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INEQUALITY AND ECONOMIC GROWTH

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ABSTRACT

The objective of this paper is to study the effect of in equality on economic growth of a set of eight developing countries during the period 2000-2009, using a dynamic panel data model and a simultaneous equations model. The key findings generated from these two empirical tests stipulate a negative effect of inequality on economic growth and vice versa.

Key Words: Political institutions, Political instability, Corruption, Investment, Economic growth, Dynamic panel.
JEL: O43, O47, C23, 010, 015.

INTRODUCTION

However, based on the dispersion of economic performance between countries, observed in recent years, certain expectations consider the absolute difference between the average of real income per capita of the richest countries and that of the poorest countries will double in 2030 and in 2120, average of real income of the richest countries will increase to a level 340 times that of the poorest countries.

This inequality continues increasing poverty in some countries and increasing the wealth of others. In fact, the income gap has widened in the same population in some countries. It appears that income inequality takes three forms: internally within a country measured by the difference between the average incomes of the richest 10% and 10% poorest and internationally between countries of the South and northern countries. All these observations and these predictions has prompted economists to provide more research effort to explain this disparity between countries and regions worldwide, in terms of economic performance.

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The literature review and empirical studies reveal two schools of thought: the first demonstrates the existence of a positive relationship between inequality and growth and the second postulates the negative effect of inequality on economic growth.

To investigate the relationship between inequality and economic growth we will proceed as part of this work, to a dynamic panel data model and a simultaneous equations model. On a sample of 8 developing countries during the period 2000-2009.

Before starting the econometric studies, it should begin with forms and measures of inequality in the first section.

The second section of this work will be devoted to a review of the empirical literature on the relationship between inequality and economic performance.

The third section of this paper will be preserved to selecting variables, determining their sources and the interpretations of results.

FORMS AND MEASURES OF INEQUALITY

Eyrand(2002) distinguish three forms of inequality. The inequality "within" (internal or intra-country) determined within the same country among its inhabitants; inequality "between" (international or inter-country) between countries, measured by differences in GDP per capita between countries and inequalities "global" or "global" which include the first two concepts. He identifies three measures of inequality that are the GDP per capita in purchasing power parity used as an indicator of international inequality and taking into account the demographic weight of countries and differences in price levels, the Gini coefficient whose value is between 0 and 1 and the Lorenz curve that highlights the differences interdecile income.

Several studies have used the per capita GNP as a measure of the level of economic development such as Simpson (1990) while others have used alternative measures namely the human development index and the index of the quality of life (Morris (1979), Hicks andStreeten (1979)).

Mbaku(1997) examined the relationship between income inequality and economic development using the human development index (HDI) and the index of the quality of life. He believes that these two indicators are best explained the variation in income inequality than GNP per capita.

LITERATURE REVIEW: THE CONTROVERSY BETWEEN INEQUALITY AND GROWTH

Several theoretical and empirical studies have shown that rising inequality prevents growth on the one hand and holding back poverty reduction on the other hand, while others showed the opposite. It is in this part we hold on this various studies.

The inequality promotes economic growth

Bourguignon and Morrisson (1999) note that international inequalities represent between 60% and 80% of global inequalities. They show that inequality of world income has really exploded since

the 19th century. The Gini coefficient has increased by 30% and the Theil index increased by 60% between 1820 and 1992. This was mainly due to a dramatic increase in inequality between countries worldwide.

The chart 1(see appendices) shows the evolution of three forms of inequality since 1820. The striking feature is that global inequality is determined by international inequality between 1910 and 1950. The latter has seen a marked increase first between 1820 and 1910 and then stagnated between 1910 and 1950 due to lower domestic inequalities and finally it takes to rise slightly from 1950 due to slower growth of the international inequality between 1820 and 1910. It appears that global imbalances are higher today, given that the inequalities between countries that have increased significantly and similarly for internal inequalities.

Another landmark law was formulated in the 1950s by the economist S. Kuznets from empirical work that the average per capita income and degree of income inequality measured by the Gini coefficient would be connected by a curve ∩.

Average income growth would be accompanied initially by rising inequality, and their resorption. The study, subsequently, by Kuznets (1955, 1963) in several countries reached a curve represented by ∩ connecting inequality and per capita income.

This curve shows that the first time inequality increases with growth levels and secondly they would be reduced after a certain "tipping point". According to Kuznets, development is a consequent creation of a new more productive sector (industry) as the old less productive sector (agriculture).

Thus, inequality in the first sector is higher than in the second.

It appears that the inequalities diminish with the process of economic development achieved by the country. The same idea was developed by Robinson (1976), Knight (1976), Cromwell (1977) and Nugent (1983).

Ahluwalia (1976), Papanek and Kyn (1986) found that the Kuznets relationship is statistically significant until the 1970s. Similarly Anand and Kanbur (1993) and Li, Squire and Zou (1998) find that this relationship has weakened over time. Moreover, the rise in income inequality observed in industrialized countries since the 1980s gives the lie to the curve and the forecast of Kuznets.

G. Nébié said "it takes a high level of resources for making the initial investment for any production. Henceforth, we need a concentration of wealth in the hands of a few capitalists who could invest and hire others. "

Bourguignon (1993) demonstrates the positive relationship between inequality and physical investment. Similarly longitudinal analysis conducted by Forbes (2000) demonstrated that inequalities foster growth.

Galor and Tsiddon (1997) emphasize the positive link between inequality and economic growth through investment. Perotti (1996) has demonstrated the positive link between inequality and fertility and therefore economic growth. Aghion and Bolton (1997) showed that income distribution improves the efficiency of the economy because it increases the level playing field that slowly flows from rich to poor.

Other economists have demonstrated the effects of unequal ownership of production factors on long-term promotion of human capital and hence economic growth (Galor et al (2009) and Engerman and Sokoloff (2000)).

The inequality holds back economic growth

Several authors have demonstrated the existence of a negative relationship between inequality and economic growth namely Hibbs (1973), Venieris and Gupta (1986) Gupta (1990) and Alesina and Perotti (1996) which showed that inequality increases the social and political instability and consequently led to riots and coups.

In the same context, Acemoglu and Robinson (2000a) and Gradstein (2007) showed in their studies, the importance of reducing inequality to reduce the socio-political instability which stimulates the investment and hence economic growth.

Barro (2000) using a panel data model on a sample of 152 countries for the years: 1960, 1970, 1980 and 1990 linking the growth rate of real GDP per capita and the Gini coefficient, shows that inequality tends to retard the growth of poor countries but it allows to encourage the rich countries' growth.

In fact this study has established that Growth tends to decrease with large inequalities when GDP per capita is less than $ 2,000 and tends to rise with inequality when per capita GDP exceeds $ 2,000.

Barro added that the inequality of wealth and income motivates the poor to engage in crime, riots, and other disruptive activities and in this case the stability of political institutions may be threatened by a revolution.

The study by Birdsall and Londoño (1997) on a sample of 43 countries of Latin America has shown that most of these countries have a high inequality and low growth in contrast to Asian countries where high growth is accompanied by the reduction of inequality.

Their results indicate that the negative relationship between economic growth and income inequality primarily reflect the dynamics of accumulation of capital and property in different countries.

It appears that differences in rates of capital accumulation explain a significant difference in growth rates between countries and that the initial inequality of income is strongly linked to economic growth in different countries.

Eyraud (2002) stresses that: "The reduction of inequalities within countries is a needed condition of development and it is for this reason that we must fight them. In fact, Excessive internal inequality hampers growth ... ". However, De Janvry and Sadoulet (2000) have shown that economic growth reduces poverty, therefore, Ravallion and Datt (1996), Ravallion and Chen (1997), have reached the same result.

Similarly, Cogneau and Guenard (2002) have shown that it is growth that affects inequality.

ECONOMETRIC ANALYSIS

Variables

Our model incorporates several measures used to control variables. Previous studies have shown that they account for a significant share of national differences in growth rates in recent decades. Thus, the variables used in this study are: *Y:* the growth rate of real GDP per capita. *INV:* the ratio of gross capital formation in GDP. *OPEN:* the ratio of the volume of trade in GDP: (X + M) / GDP. Inflation: the inflation rate measured by the evolution of GDP deflator. GINI: the GINI index. *Political instability(PI):* it includes the following: military coups, political tensions, civil wars, social unrest, ethnic tensions, political violence, unpredictable changes in institutions and rules. *Corruption(COR):* it includes the following: frequency of irregular payment to civil servants and judicial practices unfit in the public sphere, corruption in the political system as a threat to foreign investment, incidence of corruption in government.These two indicators are rated on a scale of -2.5 to 2.5. 2.5 being the highest degree of political stability, absence of violence and fight against corruption.

All variables are for the period 2000-2009 due to the availability of data for all countries in the sample. All economic variables are taken from the report on the development in the world [2010], while the variables "Political instability "and" The corruption "are extracted from the database of the governance of Kaufmann (2009).

Descriptive Statistics

According to the chart 2, in the appendices, we see a parallel evolution of the Gini index and economic growth for all countries in the sample along the study period (2000-2009).

In other words, inequalities evolve in the same sense that economic growth, which can provide information on a possible relationship between these two variables, before performing the econometric estimates.

ESTIMATIONS METHODOLOGY

Dynamic panel data Models

In what follows, we propose a dynamic study of the relationship between inequalitiesand economic growth. Before proceeding to the estimation of this model and interpretations of results, it is necessary to define the dynamic models and present the model to be estimated.

Definition of dynamic models

Dynamic models are characterized by the presence of one or more lagged endogenous variables among the explanatory variables.

As part of our model, the introduction of past growth rates among the explanatory variables allows us to test the persistence of economic growth rates of countries in the sample under study since the previous economic growth can influence current economic growth.

We take as an example the case where there is only one lagged endogenous variable.

$$y_{it} = \alpha y_{it-1} + \beta X_{it} + \mu_i + \nu_i \quad \text{(For i=1, ..., N t=1,...,T)} \quad (1)$$

With y the endogenous variable X_i exogenous variables, (α, β) parameters to be estimated; μi individual heterogeneity [μi ~ iid (0, σ2μ)] and $\nu_{it}$the error term [νit ~ iid (0, σ2ν)].

Overview of models to estimate

Our study uses the following two equations to test the relationship betweenthe inequality and economic growth:

$$y_{i,t} = \alpha_1 y_{i,t-1} + \beta_i X_{i,t} + \mu_i GINI_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$GINI_{i,t} = \alpha_1 GINI_{i,t-1} + \beta_i X_{i,t} + \mu_i y_{i,t} + \varepsilon_{i,t} \quad (3)$$

With, $y_{i,t}$: growth rate of real GDP / capita of country i in year t, $y_{i,t-1}$: growth rate of GDP / capita of the previous year (t-1), GINI: Giniindex measure of income inequality and X: a set of control variables and $\varepsilon_{i,t}$ the error term.

The estimation results

The estimate presented here is the estimation of GMM Arellano and Bond (1998). We prefer to refer to the results of this estimate because it eliminates any bias rigorously related to unobserved individual heterogeneity and provides therefore a better efficiency of the estimation results.

The estimation results of our model are more or less satisfactory both econometrically as that of the economic interpretation.

Note that the coefficients are elasticities that are interpreted as relative changes that provide information on the variation in growth rate of real GDP / capita following a unit change in the variable in question.

The key observation that we can draw from this table is that the coefficient of the Gini index is statistically significant indicating a negative relationship between income inequality and economic growth in these countries.

This result is comparable to that found by the study made by Barro (2000) on a sample of 152 countries for the years: 1960, 1970, 1980 and 1990. Through this study Barro has shown that inequality, mesuread by the Gini index, tends to retard growth in poor countries but it can encourage the rich countries one. In fact growth tends to decline with great inequality when per capita GDP is less than $ 2,000 and tends to rise with inequality when per capita GDP exceeds $ 2,000.

We can explain this result by the fact that our sample includes developing countries which safer from the political institutions' instability.

So, the marginal population in these countries was motivated to engage in crime, riots, and other disruptive activities that obstruct domestic and exterior investment and economic growth by this

fact.

Eyraud (2002) stresses that: "The reduction of inequalities within countries is an indispensable condition of development and it is for this reason that we must fight them. In fact, Excessive internal inequality hampers growth… ".

Equation (3) verifies the existence of an influence of economic growth on inequality. The results of estimating this equation stipulate a negative effect of economic growth on income inequality. What can be justified by the fact that economic growth reduces poverty and hence income inequality between rich and poor.

This is exactly the idea defended by De Janvry and Sadoulet (1999) which showed that economic growth reduces poverty, too, Ravallion and Datt (1996), Ravallion and Chen (1997), who reached the same result.

Similarly, Cogneau and Guenard (2002) have shown that it is growth that affects inequality.

Simultaneous equations model

Referring to both models, estimated above, and that of the Kuznets curve, we see the interdependence between growth and inequality. Therefore, we will try, in what follows, to jointly estimate the two models as a system of simultaneous equations.

To identify the possible presence of endogeneity problem, we make use of Durbin-Wu-Haussman test of Davidson and Mckinnon (1993) which involves two steps. Initially, we proceed with the regression of each endogenous variable on all exogenous variables. Then, we recover the residuals from the first extrusion and they are included in the initial model. In our case, we will test the endogeneity of the growth rate of real GDP per capita and the GINI index. The results of the endogeneity test for these two variables shows that residues of the original equation are significant and thus there is an endogeneityproblem. On the other hand, it is necessary to check two identification' conditions: the condition of order and the rank' condition.Therank'condition is a necessary and sufficient but it is difficult to implement in practice. That's why researchers are content, most often, toorder' condition that can be determined equation by equation.

In our case, the implementation of this test is as follows:

our model has two equations, g = 2 (growth rate of GDP / capita and the GINI index).

First equation: g '= 1 and k' = 5, where: g-1 < g-g '+ k-k'

Second equation: g '= 1 and k' = 4, where: g-1 < g-g '+ k-k'

The two equations are identified so the model can be estimated.

With:

g: the number of endogenous variables (or the number of equations)

g': the number of exogenous variables appearing in an equation

k: the number of exogenous variables of the model

k': the number of exogenous variables appearing in an equation

The estimation of simultaneous equations was made by the method of three stage least squares. The estimation results show that a one percentage point increase of the GINI index would lead to a decrease of 0.11 percentage point of economic growth.And that one percentage point increase of growth rate would lead to a decrease of 8.13 percentage points of the Gini index. On the other hand, the GINI index is positively associated with investment. Since its coefficient is positive and statistically significant.

This result can be justified because "… we need a concentration of wealth in the hands of a few capitalists who could invest and employ another "(G. Nébié).

Our result strengthens the conclusion has led Bourguignon (1993) which showed a positive relationship between inequality and physical investment. Similarly, Galor and Tsiddon (1997) emphasize the positive link between inequality and economic growth through investment.In general, the mixed results in terms of link between inequality and economic growth, which led the empirical tests conducted as part of this research, strengthens the conclusion reached by the empirical literature on the subject, because a clear relationship between inequality and economic growth is far from being found.

CONCLUSION

As part of this research, we tried to help resolve the fundamental question: Does there's a link between income inequality within countries and economic performance it achieves?

To do this, we used a model of dynamic panel data and a simultaneous equations model covering a sample of eight developing countries during the period 2000-2009.

The key findings emerged from this empirical analysis show:

- A negative effect exerted by the inequality on economic growth.
- A negative effect exerted by economic growth on inequality.

In general, the results of these econometric studies consolidate the results already obtained by several researchers in this field.

Indeed, for a sample of 43 countries of Latin America, this is the case of most countries in our sample, N. Birdsall and Londoño JL (1997) showed that the majority of these countries have a high inequality and low growth in contrast to Asian countries where high growth is accompanied by the reduction of inequality.

The study made byBarro (2000) on a sample of 152 countries produced the same result namely that: inequality tends to retard growth in poor countries but it can encourage the rich countries one

We conclude, without confirming that these analyzes have allowed us, even in part, to show the existence of a relationship between inequality and economic performance.

However, it is important to note that despite the importance of empirical results which leads this work, deficiencies may arise:

- Other possible mechanisms of the relationship under study were not considered.
- Lack of data made our sample small.
- The influence of the threshold level of economic development has not been tested.

The relationship between inequality and economic growth could be better understood once its underlying mechanisms are still being analyzed and these shortcomings are remedied.

REFERENCES

Acemoglu, D., Robinson, J.A. (2000a) "Why did the West extend the franchise? Democracy, inequality and growth in historical perspective".Quarterly Journal of Economics Vol.115, pp.1167-1199.

Aghion, P and Bolton, P, (1997)"A theory of Trickle-Down Growth and Development" Review of Economic Studies,Vol.64, No.2, pp.151-172.

Ahluwalia, M.S. (1976). "Inequality, Poverty and Development" Journal of Development Economics, Vol.3, pp: 307-342.

Anand, S. and Kanbur, R.S.M. (1993). "Inequality and Development: A critique" Journal of Development Economics, Vol.41, pp: 19-43.

Arellano, M and Bond.S (1998)."Dynamic panel data Estimating using DPD98-A Guide for users", Institute for Fiscal Studies, mimeo.

Bourguignon, F. (1993),"Croissance, distribution et ressources humaines: comparaison internationale et spécificités régionales", Revue d'économie et du développement, *Vol.4, pp.3-35.*

Barro, R. (2000), " Inequality and Growth in a Panel of Countries" , Harvard University, juin.

Birdsall, N. and Londoño, J.L (1997), "Asset Inequality does Matter: Lessons from Latin America"*OCDE working paper*, Inter American Development Bank, mars.

Bourguignon and Morrisson. (1999), "The size distribution of income among world citizens: pp.1820- 1990",Revised draft, June.

Cogneau, D. And Guenard, C. (2002) "les inégalités et le croissance : une relation introuvable ? », Document de travail DIAL, Décembre 1999.

Cromwell, J. (1977) "The Size Distribution of Income: An International Comparison" Review of Income and Wealth, 23.

De Janvry, A. and Sadoulet, E. (2000) "Growth, Poverty and Inequality in Latin America: A Causal Analysis, 1970-94". The Review of Income and Wealth Vol.46, No.3, pp. 267-288.

Datt, G. and Ravallion, M. (1992) "Growth and Redistribution Components of Changes in Poverty, Measures: a decomposition with applications to Brazil and India in 1980s", Journal of Development Economics,pp.275-295.

Engerman, S.L. and Sokoloff, K.L., (2000) "Institutions, Factor Endowments, and Paths of Development in the New World", Journal of economic Perspectives, Vol 14, No.3, pp: 217-232.

Eyraud L. (2002)"Mondialisation et inégalités, contribution au séminaire du G20, Sydney 27-28 mai, p12.

Forbes, K. (2000) "A Reassessment of the relationship Between Inequality and Growth"American Economic Review, Vol.90,pp: 869-887.

Galor, O. And Tsiddon, D. (1997) "The Distribution of Humain Capital and Economic Growth", Journal of Economic Growth, Vol.2, pp: 93-124.

Galor, O.,Moav, O and Vollrath, D. (2009) "Inequality in Landownership, Human Capital Promoting Institutions and the Great Divergence" Review of Economic Studies, Vol.76, No.1, pp: 143-179.

Gradstein, M., (2007) "Inequality, democracy, and the protection of property rights" Economic Journal, 117, pp: 252-269.

Gupta, D., (1990) "The Economics of political Violence", New York: Praeger (1990).

Hibbs, D.A., (1973) ""Mass Political Violence: a Cross-National Causal Analysis", New York: John Wiley.

Hicks, G.S. (1979)."AWelfare Economic Approach to Growth and Distribution in the Dual Economy" Quarterly Journal of Economics, 93.

Hicks, G.S., and Streeten, P. (1979) "Indicators of Development: The Search for a Basic Needs Yardstick" World Development, 7.

Kaldor, N. (1955)"Alternative Theories of Distribution" Review of Economic Studies, Vol.23, No.2, pp.83-100.

Kuznets, S. (1955)" Economic growth and income inequality", American Economic Review45, pp: 1-28.

Knight, J.B. (1976) "Explaining Income Distribution in Less Developed Countries:A Framework and an Agenda*"* Oxford Bulletin of Economics and Statistics, 38.

Kuznets, S. (1963)"Quantitative Aspects of the Economic Growth of Nations", Economic Development and Cultural Change, Vol.11, No.2, pp: 1-8.

Li,H., Squire, L. and Zou, H. (1998) Explaining International and Intertemporal Variations in Income Inequality, *The economic Journal*, Vol.108, pp.26-43.

Mbaku, J.M. (1997) "Inequality in Income Distribution and Economic Development: Evidence Using Alternative Measures of Development", Journal of Economic Development, Vol 22, No.2, December.

Morris, D.M. (1979) "Measuring the Condition of the World's Poor: The Physical Quality of Life Index", Pergamon Press, New York.

Nugent, J. B. (1983) "An Alternative Source of Measurement Error as an Explanation of the Inverted-U Hypothesis, Economic development and Cultural change, 31.

Papanek, G.F., and Kyn, O. (1986) "The Effect on Income Distribution of Development, the Growth Rate and Economic Strategy" Journal of Development Economics, 23,

Perotti, R. (1996)"Growth, Income Distribution and Democracy: What the Data Say", Journal ofEconomic Growth,Vol1, No.1, pp: 149-187.

Ravillon, M. and Chen, S. (1996) "What can new survey data tell us about recent changes in distribution and poverty?" The World Bank Economic Review, Vol. 11, No.2, pp: 345-361.

Robinson, S. (1976) "A Note on the U- Hypothesis Relating Income Inequality and Economic development" American Economic Review, 66., Vol.85, No.3, pp: 391-408

Simpson, M. (1990) "Political Rights and Income Inequality: A Cross-National Test" AmericanSociological Review, *55*.

Theil, H. (1972)" Statistical decomposition Analysis: With Application to the social and Administrative Science, Amesterdam and London, North Holland.

Venieris, Y., and Gupta, D., (1985)" Income Distribution and Socio-political Instability as Determinants of Savings: a Cross-Sectional Model" Journal of Political Economy 94, pp: 873-883.

Appendices

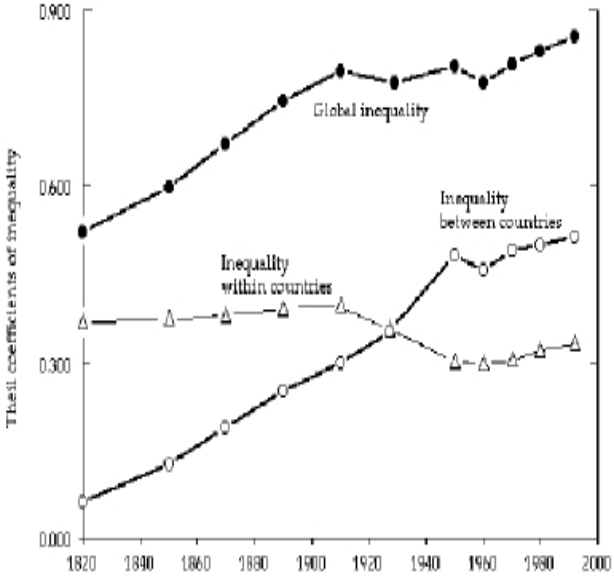
Appendix 1

List of countries

1	Belarus
2	Brazil
3	Costa-Rica
4	Dominican
5	El Salvador
6	Honduras
7	Paraguay
8	Peru

Appendix 2

Chart 1: Inequality between 1820 and 1990



Source : Bourguignon and Morrisson. (1999)

Chart 2: Evolution of Gini index and economic growth rate[3].

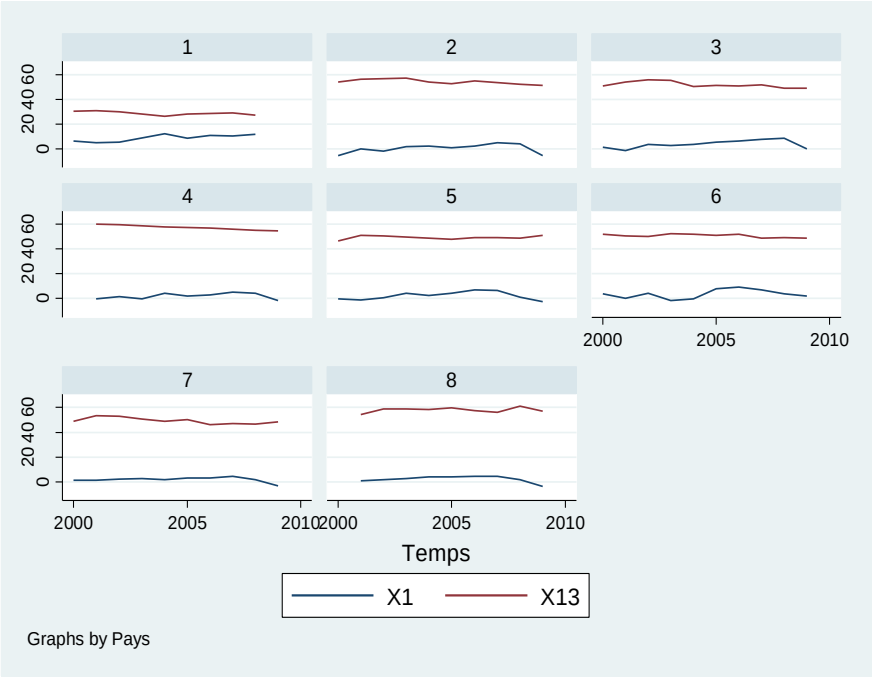


Table-1. Estimation results of inequality and economic growth: dependent variable real GDP per capita growth rate

(Arellano-Bond dynamic panel data estimator)

Variables	**(1)**	**(2)**	**(3)**
L GDP	-0.067 (-0.32)	-0.004 (-0.01)	0.25 (0.57)
INV	0.2 (0.8)	0.25 (0.83)	0.11 (0.40)
OPEN	0.09 (1.00)	0.08 (1.15)	0.12 (1.07)
Inflation	-0.09 (-1.5)	-0.09 (-0.87)	-0.15 (-1.41)
politicalInstability	-	-0 .87 (-0.11)	-
corruption	-	-	10.72 (0.92)
GINI	-0.21 (-2.10)	-0.18 (-1.95)	-0.20 (-2.35)
T- Sargan	4.43 (42)	4.62 (41)	4.08 (41)
AR(2)	0.08	0.08	0

**: Significant at 10%. *: Significant at 5%. t-student in parentheses. LGDP: real GDP per capita growth rate on t-1.

[3] With X_1 :economic growth rate and X_{13}: GINI Index.

Table-2. Estimation results of inequality and economic growth: dependent variable GINI Index **(Arellano-Bond dynamic panel data estimator**)

Variables	**(1)**	**(2)**	**(3)**
$GINI_{-1}$	0.59 (1.52)	2.93 (1.46)	2.83 (2.27)
Inv	0.09 (0.6)	0.01 (0.17)	0.36 (0.94)
OPEN	-0.21 (-0.70)	0.87 (0.92)	0.65 (1.60)
Inflation	0.14 (1.26)	-0.79 (-1.05)	-0.88*** (-1.76)
Politicalinstability	-	-1 .49 (-0.53)	-
corruption	-	-	-1.84 (-0.30)
TXGDP	0.10 (0.21)	-1.45 (-0.96)	-1.26 (-1.67)
T- Sargan	3.96 (42)	2.01 (41)	0.4 (41)
AR(2)	0.26	0. 81	0.13

**: Significant at 10%. *: Significant at 5%. t-student in parentheses. TXGDP: GDP per capita growth rate

Table-3. DescriptiveStatistics

Variables	Moyenne	Ecart-type	Min	Max
Growth	2.978166	3.598227	-5.528611	12.01126
Investemnt	21.45612	5.846759	13.1177	38.30885
Open	82.32476	35.9311	21.71987	142.1365
Inflation	12.24453	22.82112	-1.048464	185.2908
PoliticalInstability	-.0558611	.6215391	-1.24	1.112
Corruption	-.4398333	.5527966	-1.51	.952
Rule of Law	-.4367361	.6483665	-1.26	.699
GINI	50.25026	8.291844	26.22	61.33