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Economic Convergence and Income Inequality: Cases of Argentina, Brazil, and China

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Introduction

As the countries of the world become more connected through trade, the impact of the policies of influential industrializing countries becomes more important. These countries create various economic policies to cover the development gap between them and the wealthy parts of the world. Convergence theory suggests that in the process of global economic development, there is a predicted decrease in inequality between rich and poor countries or between developed and developing countries. Despite a significant decrease in inequality between developing and developed countries, positive economic outcomes are not enough to decrease inequality within the developing countries. In addition to significant economic growth, policies structured to accumulate human capital and build a welfare state are important to decrease inequality within each developing country, given that the country is not an autarky. Otherwise, accumulation of capital that happens naturally during the stage of fast economic growth will increase the inequality gap between the rich and the poor within the country. Looking at the case studies of China, Argentina and Brazil as currently influential industrializing countries, this research paper will highlight the relationship between economic growth and inequality in each discussed country and illustrate how successful investment in the country's human capital is decreasing inequality among its citizens.

Convergence in Neoclassical Economics

A lot of research has been done within a neoclassical economic growth model, named after two economists in the late 1950s, Solow and Swan. They independently developed the model for countries' economic growth by looking at the capital accumulation, population growth leading to the growth of labor force, and increase in productivity, resulting from technological progress. Due to diminishing returns of productivity at higher levels of technological development and slower economic growth of the developed countries, the developing countries with "[sufficient] labor supply, capital stock and real output will asymptotically expand at rate *n*", where *n* is population growth rate and convergence rate.[1]

The Solow-Swan model is famously represented by the formula output $Y = Af(K,L)$ where A is total factor productivity, a sum of factors that increase a country's output, e.g. technological progress and education, K is physical capital and L is labor.[2] The interest sparked by the model has produced numerous works that use actual historical data and simulations to test the convergence effect across the developed and developing countries.[3]

As more research has been done since the concept of convergence was introduced, some modifications to the Solow-Swan theory have been made. I will discuss two of them here because of their relevance to this paper. The first modification addresses the convergence in particular economic sectors. Dani Rodrik at The Institute for Advanced Study argues that while it's important to look at inequality across the countries because it grows at the higher rates than inequality within countries, historically GDP per capita, when plotted, doesn't create the trend that would confirm global convergence in the long run. Frequently it is explained by the conditions that are unique for each country.[4] And while unique factors can accelerate or impede economic growth of the country, thus affecting the convergence process, Rodrik suggests that the manufacturing share of long-term economic growth, when separated from other sectors, produces specific evidence for productivity convergence regardless of region or period.[5] The results of Rodrik's study will be a useful tool for comparing the rate of convergence for China

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[1] Robert Solow, "A Contribution to the Theory of Economic Growth", *The Quarterly Journal of Economics* 70, (1956): 71

[2] Solow, "A Contribution to the Theory of Economic Growth": 85

[3] Shatakshee Dhongde and Xing Miao, "Cross-Country Convergence in Income Inequality," *ECINEQ* , (2013): 290

[4] Government corruption in developing countries, as brought up by one of the reviewers during presentation of this paper, is often cited as one of these conditions.

[5] Dani Rodrik, "The Past, Present, and Future of Economics Convergence" (video of lecture, Institute for Advanced Study, Princeton University), accessed February 20, 2015, https://www.youtube.com/watch?v=G9_iv5OKcXY

and Argentina and looking at inequality within them. Historically, Argentina has exported agricultural products and currently grows its industrial sector at 2.7% per year, while China's annual industrial growth was at 7.6% in 2013.[6]

Piketty in his book *Capital in the Twenty First Century* makes the second modification to the original convergence model claiming that one of the underlying assumptions in the model contains a weakness. The assumption suggests that based on the free flow of capital, increased marginal productivity, and competition, less developed countries increase output, and eventually income inequality in poor countries will decrease as their output increases. However, Piketty argues that income and output are equal only at the global but not the national level.[7] In reality, income distribution on the national level is more unequal than the output because countries with high GDP per capita invest their capital in other countries, as well as theirs, thus getting income domestically and from abroad.

Piketty in his book makes two important remarks about the classical model of convergence theory. First, much as Rodrik, he notices that the global convergence is not the convergence of incomes, but at best a decrease in the output gap (manufacturing to be precise).[8] Convergence will happen only when there are uninterrupted capital flow and similar level of human capital, but these are huge assumptions on their own. We can see that foreign direct investments (FDI) play a key role in convergence of the output, but incidentally the FDI can be responsible for creating a scenario where rich countries own poorer countries permanently and increasingly. If the output of a developing country grows, then the foreigners' share of capital invested in that country will be ever increasing. This is so-called neo-colonial scenario.[9]

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[6] "The World Factbook: Argentina" *CIA,* Accessed February 27, 2015, https://www.cia.gov/library/publications/the-world-factbook/geos/ar.html

[7] Thomas Piketty, *Capital in the Twenty-First Century,* 67

[8] Rodrik, "The Past, Present, and Future of Economics Convergence"

[9] Piketty, *Capital In the 21st Century,* 68-69

This notion leads to Piketty's second statement, that the capital/income ratio within the developing countries is an important factor of their growth. Piketty notes that the capital from the Western countries was not a major development factor for any of the "Asian miracles" (Japan, South Korea, Taiwan, or even China to an extent) in the last three decades. Those countries were able to finance themselves in developing physical and, most importantly, human capital through enforced high domestic saving rates, wise fiscal policies and major social investment in education. On the other hand, the growth in the long run of the countries that had a lot of foreign capital inflow developed more slowly with greater political instability, which is inherent in such growth and increasing income inequality.

Piketty's modifications to the convergence theory are important for this paper because in the past Brazil and Argentina had significant foreign capital inflow while maintaining low economic growth and increasing inequality. Also, in the subsequent sections of this research paper, we will see how the significant decrease of inequality in Latin American countries since 2002 is attributable to the internal successful integration of policies rather than inflow of foreign capital.[10] Developing countries benefit more from the open markets rather than foreign capital inflow because when countries trade freely, a diffusion of knowledge and technology takes place.[11]

The cases selected for this study are inherently different in their historical backgrounds and current economic conditions. The only aspect they have in common is the fact that they are all in developing echelon. The three selected countries are good illustrations for the convergence theory and income inequality. Due to very diverse development conditions, each case will

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[10] Thomas Piketty and Facundo Alvaredo, *Declining Inequality in Latin America: The Dynamics of Income Concentration in Developed and Developing Countries: A View from the Top* (Brookings Institution Press and the UN Development Programme, 2010), 96

[11] Piketty, *Capital In the 21st Century:* 69-71

highlight different aspects of the modifications to the classical convergence theory and their effect on inequality in each case.

In case of Argentina, protectionist policies and a strong agricultural sector did not allow a rapid economic growth in 1970-1990s despite numerous ambitious economic policies. We also observe growing inequality at that period of time. On the other hand, China, opening up markets focused on exports and growing its manufacturing sector at enormous rates, has become a classical illustration of Kuznets', curve where increasing income inequality mirrors high economic growth trend.[12] The Brazil case reiterates the importance of increasing access to education and effective public policies in decreasing inequality, while maintaining medium rate of economic growth.

China: Unprecedented Economic Growth and Inequality

In 1980s, China experimented on implementing, at first minor, economic reforms. It took a direction of opening the country for trade with the world, and from then on China hasn't stopped surprising the world with its economic achievements. This section will only briefly highlight economic growth since 1986 and will take a closer look at the increase in GDP per capita and real income per capita, and how they contributed to shaping inequality in China. For decades the growth rate of the economy hovered above 10%[13], and even though it decreased to 7.4% in 2013, it stood so close to the USA, that the analysts predicted that it would surpass the USA's GDP by 2015. Real GDP per capital increased by 154% between 1986 and 2001, which is about 6.4% per year.[14] Economists attribute the unprecedented economic growth of China to its export-orientated policies, governmental guidance in the financial and real estate sectors, and

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[12] It is probably too soon to predict that China will follow the curve described by Kuznets.

[13] Mark Magnier, Lingling Wei, and Ian Talley, "China Economic Growth is Slowest in Decades, "*Wall Street Journal,* updated January 19, 2015, accessed February 28, 2015 http://www.wsj.com/articles/china-gdp-growth-is-slowest-in-24-years-1421719453

[14] Piketty and Quin, *Top Incomes: a Global Perspective; Income Inequality and Progressive Income Taxation in China and India, 1986-2003,* 45

cheap labor among other factors. At the same time, the overall income inequality has also significantly increased. Research shows that Gini coefficient increased from 0.382 in 1988 to 0.473 in 2013.[15] Furthermore, the share of annual national income of the top centile increased from about 2.8% in 1986 to 6% in 2003.[16]

The *Hukou* system prohibits migration between cities and rural areas, and though farmers are allowed to work in cities, they need special permits to receive benefits in Chinese cities. Thus, in cases of work-related injuries or lay-offs the workers become dependent on their employers, who often fail to fulfill their obligations. The h*ukou* policy is an attempt to keep the cities from overpopulation and to ensure that there are enough people working in the agricultural sector to feed a country with the largest population in the world.[17] As the result, the inequality between rural and urban areas is the biggest kind of inequality in the country, contributing 50-70% to overall inequality.[18]

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[15] Shang-Jin Wei and Yi Wu, "Globalization and Inequality: Evidence from within China", National Bureau of Economic Research (2001): 7

[16] Piketty and Quin, *Top Incomes: a Global Perspective; Income Inequality and Progressive Income Taxation in China and India, 1986-2003,* 47

[17] Shang-Jin Wei and Yi Wu, "Globalization and Inequality: Evidence from within China", 7

[18] OECD ,"Growth, Employment and Inequality in Brazil, China, India and South Africa" (2008): 29

In the last three decades, the volume of global trade has increased, so has the urban-rural inequality, but the study suggests that it would be a mistake to conclude that there's a causal relationship between these the two variables. In fact, this same research suggests that in provinces where there is a higher trade-to-GDP ratio, the urban-rural inequality is decreasing.[19] Piketty and Qian argue that increasing inequality level in China is normal for a country with such a high growth rate. Despite that, they warn us not to be overly optimistic thinking the Chinese economic development will follow the Kuznets curve and that inequality will start decreasing at certain point of GDP per capita.[20] In his book, Piketty illustrates that Kuznets curve is effective in explaining short-term development, but it cannot be used to analyze the distribution of income over the long run.[21]

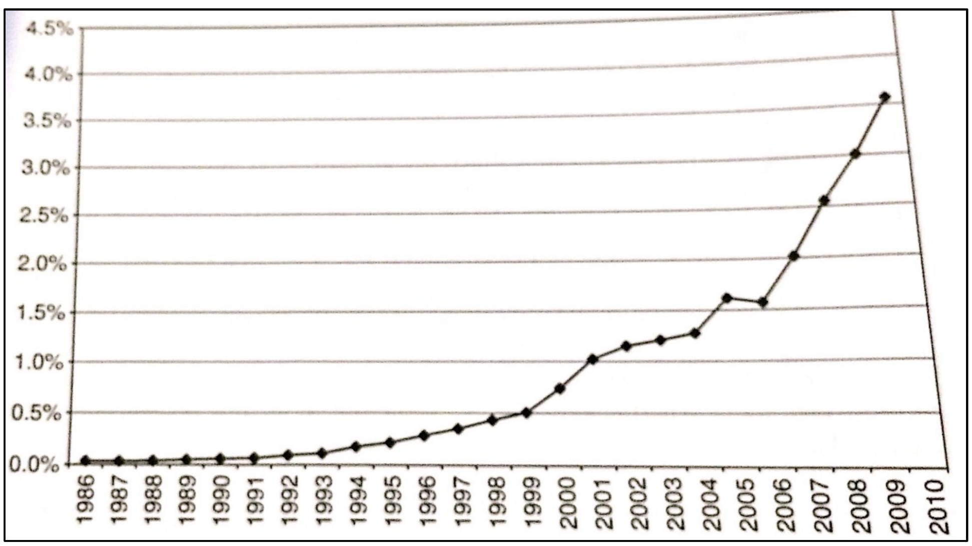

Figure1: Projected income tax revenues (as a fraction of GDP) 1986-2010
Source: Piketty and Quin, Top Incomes: a Global Perspective. Data Appendix, 15

[19] Shang-Jin Wei and Yi Wu, "Globalization and Inequality: Evidence from within China", 19
[20] Piketty and Quin, *Top Incomes: a Global Perspective; Income Inequality and Progressive Income Taxation in China and India, 1986-2003,* 47
[21] Piketty, *Capital in the Twenty First Century,* 92

Now that the economic and population growth slows down in China, it can be predicted that the accumulation of capital will lead to even more increasing inequality in the country.[22] As other factors of convergence such as diffusion of knowledge and technology are effective in China, the research proposes that a progressive income tax will be an effective instrument to manage inequality. As we see from Figure 3, income tax revenue in China currently is just above 3.5 % of GDP, and Piketty claims that, even accounting for the fact that about 40% of the economy is controlled by the state, it is too little. To develop and sustain social programs and invest into education and health system, the country will need more revenue. From the world experience, no country in the West was able to continue develop socially and economically with such a low tax revenue.[23] Since the overall tax law in China hasn't been reviewed since it was created in 1980, the current development of China requires that policies addressing progressive tax law be established since the tax influence on inequality in China has been demonstrated

Argentina: Glorious Past and Uncertain Future

Argentina is the "classic case" of FDI and import substitution: it makes a very interesting case study for several reasons. First of all, it has over 70 years of income tax data that will enable us to see the evolution of the economic growth and income inequality over the long run. It is the first country in Latin America to enforce an income tax since the early 20th century.[24] Another reason to study inequality in Argentina is that during Belle Époque it was a very rich country, sometimes called "the USA of South America." The country enjoyed a robust economic growth explained by relatively skilled and educated immigrants who came to the country at that time and strong infrastructure; great transportation systems seamlessly integrated the country with the

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[22] Piketty, *Capital in the Twenty First Century,* 93
[23] Piketty and Quin, *Top Incomes: a Global Perspective; Income Inequality and Progressive Income Taxation in China and India, 1986-2003,* 41
[24] Facundo Alvaredo. *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century* (Oxford: Oxford University Press, 2010), 254

world through railroads and the sea; also Argentina had a lot of FDI due to increasing demand in the world for the raw materials and fertile land to become one of the biggest food exporters at that time. [25] The population of the country grew rapidly from 2.5 million in 1875 to 11.9 million in 1914. But not only the population growth was high; the economic growth rate was one of the highest. In 1913, Argentina's GDP per capita was $4,519, surpassing those of Germany and France.[26] The limitation of that development was heavy dependency on external financing.[27] As the result, in 1929, the economy of Argentina was shaken by the interwar economic stresses in the USA and Europe. The political elite was not able to adapt to the situation, and the country had its first coup d'état, which led to a tense political situation resulting in many more coups and economic instability throughout the 20th century.

The industrialization process was started by the government in 1930s in Argentina, but it spread country-wide a decade after the World War II. The Peron government created state monopoly on exports and limited the share of private wealth; despite major criticism of the Peronist government, it started very aggressive redistributive policies and created a foundation for the welfare state.[28] While executing monopoly on export, the government employed import-substitution policies that in reality weakened the industrial sector, and again agricultural exports became a major source of revenue and economic growth of the country in 1950-1970's.[29] During that time, the country had a growth rage averaging 3.8% per year, and we observe more equality and the creation of the middle class. Approximately 40% of population was considered the middle class, and by the early 1960s Argentina had the most unionized working class on the

[25] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 255
[26] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 255
[27] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 25
[28] Juan Peron (1895-1974) was a soldier and a dictator of Argentina elected for three terms from 1946-1955 and in 1973 till his death.
Oxford Bibliographies, s.v. "Peron and Peronism," accessed February 28, 2015
[29] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 267

continent.[30] At that time, the world spoke about "Argentine miracle", however, in historical perspective, a seemingly flourishing economy under the Peron government was only a short episode of the long period between 1956 and 2007 marked by severe contractions and expansions of Argentine economy when either the manufacturing or agriculture sector acquired political power. Between 1956 and 2004, Argentina's GDP grew on average at the annual rate of less than 1%.[31] During 1980-1990s, a series of economic reforms, including trade liberalization and privatization to increase export growth and fixing peso to US dollar to control severe inflation of the currency, gave some growth to the economy, but it was offset by external market conditions which eventually led to the country's default in 2001. As the result, unemployment rate skyrocketed above 20% on that year. Starting in 2003, the Argentine economy has been expanding and contracting again, but also there have been efforts to create stronger social programs and renationalize industries such as postal, energy, and airlines segments.

The factors behind the increase in inequality in 1990-2003 in Argentina can be explained by both microeconomic and macroeconomic factors. First of all, unemployment increased dramatically in late 1990s to 20%, and, though unemployment rate decreased by 2003, it still remained high at about 7.5% in 2013 [32] although Gasparini argued it that increase in unemployment has less of the negative effect on the inequality increase than it's usually accepted to think.[33] Since unemployment rates have not changed a lot in the last decades, they seem to have smaller effect on the increase of inequality than the number of hours worked. [34]

[30] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 277
[31] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 255
[32] "The World Factbook: Argentina" *CIA,* Accessed February 27, 2015, https://www.cia.gov/library/publications/the-world-factbook/geos/ar.html
[33] Leonardo Gasparini and Nora Lusting, "The Rise and Fall of Income Inequality in Latin America", Tulane Economics Working Paper Series (2011): 13
[34] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 280

When we apply an income inequality distribution against the data provided by Piketty, we can see the following trend. Looking at the figure 1, we can see that 18.7% of annual income went to the top 1% in 1932 and skyrocketed due to the export policies to 25.9% in 1943. In 1946-1955, there was an observable decrease of the income share credited to strong influence of

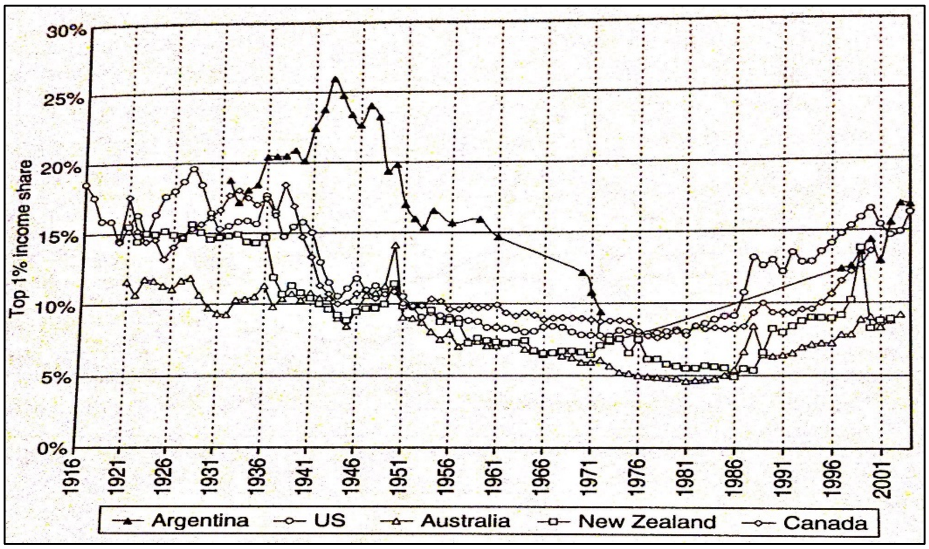

Figure2: The top 1% income shares in Argentina, USA, Australia, New Zealand and Canada.
Sources: Atkinson and Piketty (2010).

work unions, enforced social rights, and first pension system introduced in the country. The share of the top 1% were decreasing from 25% of total income and fell about 7.5% in early 1970s.[35] In 1980s, with stagnation of the economy, the top 1% share of income steadily increased up to 12% of total income and jumped to 15% in 1989 because of economic crisis and then fell just to sharply increase again in 2001 to 17%. Following the stabilizing of the economy after the 2001 crisis, the unemployment rate in the country dropped from 20% to 8% in 2009 and 7.3% in 2013. Also, the Gini coefficient dropped from 0.533 in 2002 to 0.458 in 2009.[36] Economists argue that such decrease can be credited to shift to low-skilled labor sectors and increased governmental spending on social programs.

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[35] Alvaredo, *Top Incomes: a Global Perspective; Rich in Argentina over the Twentieth Century,* 277
[36] Gasparini and Lusting "The Rise and Fall of Income Inequality in Latin America", 14

Argentina has been on a difficult road for economic and political development since the World War II, and income inequality levels at different periods are reflective of the economic struggles the country. The economists, using convergence theory factors, state that policies that target accumulation of human capital should be implemented. Improving the quality of the education system and providing wide access to it are the main aspects here. Furthermore, financial, technological and physical infrastructure is another aspect that Argentina needs to continue to improve because it will ensure faster economic growth. Income inequality and economic growth have improved in the last twenty years, but because inequality is still generally higher than developed countries' average, Argentinian government will need to make bold steps in the future to continue fight the problem and lead the country out of the instable place it is now.[37]

Brazil: Economic Growth and High but Decreasing Inequality

Historically, Brazil has been known for its very high income inequality. The level of inequality has been very high not only for a country that has actively, but not always successfully, searched to develop the economy. With inequality a little bit lower than in failed states, Gini coefficient at some historic points surpassed the world average of 0.63.[38]

Economic instability has contributed the most to the income inequality of the country. During the crisis of 1980s, inequality soared to the highest 0.63, but after introducing economic reforms in late 1990s, inequality steadily started decreasing, and Gini coefficient dropped to 0.52 at 2012.[39] Although Brazil did better than other Latin American countries, such as Argentina and Mexico during 1980s, the debt crisis and inflation, overwhelming in all South America, hit the

[37] Ruben Mercado, "The Argentine Recovery: Some Features and Challenges", VRP Working Paper (2007): 15
[38] "The World Factbook: Brazil" *CIA,* Accessed February 27, 2015, https://www.cia.gov/library/publications/the-world-factbook/geos/br.html
[39] Gasparini and Lusting "The Rise and Fall of Income Inequality in Latin America", 14

country, and the GDP growth declined from average 8.6% in 1968-1980 to about 1.5% per year in 1980-1990's.[40] Despite an observable decrease in economic growth, economists found that the factors that triggered significant decrease the inequality in Brazil starting late 1990s: changes in government spending, changes in wages due to skill levels and changes minimum wage.[41] Decline in inequality was also reflective of the change on political arena in Brazil. During 1960-1980's, when Brazil had right wing military government, we observe high economic growth and incomparably higher growth of inequality. In 1985, Brazil established central-left government which created successful policies to combat inequality. Inequality declined drastically in Brazil starting 1999, and economists say from 2001, inequality was decreasing between 2001 and 2007 on average at 1.2% per year. It's one of the most remarkable changes in inequality level in history.[42]

It is important to realize that what makes Brazilian case interesting is that the reduction of poverty happened in two ways: a balanced economic growth and decrease in inequality. Brazil's GDP grew at about 2.6% per annum during 2000-2007, while the share of the bottom 10% grew actually grew about 7.0% a year that means that 4.4% of income growth of the poorest came from the reduction of inequality. As the result, the portion of population living in extreme poverty declined by 11 million. To reduce poverty at the same rates without reducing inequality, Brazil's per capital income would have needed to grow at additional 4% annually.[43]

Approximately half of the decline in inequality in Brazil can be attributed to the change in composition of household income. Data suggest that population receiving some sort of

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[40] Gasparini and Lusting "The Rise and Fall of Income Inequality in Latin America", 15
[41] Ricardo Barros, Mirela De Carvalho, Samuel Franco, and Rosane Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* (Brookings Institution Press and the UN Development Programme, 2010) 134
[42] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 136
[43] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 137

nonlabor income increased from 42% to 52% between 2001 and 2007. Nonlabor income has three components: income from assets, income from private transfers (including foreign investments), and public transfers such as pensions and welfare allocations. Public and private transfers comprised 90% of total transfers and public transfers made up 90% of that portion.[44] Although nonlabor income has represented only about ¼ of the total annual income, it is not so concentrated anymore: 52% of Brazilians has received some sort of public transfers. [45]

The fall of inequality in income from labor is, in turn, explained by the decrease of inequality of income distribution per working adult. Equalizing factor for income distribution was a rapid increase of access to education in Brazil. It's been argued that increased access to education was a result of the democratic successful policies in late 1980s.[46]

Education affects the distribution of income in two ways: *quantity effect and price effect.*[47] In other words, the greater education inequality always means a large inequality in earned income, and it is quantity effect. Also how sensitive the change in education level is to the change in earning levels is explained by price effect. As seen on the figure 2, there has been a decline in education inequality as well as flattening of the correlation between education and earnings. A higher correlation between education and earnings means that a small increase in education translates into a larger increase in earnings per working adult. Thus, the decrease of this steepness is responsible for approximately 23% of decrease on income inequality per capita.[48]

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[44]Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 139

[45] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 137

[46] James Robinson, *Declining Inequality in Latin America: A Decade in Progress,* (Brookings Institution Press and the UN Development Programme, 2010)

[47] Piketty talks about the race between education and technology in the similar context in chapter 9, *Capital In the Twenty First Century*, 304

[48] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 158

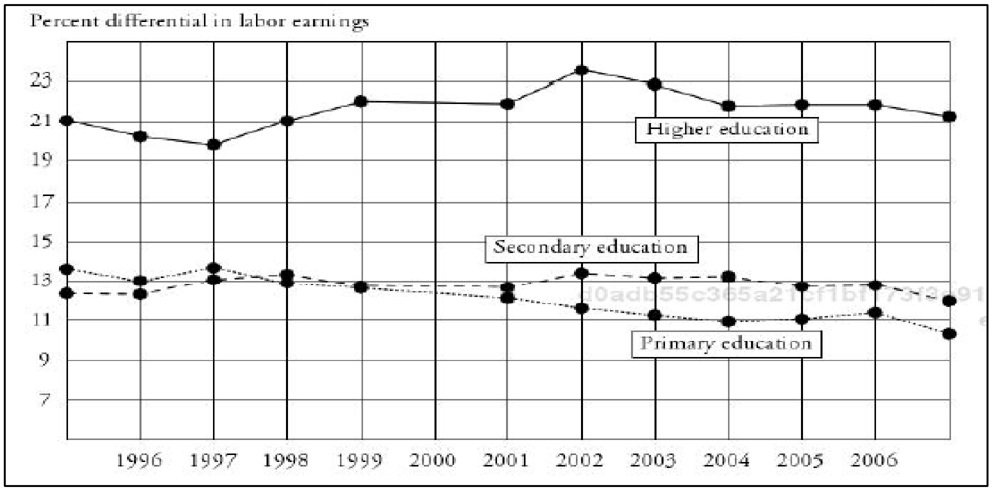

Figure 3: Evolution of the Differentials in Labor Earnings between Education Levels, Brazil,1995-2007.
Source: Barros, De Carvalho, Franco and Mendonca based on PNAD, 1995-2007
The y-axis equals {Exp[(average of the log of labor earnings of workers with X years of education)-(average of the log of labor earnings of workers with Y years of education)/(X-Y)]}-1. The returns are estimated controlling for age, sex, race and location residence.

Economic reforms that focused on integration of all labor markets and more balanced growth between the sectors of the economy increased output from medium and small size cities throughout the country while the largest metropolitan areas lost some of their share of GDP. [49] Minimum wage in Brazil is a very important factor because it establishes the floor for social security benefits and wages for the jobs with low skill requirements. The minimum wage increased by 35% in real terms[50] from 2001 to 2007. [51]

To summarize the account on inequality in Brazil, we must understand that dramatic decrease in inequality in Brazil in the last two decades is only the first step in a very long journey. Economists estimated that it would take Brazil two additional decades to bring the inequality levels in the country to the world's average given the robust economic growth.

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[49] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 170
[50] i.e. adjusted for inflation
[51] Barros, De Carvalho, Franco, and Mendonca. *Declining Inequality in Latin America: A Decade in Progress; Markets, the State and the Dynamics of Inequality in Brazil,* 166

Conclusion

The three case studies in this paper observed the economic development of each country and how it affects the income inequality within the country. Argentina, China and Brazil are large countries rich in natural resources. Each country has had different approaches to economic development and even currently they have different rates of growth (China's real annual growth rate is 7.7% in 2013, Argentina's is 3.5%, and Brazil's GDP growth rate is about 2.3% in that same year).[52] Each country had different inequality levels at various periods of time, when Brazil's Gini coefficient was as high as 0.63 in 1970-s and 1980-s while at the same time China had a very low inequality of incomes due to totally regulated economy under communist government.

Although coming from different backgrounds, the three countries are on their way to development and catching up with the developed part of the world. But as Piketty claims, the real growth of GDP per capital, which is different from income growth per capita for the developing countries due to inflow of foreign investments, will not automatically reflect in decreasing the inequality. On the contrary, free markets can cause inequality to increase within a country while decreasing inequality between the developing and developed countries, like we observed in the case of China, where the share of income of the top 1% increased by 100% from 1986 to 2003. The China economic development and inequality imitates Kuznets' curve upward movement due to high GDP growth rate. However, we learned from Piketty that decrease on income inequality won't happen if it is not specifically target through increased investment into human capital and technological progress. China's case also suggests that tax reforms will be necessary to increase the revenue for social programs. The Argentine case shows the disadvantage a country puts itself into when it relies heavily on export of agricultural products for economic growth, as suggested

[52] "The World Factbook" *CIA,* Accessed February 27, 2015, https://www.cia.gov/library/publications/the-world-factbook/geos/ar.html

by Rodrik. The case of Brazil most vividly illustrates decrease in inequality within the country through increased access to education and establishment of welfare state. Markets open to trade are great arenas for the developing countries to approach convergence with the rich countries. However, successful convergence and decrease in inequality within those developing countries can be achieved by governments structuring policies to accumulate human capital, promote technological progress, and establish welfare state.

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