has been falling, however there has been an inclination for the gains from development to be concentrated among the highest income group. This applies not exclusively to income and expenditure yet additionally to wealth. Moheddin and Marwa(2018) shed light on the relationship among income inequality, economic growth and financial development. South Africa, Russia, China, Brazil and India were the target countries from the period 1995-2015. Their results revealed that there is a positive and significant relationship between GDP per capita and income inequality. However, on the other hand the square of GDP enter the equation with a negative sign and is also significant. The results of the study also confirmed causality among income inequality and economic growth.

Brueckner and Lederman (2018) hypothesized income inequality and gross domestic product per capita relationship. Their results revealed that transitional growth mounted by greater income inequality in low income countries while negative and significant relationship existed in high income countries. Furthermore, in median countries which have gross domestic product per capita around US$10,000 showed a negative impact of income

inequality on gross domestic product per capita. Basu andStiglitz(2016) highlighted that mainstream economic analyst contended that in the beginning periods of advancement inequality would rise yet, as development endured, it would, in the long run, decrease.Early proof appeared to propose that this example would be borne out. However, as time passed and growth persevered, disparity kept on developing.

We will try to build theoretical justification of the negative/positive impact of income inequality and economic growth. There are several studies which indicated different type of relationship between income inequality and economic growth for example, Persson and Tabelljnj (1994) found negative relationship between economic growth and income inequality in developed counties as they considered US and European countries. Knowles (2005) found negative relationship between economic growth and income inequality for the case of developing countries. While, Frank (2005) also investigated the negative relationship between economic growth and income inequality for the different states of US.Chambers (2007) concluded that the relationship between previous past long term growth and income in inverted U shaped.

The positive connection between expanding disparity in income and improving economic growth is installed profoundly in the classical economic idea. Smith and the classical were obvious to support saving and capital aggregation as a catalyst to economic growth (Smith,1776). Higher saving prompts higher investment and in the end to quicker economic growth (Kaldor, 1956). Higher development would thus mount saving and the nation enters a cycle of self-sustained economic growth. The present study is an attempt to strength the literature on the impact of income inequality on Economic Growth.The unique set of control variables differentiate the model for previous models. After reviewing the literature on income inequality and economic growth relationship we found little or no empirical evidence on the impact of income inequality on economic growth for Russia.

DATA AND METHODOLOGY

The study uses time series data from 1988 to 2017. The time series data has been collected fromStandardized World Income Inequality Database (SWIID) and World Development Indicator. The country selected for the analysis is Russia because of the fact that this country witnessed paradigm shift from communism to capitalism. To check long run and short run relationship ARDL bound test is applied.

Model specification

$$LNGDP=\beta_0 GINI+\beta_1 IND+\beta_2 ADR+\beta_3 LNPED+\beta_4 PG \quad (1)$$

Where:
GINI = Proxy for income inequality
IND = Number of infant deaths
ADR = Age dependency ratio
LNPED = Primary education, pupils
PG = Population Growth Annual %

LNGDP= Proxy for Economic Growth.

ARDL model specification

The following equation shows the long run and short run equation of ARDL

$$LNGDP_t = \beta_0 + \beta_1 GINI_t + \beta_2 IND_t + \beta_3 ADR_t + \beta_4 LNPED_t + \beta_5 PG_t + \sum_{i=1}^{n} \alpha_{1i} \Delta GINI_{t-1} + \sum_{i=1}^{n} \alpha_{2i} \Delta IND_{t-1} + \sum_{i=1}^{n} \alpha_{3i} \Delta ADR_{t-1} + \sum_{i=1}^{n} \alpha_{4i} \Delta LNPED_{t-1} + \sum_{i=1}^{n} \alpha_{5i} \Delta PG_{t-1} + \mu_t \quad (2)$$

Where;
Δ = is the first difference
$\beta 1$ - $\beta 5$ = are the long run coefficients
$\alpha 1$ - $\alpha 5$ = are the short run coefficients
εt= disturbance term

The error correction representation of equation is given below:

$$LNGDP_t = \beta_0 + \sum_{i=1}^{n} \alpha_{1i} \Delta GINI_{t-1} + \sum_{i=1}^{n} \alpha_{2i} \Delta IND_{t-1} + \sum_{i=1}^{n} \alpha_{3i} \Delta ADR_{t-1} + \sum_{i=1}^{n} \alpha_{4i} \Delta LNPED_{t-1} + \sum_{i=1}^{n} \alpha_{5i} \Delta PG_{t-1} + ECM_{t-1} + \mu_t \quad (3)$$

4. Results and Discussion

In this section empirical outcome of the results will be discussed in detail. Descriptive statistics, Unit root test, ARDL bound test, all the basic diagnostic tests (Heteroskedasticity Test, Functional Form Test, Serial Correlation Test) long and short run and lastly the test for stability of the models will be performed.

Table 1: Descriptive Test

	LNGDP	GINI	IND	ADR	LNPED	PG
Mean	27.27	48.090	22302.57	44.73	15.64	0.04
Median	26.97	49.10	19891.50	43.96	15.61	0.01
Maximum	28.46	51.50	44070.00	50.93	15.88	1.21
Minimum	26.00	40.60	11755.00	38.77	15.39	-0.46
Std. Dev.	0.73	2.95	8777.060	4.29	0.17	0.38
Skewness	0.20	-1.59	0.999048	0.11	0.18	1.11
Kurtosis	1.70	4.29	3.02	1.54	1.50	4.53
Jarque-Bera	2.29	14.83	4.99	2.74	2.90	9.11
Probability	0.31	0.00	0.082	0.25	0.23	0.01
Observations	30	30	30	30	30	30

Table 2: Unit Root Test

Variables	Unit Root Test at Level		Variables	Unit Root Test at First Difference	
	ADF test	PP test		ADF test	PP test
	t-statistics	t-statistics		t-statistics	t-statistics
GINI	-2.16*	-2.28*	GINI	-	-
GDP	-0.41	-0.64	GDP	-3.46**	-3.46**
IND	-0.37	-8.52***	IND	-4.83***	-
ADR	-3.72	-1.24	ADR	-	-0.53
LNPED	-0.71	-0.73	LNPED	-3.72***	-3.71***
PG	-1.14	-3.31**	PG	-3.03**	-

note:*; **, and *** demonstrates significance level at 10 %, 5 %, and 1% respectively.

In order to check the stationary of the time series data we apply unit root test. Table 2 shows Augmented Dickey-Fuller and Phillips-Perron tests. The result of PP-test gives us better results as compared to ADF test. The results of PP-test show mixed order of integration I (1), I (0) which allow us to apply ARDL approach.

Table 3: Lag Order Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-336.27	NA	1671.32	24.44	24.73	24.53
1	-94.24	363.05	0.00	9.73	11.73	10.34
2	6.422	107.85*	1.06e-05*	5.11*	8.82*	6.25

note:* indicates lag order selected by the criterion
lr: sequential modified lr test statistic (each test at 5% level)
fpe: final prediction error
aic: akaike information criterion
sc: schwarz information criterion
hq: hannan-quinn information criterion

Table 4: ARDL Bound Test approach to Co-integration

Estimated models	GDP= f (IND,LNPED, PG ADR)		
F – Statistics	8.066343		
Diagnostic Tests			
Serial Correlation	0.06	R^2	0.98
Functional Form	0.36	Adjusted R^2	0.97
Heteroscedasticity	0.20	CUSUM - CUSUM Square	Stable
Critical Bounds for F – statistics			
Significance	Lower Critical Bound		Upper Critical Bound

Level		
10%	2.26	3.35
5%	2.62	3.79
2.5	2.96	4.18
1%	3.41	4.68
note: *; **, and *** demonstrates significance level at 10 %, 5 %, and 1% respectively. the probability values are reported within [] .		

The result of ARDL bound test is presented in table 4. The estimated value of F- statistics is showing the value of 8.06. At 5% level of significance the value is greater than upper bond.

In such an outcome we do not accept the null hypothesis which is co-integration does not exist. In other words, we can conclude the long term relationship exists. Table 4 also depicts the entire important diagnostic test. All the p values are > than 0.05, hence we accept the null hypotheses of all the above said diagnostics and conclude that the results are robust to all these diagnostics. Moreover, the results of CUSUM and CUSUM square show that the model is stable.

Table 5: Results of Long Run Coefficients

Variables	Dependent variable: GDP
	Coefficient (Probability Value)
Gini	0.74* (0.09)
IND	0.00 (0.12)
ADR	-0.811** (0.02)
LNPED	6.78*** (0.01)
PG	1.26*** (0.00)
C	-84.68* (0.07)

note: *, ** and *** demonstrates significance level at 10 %, 5 % and 1 % respectively.also the probability values are reported within ().

Result of long run coefficients are presented in Table 5. The variable of interest (income inequality poxied by Gini) showed significance at 10% level of significance. The sign of the coefficient is positive which shows that when income inequality will increase it will incraese econnomic growth (proxied by GDP). The results are in line with the work of Joshi (2018). The coefficient of age dependency rato is negative indicating that there is a negative and signfiicant relationship between age dependency ratio and economic growth in Russia for negative relationship (see for Huang et al 2019). The role of

primary education is indispensible in increasing economic growth of Russia. In our study the coefficient of primary education has a positive sign and is also significant. Primary schooling increases labour productivity in both urban and rural sectors, and that the economic returns to such investment are typically high. In addition, it reduces fertility, improves health and nutrition, and promotes other behavioural and attitudinal changes which are helpful to economic development (Colclough,1982).In the steady state, the higher population growth will reduce income per capita, but will have no impact on per capita income growth. As a result, in the steady state, the economy grows with the rate of population growth (plus technological progress). In our study the coefficient of population growth is significant and positive idicating that population growth is increasing economic growth in Russia. The coefficient number of infant death showed postive sign which is surprising but the relationship is insignificant.

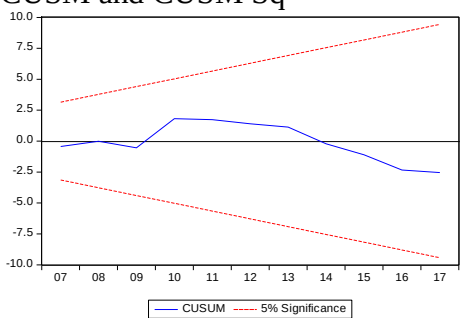
Table 6 represents the results of short tem relationship between income inequality and economic growth. In the short run the coefficient of income inequality is highly significant and has a positive impact on econoimc growth. The error correction model value is statistically significant at 5% percent level of significance and carries a negative sign. The value of ecm is -0.80 which indicates that the speed of the model towards equilibrium is almost 1.2 years.

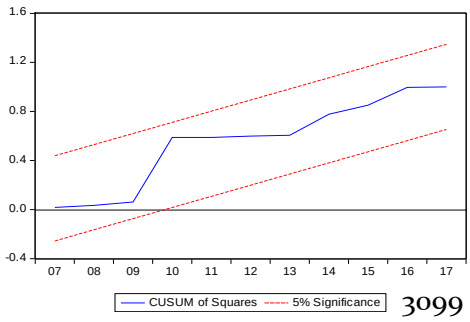
Table 6: Results of Short Run Cofficients

Variables	GDP
	Coefficient (Probability Value)
ΔGini	0.32** (0.02)
ΔIND	0.00*** (0.00)
ΔADR	-0.45** (0.05)
ΔLNPED	1.27* (0.09)
ΔPG	1.17* (0.09)
ECM (-1)	-0.80** (0.02)

note:*, ** and *** demonstrates significance level at 10 %, 5 % and 1 % respectively also the probability values are reported within

CUSM and CUSM Sq





CONCLUSION AND POLICY RECOMMENDATIONS

All people are equal in term of class, all the property is owned by the government and each individual are paid or rewarded according to their needs and abilities, comes under the domain of communism. On the other hand succinctly, the theme of capitalism is to use wealth to create more wealth. The main objective of the present study is to empirically examine the impact of income inequality on economic growth of Russian Federation. ARDL Bound approach to integration is used to check the long run relationship between income inequality and economic growth. The long run and the short run results show that there is a positive and significant impact of income inequality on economic growth of Russia. Furthermore, the error correction term (ecm) is statistically significant at 5% and has a negative sign. The value of ecm is -0.80 which shows that 80% of the disequilibrium in the level of Gross Domestic Product (GDP) of the previous year's shock adjust back to the long run equilibrium in the current year. Capitalism seems to be a good economic system as it encourages individual choices, private ownership, technology, investment, and spurs economic growth, under capitalism making money and more money is comparatively easy. This ideology was first seen in Netherland and gradually covered almost all the economies of the world, no doubt there might be something positive associated with capitalist ideology. However, this system is meant to promote rich class as all the ingredients fill the appetite of ruling class, the working class or rather say exploited class though living in growing economy faces poverty, lack of shelter, food and unequal distribution of wealth, this the other side of the picture.

On the other hand, one side of the picture depicts communism as a system which discourage individual decisions, private ownership, openness, and economic growth. This system dominated for a shorter period of time. So there might be something negative associated with communism. This system is against the rich class or rather say ruling class as it promotes equal distribution of income, classless society, provide shelter, food, and clothing to all living under communism this is the other side of the picture. The results of the study indicate that in Capitalist system the relationship between income inequality and economic growth is positive. The more unequal distribution of money the more the economy grows. The government should increase the size of Pie but also distribute the pie among everybody equally. This might only be possible under the system of Communism.

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