

# Income Inequality and Economic Growth in Developing Countries: The Role of Savings

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## ABSTRACT

**Income Inequality and Economic Growth in Developing Countries: The Role of Savings:** In this study we carry out a qualitative exploration of some factors that can explain the poor economic performance of Latin America in relation to another set of developing and successful countries comprised of twelve Asian countries. We study the relation between inequality, the savings rate, and the economic growth rate for each region. The evidence indicates that Latin America has a poorer economic performance, which in turn is associated with the lower savings rate and more elevated levels of inequality in comparison with the Asian economies. One possible explanation is that together with lower income inequality and the aggregate savings rates, the labor force in Asia is more abundant than in Latin America. These combined factors are favorable for the lowering of internal socioeconomic instability and the adoption of an export-led growth strategy for insertion in the world economy. This export-led growth strategy promotes economies of scale, and thus offers greater possibilities of profitable investment, which in turn induces higher rates of savings and increased economic growth. In contrast, Latin America is lacking a clear comparative advantage in terms of resource endowment. In particular, the labor force is not abundant, so that its insertion in the world market is more limited. Besides, the social and economic instability associated with the region's high-income inequality is harmful to savings and investment, as well as for the economic growth of the region. Thus, in order to dynamize savings and investments, economic policy requires fiscal

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policies oriented to the mitigation of income inequality and the promotion of counter-cyclical policies to reduce social and economic instability.

**Keywords:** Economic growth, Savings rate, Inequality, Latin America, Asian countries

## INTRODUCTION

The effect of inequality on economic growth is still an open question. Empirical evidence differs among regions and countries with different level of development. In this sense, Barro (2000) in a panel of countries presents evidence indicating that inequality is favorable for growth in richer countries but detrimental in poorer economies. In the same sense, more recently Caraballo et al. (2017), using dynamic panel estimation on a sample of 112 emerging countries for the period 1980-2014, show that income inequality has a positive influence on economic growth for richer countries. For the case of advanced economies Yan and Greaney (2017) for US and Japan, and Naguib (2015) for a sample of 31 OCSE countries for the 1971-2010 period, find that inequality is growth-promoting. On the contrary, Cingano (2014) for a sample of OCDE countries during the past 30 years, and Kennedy et al. (2017), in a panel data across all states and territories for Australia during the 1986-2013 period, present evidence indicating that inequality is harmful. Similarly, previous studies for a worldwide sample of countries claim negative effects. For example, Person and Tabellini (1994) state that income inequality reduces economic growth in two samples of democratic countries. The first is composed by US and 8 European countries, and the second by a wide set of developed and developing economies during the postwar period. In the same line, Alesina and Perotti (1996) for a sample of 71 countries during the 1960-1985 period find that inequality, by increasing sociopolitical instability and then politico-economy uncertainty, discourages investment and then economic growth. More recently, Berg et al. (2012) for 140 economies find evidence that the duration of growth processes is positively related to the degree of equality of the income distribution, so that inequality should be negative for economic performance. Also Babu et al. (2016), in a sample of 29 emerging countries, find that inequality is harmful for growth. Lee and Son (2016), in an extended panel data that covers a broad range of developing

and developed countries, find strong evidence that support the existence of a negative effect of inequality on growth, in particular in less developed economies. Similarly, Delbianco et al. (2014) for Latin America since 1980 to 2010, show that inequality generally is detrimental for economic growth, except in the upper tail of the richer countries income distribution, where this becomes favorable. Thus, until here the evidence seems to be eclectic. This supports the classic theory at higher income and the political economy approach in lower stages of development.

On the other hand, an interesting particular case is China, a large emerging country with a relative initial low per capita income since the beginning of transition and for a long time thereafter, where from the economic reforms of 1978 an increasing inequality has encouraged economic growth. The intuition is that Chinese case is different because of such inequality was transferred to the high savings rate achieved for this country. In fact, during the transition household consumption as a percentage of GDP dropped from about 50 per cent to about 35 per cent, with the consequent noticeable rising of higher income households and corporate savings rate (Lin 2013). In addition, evidence of a positive inequality-growth relationship for the case of China since the post-reform period can be found in Chan et al. (2014). For a sample of 26 provinces in the 1995-2011 period they find that high income inequality within the province raises the provincial growth rate. Similarly, Li et al. (2016) find a robust positive long run relationship in a panel of 27 provinces for the 1984-2012 period.

In short, richer and poorer economies present diverse results. In general, there is not clear evidence on the effects of inequality on growth. This could depend of the savings rate of each country. The intuition is that since the rate of savings is generally increasing in income, inequality should promote growth in those cases with higher propensity to save. In this frame, in richer countries higher inequality means a greater transference of wealth to richer and thriftier population. This raises the bulk of global savings, which in the long run encourages a higher capital accumulation and then economic growth. This is an interesting regularity in some regions like the Southern Asia. On the contrary, in Latin America the higher inequality and the difficulties to expand exports could have reduced the incentives to save. Thus, these social and economic conditions could have prevented greater inequality from channeling into greater savings, investment and growth in the long run.

More generally, developing countries are the particular interest, because these face greater need to improve the level of life of their citizens. Thus, in order to shed some light on the different economic performance

of Latin America and the more dynamic Asian countries, the objective of this paper is to determine the association among inequality, savings and economic growth in them during the 1960-2015 period.

The hypothesis is that inequality favors economic growth in countries with higher savings rate, because this will be traduced in higher investment and economic growth. Thus, the idea is that in the long run higher savings rate must encourage higher capital accumulation and then economic growth. In turn, a sustained growth should alleviate the situation of poorer population. On the contrary, in developing countries with lower savings rate higher inequality is not transferred to a significantly high global savings. Consequently, there these achieve lower levels of investment and economic growth. In turn, the contribution of this research is, from a wide approach, to determine some of the more important factors behind the successful Asian experience and the long run stagnation of Latin America. In fact, this finds that savings is the key link connecting inequality and economic growth, as this face more favorable conditions in the Southern Asian countries because these have more abundant endowment of labor force in relation to Latin America. There are two possible explanations to this evidence. First, the idea is that this allows them to reduce production costs as attract FDI, as it is mentioned in the literature discussed below, and then to reach a more successful insertion in the world market. On the contrary, Latin America does not present this advantage, but has faced chronic socioeconomic instability that has been harmful for investment and growth. In second place, the higher Latin America income inequality has been associated with a lower participation of the middle class, and as it is the main source of savings. Then, lower aggregated savings should have discouraged economic growth, so that at last such inequality could explain the different long term stagnation of this Latin America in relation to Asia. Theoretical explanation to rationale these claims can be found in the sociopolitical approach of the relationship between inequality and economic growth. From the seminal paper of Alesina and Perotti. (1996), this states that increasing inequality leads to greater social pressure towards distribution policies. These policies create distortions, which negatively affect the accumulation of physical and human capital, and then economic growth. The intuition is that incentives for such an accumulation are based on the private returns appropriation, but this may be hampered in societies with high inequality and a distributive conflict, which reduce investment and growth.

In that sense, the evidence found here suggests that the better performance of Asia in comparison with Latin America is mainly explained by its

lower levels of inequality and more elevated savings rate. One possible explanation of this result is that the former enjoyed of more favorable both internal conditions and opportunities to the insertion in the world market to save, invest and growth. In fact, notwithstanding both regions suffered civil wars and sociopolitical turmoil, Latin America presents an extreme high economic growth rate volatility and inflation, with episodes of hyperinflations in several countries like Argentina, Perú, Bolivia, Nicaragua, etc. Besides, both output and price volatility are generally harmful for economic growth in the long run (evidence on this for Latin America can be found in Bermúdez et al. 2015). Differently, in the Asian countries the lower inequality should have favored a context of lower socioeconomic instability. This, jointly a more abundant labor force that made possible the adoption of an export-led growth strategy and so its insertion in the world economy, should impulse a higher savings and investment associated to the more profitable opportunities. This should allow reach scale economies, and then higher possibilities of profitable investments, which in turn induce to both higher savings, investment and economic growth.

Nonetheless, even these factors in part can explain the different economic performance between both regions, there seems to be some deep determinants behind them. In particular, there is a consensus in the literature that social and economic instability is provoked by a large inequality of income distribution (for a pioneer contribution of this argument see Alesina et al. 1996). In turn, higher inequality can induce to a lower level of aggregated savings, that in turn discourages economic growth. Interestingly, this last channel was less explored as a key determinant of the different economic evolution between Asia and Latin America. Hence, this research states the key role of savings like a link between inequality and economic growth, to achieve a wider understanding of the successful performance of the Asian countries, and whose theoretical explanation was presented above.

In this sense, despite the heterogeneity proper of a region conformed by a lot of countries with characteristics different among them, in general Latin American countries share important economic features common among them. Examples of this is a history of high economic instability, given by very frequent episodes of high inflation, and even hyperinflation in the end of the eighties, as in most cases very high output and output growth rate volatility. Besides, these compose an economic region with a domestic market relatively small, and then clearly dependent of the external sector to achieve a process of sustained economic growth.

Interestingly, these features are particular more accentuated in comparison with the Southern Asian countries under study here. Even though this region presents asymmetries into the countries that conform this area, the countries share a common market clearly entrenched, in particular since the increasing economic expansion of China.

Moreover, the similarities at intra region level and the differences between both areas encompasses several key economic aspects. In this sense, both literature and empirical evidence presented in Table 2 and discussed below clarifies this topic. In special, there is shown that the main differences between both regions is the labor endowment, which is more abundant in the Southern Asian region. And in relation to this point, previous evidence, several studies emphasize that this was an attractive factor for FDI in this region. Examples of this point are the contributions of Rodrik (2016), who shows a premature deindustrialization process given by a hump-shaped relationship between industrialization and income, particularly in the recent decades in the growth process of Latin American countries. According to his argument, this is because of the massive manufacturing production of those regions like Asia, which have achieved such hump-shaped pattern, is thanks to the capacity to absorb the type of labor that these low- and middle-income economies have in abundance. In this sense, Rodrik states that manufacturing has traditionally absorbed significant quantities of unskilled labor. And more interestingly in terms of the present work, he claims that that manufacturing is a tradable sector. This implies that this sector is not limited by the demand constraints of a home market populated by low-income consumers, because it produces tradable goods that can be exported to the rest of the world. Hence, this can expand and absorb labor force to be employed in manufactures activities. And similar evidence is previously found by Ali and Guo (2005) for China, because this country has both a large land area and a dense population. Analogous results are in Ang (2008) for the case of Malaysia. In the same line, there are several studies on the relationship between labor and FDI, as a conducive factor for economic growth, are influenced by many different aspects in turn related to the labor market size, such as labor market flexibility, as is reported in Pham (2008) for Vietnam, and more recently Rong et al. (2020) for 30 Chinese provinces and Nguyen (2021) find that labor force supplies an attractive factor of FDI for Vietnam.

The empirical study is carried out by means of a qualitative and statistical approach, by analyzing mean tests and correlation measures. This is because the data availability of the inequality measures used here, i.e. the Gini coefficient as a general level of inequality, and the share of the top ten

percent of the richest population, is given complete at most by five-year periods (many missing years in the time series and low variability). Thus, the lack of a more frequent periodicity limits the econometric analysis, so that a qualitative exploration seems to be a better approximation to explore the relation between inequality, savings and economic growth. In fact, as it is shown in the next section, the literature of this issue arrives to very different results, which could be due to the analysis is sensitive to both the availability of data and the econometric methodology that is applied, as well as the difficulty to obtain a clear causality among those variables.

The paper is organized as follows. The next section presents the theoretical arguments to explain as a positive as a negative inequality-economic growth relationship. The data and empirical methodology used in this paper are presented in section 3. Section 4 shows the empirical evidence, and finally section 5 presents the conclusions.

## **THEORETICAL EXPLANATIONS OF THE INEQUALITY-ECONOMIC GROWTH RELATIONSHIP**

Income inequality can exert positive or negative effects on economic growth, depending on the underlying channels linking them. There are two main mechanisms that explain a positive influence. In first place, the classical approach sustains that inequality raises aggregate savings, investment and then economic growth favors growth, because of the savings rate is higher in richer population (for a more detailed explanation of this approach see Delbianco et al. 2014 and Kennedy et al. 2017). In this sense, according to Barro (2000), this argument is particularly relevant in poor economies as it allows that part of population accumulate the minimum required to invest in human capital and entrepreneurship, which should impulse economic growth. In second place, inequality creates incentives for individuals to work harder and invest given the ability to earn higher wages. Thus they are also motivated to up skill by investing in human capital or switch to more productive industries, which boost economic growth (Cingano 2014).

On the contrary, there are at least two channels through which such relationship becomes negative. First, according to Galor and Zeira (1993) and more recently Kennedy et al. (2017), imperfections in financial and credit market reduce the ability of poorer individuals to borrow freely

against future income in credit markets. This restriction creates a binding constraint on the household sector and limits the ability of poorer people to invest in either physical or human capital, which in turn diminishes economic growth. Secondly, the political economy channel states that increasing inequalities lead to social discontent and distributive conflicts, both of which generate greater social pressure towards distribution policies. Such policies create economic distortions and increase the present consumption, which affect negatively the accumulation of physical and human capital, and then economic growth.

On the other hand, as it was explained above higher inequality implies as higher socio political instability and lower resources in hands of the middle class. And as it was explained above, the former implies less aggregated savings and a growth, so that the intuition indicates that there should exist a negative relation between inequality with both savings and long run economic performance.

## **DATA AND METHODOLOGY**

The sample under study is composed by fifteen countries of Latin America and a sample including the most dynamic Asian countries (i.e. China and ten Southern Asian economies) for the 1960-2015 period. The data has an average five-year frequency, and these result from a simple average from the disposable annual data of the World Bank data base. The countries are detailed in the Table 1.

The variables under study are inequality (which is approximated by means of the Gini coefficient and the share of the income of the 10% richest population), the savings rate (defined as savings as % of the GDP) and economic growth (defined as the percent growth of GDP per capita in constant dollars).

On the other hand, as it was aforementioned the lack of a more frequent periodicity of inequality measures limits the econometric analysis, so that a qualitative exploration seems to be a better option to explore the relation between inequality, savings and economic growth at the light of the existing literature. Hence, in first place the empirical work is carried out by means of the study of the average values of these variables, and the significance of the differences between, which is obtained with a test of differences of means between both regions. In turn, this shows the correlations among inequality, savings and growth in each area. After that four graphics and a local polynomial smoother illustrates the nonlinearities between inequality,



Table 1. Sample of Latin America and Southern Asia countries

Latin America Countries	Asian Countries
Argentina	Cambodia
Bolivia	China
Brazil	Hong Kong SAR, China
Chile	Indonesia
Colombia	Lao PDR
Costa Rica	Malaysia
Ecuador	Myanmar
Guatemala	Singapore
Mexico	Thailand
Panama	Philippines
Paraguay	Vietnam
Peru	
Puerto Rico	
Uruguay	
Venezuela, RB	

savings and growth. Finally, a Pearson correlation analysis indicates the association among these variables, as for the total sample as in each region table.

## EMPIRICAL EVIDENCE

This section presents the association between inequality, savings rate and economic growth for Latin America and Southern Asia. In first place this shows the average values and the test of means differences of these variables between these regions. Secondly, four figures present the values of inequality, savings and growth, and finally table shows the correlations of those variables.

The results shown in Table 2 indicate noticeable difference in all the economic variables included there. Latin American countries presents a very lower growth rate, both in five-years and accumulative terms, in relation to the Southern Asian countries. In turn, the former has higher income inequality, and lower values of savings rate, economic openness and global population, and then of labor force. Hence, as the factors endowment as the key economic indicators states prominent differences among both areas, that this qualitative exploration intents to relate in order to understand the very different economic performance between

them. Moreover, the differences between them are significant in all cases. In sum, not surprisingly the evidence indicates clearly a poorer performance of Latin America. This presents high levels of inequality, as lower savings rate and economic growth.

Table 2. Results of the two sample mean t-test between the Latin America and Asian countries

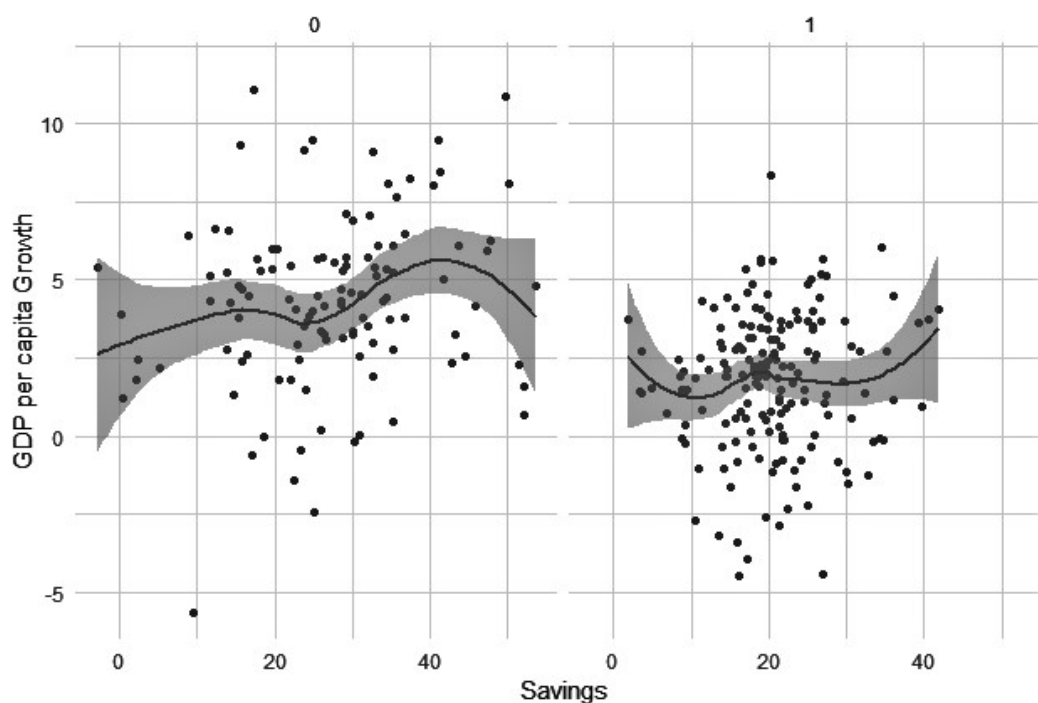
Variable	Latin America		Asia		t
	N	Mean	N	Mean	
GDP pc growth	179	1.80	124	4.20	8.02
Savings %GDP	171	20.35	117	26.53	5.36
GINI	91	50.28	39	40.04	-10.31
Share 10%	91	38.74	39	31.54	-8.29
Openness (X+M/GDP)	171	0.52	129	1.15	7.56
Cumulative Growth	179	27.73	124	63.10	6.98
Population	180	2.62e+07	144	1.27e+08	4.44

Table 3. Pair Wise Correlations between Inequality, Savings and Economic Growth for the total sample, Latin America and Southern Asia (p-values in parenthesis)

Total Sample	Growth	Savings	GINI	Share 10%
Growth	1			
Savings	0.27 (0.00)	1		
GINI	-0.35 (0.00)	-0.15 (0.09)	1	
Share 10%	-0.30 (0.00)	-0.16 (0.00)	0.97 (0.00)	1
Latin America	Growth	Savings	GINI	
Growth	1			
Savings	0.07 (0.33)	1		
GINI	-0.04 (0.74)	-0.06 (0.60)	1	
Share 10%	-0.01 (0.90)	-0.06 (0.52)	0.96 (0.00)	1
South Asia	Growth	Savings	GINI	
Growth	1			
Savings	0.20 (0.03)	1		
GINI	-0.13 (0.43)	0.40 (0.01)	1	
Share 10%	-0.14 (0.39)	0.29 (0.07)	0.97 (0.00)	1

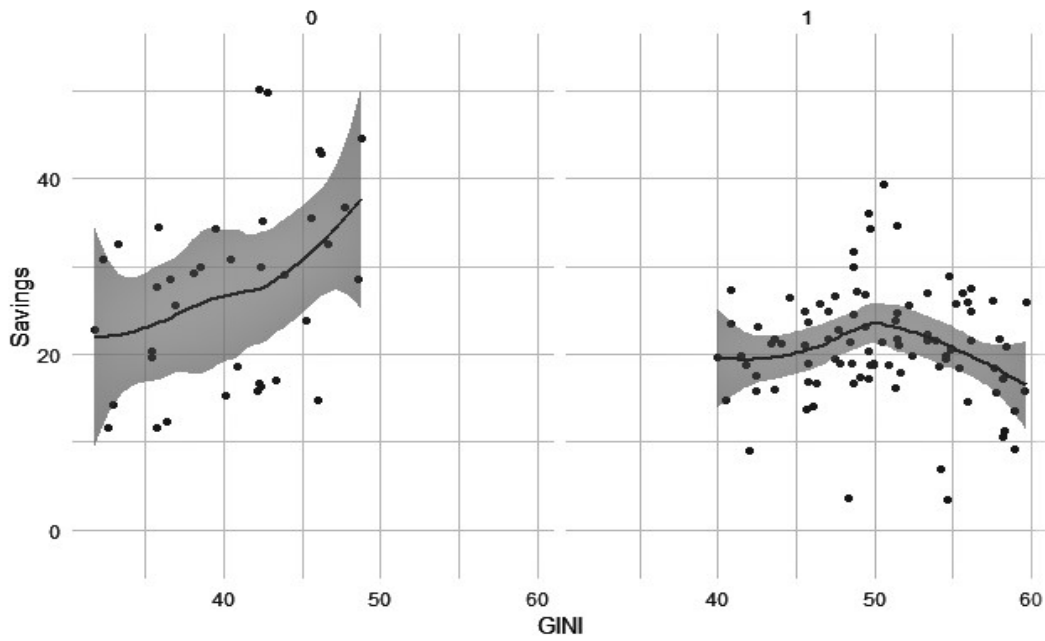
The Figures 1, 2 and 3 show the values of economic growth, savings rate and inequality, i.e. the Gini coefficient and the share of the 10% richest population, for the set of countries included in each region. Once again the evidence here shows sharp differences between both regions. First, in the Asian case in general economic growth is increasing in savings rates, and the savings rates are increasing in the inequality, both for the Gini coefficient as the share of the top 10% richest.

On the contrary, in Latin America there is not a clear association among these variables. Growth has similar values for different savings rates, while the figures of savings and inequality show a kind of inverted U. A possible explanation of these results is that a lower instability associated with a lower inequality, jointly to an abundant labor force in Asia favored its insertion in the world economy. This should have allowed to achieve scale economies, and then higher aggregated savings, investment and sustained growth. Differently, in Latin America the endowment of economic factors is not so favorable to the insertion in external markets; in particular, and contrarily to the case of Asia, in that region there is not an abundant labor force. This reduces the possibility of the insertion in the world



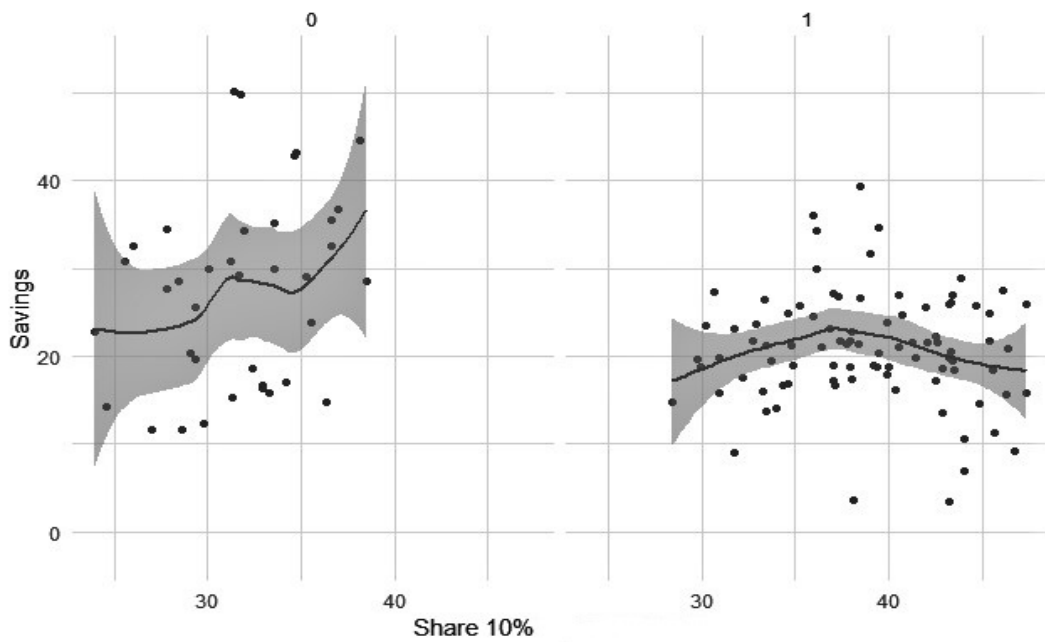
Note: the savings rate is in the horizontal axis, and the per capita GDP growth rate vertical are in the vertical axis. The left corresponds to Asia and the right points correspond to Latin American countries.

Figure 1. Per capita GDP growth rate and Savings rates in and Asian and Latin American countries



Note: the savings rate is in the vertical axis, and the GINI coefficient is in the horizontal axis. The left are Asian economies and the right points correspond to the Latin American countries.

Figure 2. Savings rate and GINI coefficient in and Asian and Latin American countries



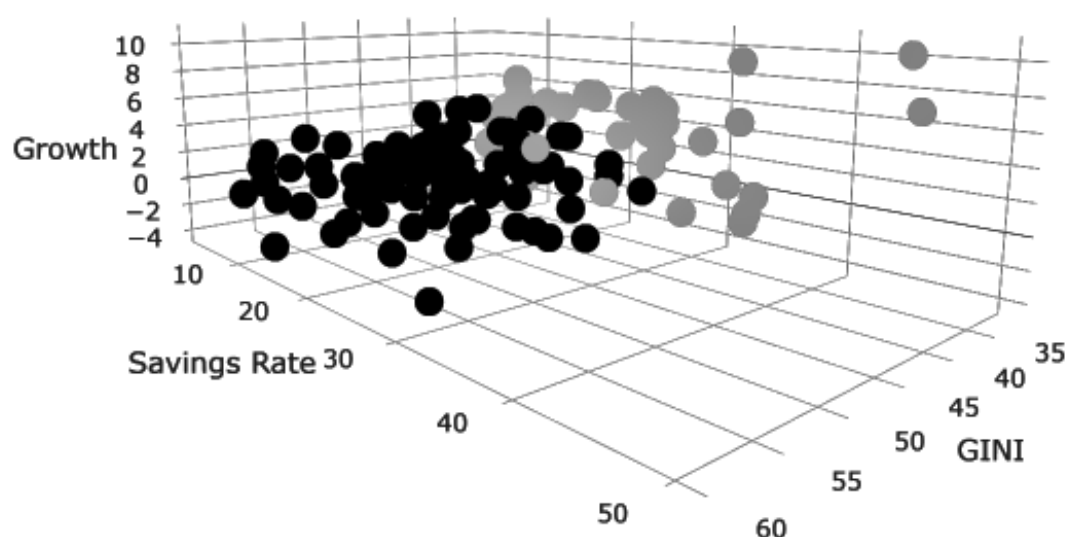
Note: the savings rate is in the vertical axis, and the share of the 10% richest is in the horizontal axis. The left are Asian economies and the right points correspond to the Latin American countries.

Figure 3. Savings rate and income share of the 10% richest in and Asian and Latin American countries

market. Consequently, their production was inward oriented to its small domestic market. Besides, its high inequality should promote political and economic instability, which discourage the investment and savings. The combination of these factors is detrimental for savings and investment, and then for economic growth.

In sum, in Latin America there is a higher income inequality associated with both lower aggregated savings and economic growth, in comparison to Asia. In fact, the savings rate is concentrated around 20%, while the growth rates vary from negative values to maximums close to the 7% annually. Differently, in China and the other Southern Asian economies savings rates are concentrated near a range of values between 30% and 40% are very frequent, approximately, and there the economies reach the highest growth rates. They are always positive and frequently reach values that are in range of an annual GDP per capita growth of 8%-10%.

Figure 4 resumes in a 3D graph, the evolution of inequality, savings and growth in both regions. This indicates that the Asian countries have higher growth rates, which are associated with more elevated savings and lower inequality. Differently, Latin America archived lower economic growth associated with more reduced savings rate and higher inequality. This region achieved higher growth rates, which are associated with more elevated savings and lower inequality. Differently, Latin America presents higher inequality, jointly with lower savings rate and growth.



Note: Latin American countries are represented by the black dots, while the Asian are gray.

Figure 4. Savings rate, Economic Growth and GINI coefficient in and Asian and Latin American countries.

Finally, in order to achieve more accurate results, the following tables present the correlation between income inequality, savings rate, and economic growth for each region. In first place, for the total sample the results of the correlations tables indicates that inequality is negatively associated with savings and growth, while the association between savings and growth is positive, but the results differ clearly between each region.<sup>1</sup> In the case of Latin America there is no significant association between the variables under study. Meanwhile, in the sample of Asia there is no association between growth and inequality, but this is positively related with the savings rates. In turn, economic growth and savings are positively and significantly associated. Thus, this suggests that even though inequality is not directly associated with higher growth, this could be indirectly favorable through higher savings rate.

Finally, even though the correlation results found in this study do not imply causality, they show a clear negative association of inequality with both aggregated savings and economic growth. In this sense, the intuition seems to indicate that, as inequality is given by the long run historical evolution of each region, this should be interpreted as the explicative variable of both lower savings and then a poor economic performance in Latin America in comparison to the Asian countries.

## CONCLUSIONS REMARKS

This work explores the possible relationship between inequality, the rate of savings and growth of two areas with a very different economic performance during the last decades, Latin America and China and Southern Asia. The study is carried out by applying simple statistics tools to such variables for each region: the means, test of means differences, two figures that illustrate their values and a pair wise correlation test between them.

This empirical evidence presents a comparative study the economic evolution of Latin America and a sample of China and several dynamics Asian countries during the last five decades. In turn, it explores two possible factors associated with the different performance between them, which are income inequality and the rate of savings. The results of using simple statistics tools like the means, test of means differences, two figures that illustrated their values and a pair wise correlation test indicate that

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<sup>1</sup> These results are not necessary contradictory. They can be associated to the Simpson's paradox, where a trend may appear in several different groups of data but disappears or reverses when these groups are combined.

the more successful dynamics of the Asian countries could be related to lower inequality levels and higher savings rate. In fact, in Latin America there is no significant association between the variables under study. Differently, for the set of Asian countries inequality is positively associated with the savings rate, and this with economic growth. One possible explanation is that, as the Asian countries have had a more favorable endowment of economic resources, in particular an abundant labor force. This should favor the insertion in the world economy, which in turn promotes better opportunities to invest and so high economic growth. On the contrary, Latin America did not dispose of such comparative advantage. Instead, the higher inequality must have prompted political and economic instability, which discourage the investment and savings. The combination of these factors should reduce the long run the economic growth. In fact, the experience supports this explanation: Asian countries present very high economic openness levels (in particular the ratio exports/GDP) and low inequality, while Latin America was an inward oriented area since the great depression.

To summarize, the evidence found here suggest that one possible factor behind the better performance of the Asian economies is the higher savings that in turn are positively associated to a lower inequality, in comparison with Latin America. Hence, fiscal policies oriented to mitigate income inequality and to promote counter cyclical policies should reduce social and economic instability, and then impulse savings, investment and economic growth in the region.

Finally, this study is far from achieving a comprehensive explanation of the striking differences of the economic performance of both regions. Future lines of investigation can be based in exploring the underlying links between inequality and the savings rate. For example, it could be promissory to include in the analysis some variables of sociopolitical and economic instability, like the break of long-term political and economic plans for the former, and inflation and output variability to approximate economic instability.

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