

Economic Freedom and Inequality in Latin America

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Abstract

The positive influence of greater levels of economic freedom on growth, development, democracy, and other indicators of human progress has been well-documented. Nations in the top quartile of economic freedom outperform those in the bottom quartile on a wide range of well-being indicators. Economically free countries have higher levels of incomes per capita and life expectancy, enjoy higher levels of political and civil liberties, and tend to fare better in terms of gender equality. However, studies that look at the relationship between economic freedom and inequality produce conflicting or ambiguous results. Can improvements in income inequality be attributed to economic freedom? This paper explores the link between economic freedom and income inequality from 1970 to 2016 across selected countries in Latin America, the most unequal region in the world.

Introduction

During the current era of globalization, the world has increased its level of economic freedom notably. National economies have become more open to trade and investment, currencies have become more stable, regulations less burdensome, and the protection of property and respect for contracts have improved in countries around the world (Gwartney et. al, 2018). That development should be welcome news since economic freedom is positively associated with a wide range of human development indicators. Faria and Montesinos (2009), for example, find that economic freedom exerts a strong, positive impact on growth and the level of income. Zweimuller et. al (2008) find that “higher levels of market orientation as proxied by the Economic Freedom Index lead to lower gender wage gaps across countries and time periods.” Economic freedom is also associated with a lower risk of civil war (de Soysa and Fjelde 2010). A review of the academic literature (Hall and Lawson, 2013) looked at nearly 200 studies where economic freedom was the dependent variable and found that more than two thirds of the academic articles established a “good” outcome associated with economic freedom. That is consistent with the finding that economic freedom is positively correlated to lower infant mortality rates, longer life expectancy, higher levels of political and civil liberties, lower poverty rates, etc. (Gwartney et. al, 2018).

The relationship between economic freedom and inequality is less clear, however. If a greater reliance on market economics inevitably tends to produce greater inequality, as some

assert (e.g., Piketty, 2014), the increase in economic freedom may not be so welcome after all. That is especially so if inequality exerts a negative impact on indicators of progress, such as poverty reduction or economic growth, as some have claimed (Birdsall, 2007). What does the evidence say about the link between economic freedom and inequality?

Latin America offers a rich case study to examine that question. It is the most unequal region in the world, using the Gini coefficient as a measure, and it has long been so. However, it is also the only region in the world that has seen a notable decline in its levels of inequality in recent decades. From 2002 to 2014, for example, 18 Latin American countries for which there is data during that time period, reduced their inequality by an impressive 6.7 percentage points as a group (FocusEconomics, n.d.). That performance contrasts with most of the rest of the world, where inequality has increased. And although Latin America as a region has increased its level of economic freedom in the past few decades, countries in the region exhibit a diverse set of reform experiences. Some countries, such as Peru or Chile, moved swiftly toward, or achieved relatively high levels of, economic freedom, while other countries, such as Argentina or Venezuela, saw dramatic declines. The fact that inequality fell in almost all Latin American countries allows us to reach tentative conclusions about the link between economic freedom and inequality, or at least to reject certain claims.

Literature Review

The literature exploring the relationship between inequality and economic freedom is mixed. Piketty (2014) famously theorized that market economies produce increasing inequality, though empirical tests of his formulation have not supported his specific claims (e.g., Goes, 2016). More careful studies using economic freedom measures produce an inconclusive literature. Mahyudin (2017) finds that economic freedom substantially increases inequality. Bergh and Nilsson (2010) and Carter (2006) find the same relationship. Other studies (Bennett and Vedder, 2013; Clark and Lawson, 2008) report that economic freedom is associated with decreases in inequality. Still others (Scully, 2002; Berggren 1999) find a trade-off between growth—which is closely associated with economic freedom—and income inequality or a U-shaped relationship between inequality and economic freedom (Apergis and Cooray, 2015). Holcombe and Boudreux (2016) test separate data sets and conclude that “whether market institutions generate income inequality is an open question.”

Latin America has seen impressive declines in both poverty rates and inequality in recent decades, and most countries in the region have become middle class nations. This performance serves as a counterpoint to the pessimistic literature on inequality that holds that high inequality itself represents “a large and statistically significant barrier to prosperity” (Easterly, 2007), and that it is inimical to poverty reduction. According to Birdsall (2007), inequality in developing countries “is associated with unequal mobility and limits economic growth.” Perhaps, but the reduction of inequality in Latin America during a time of, and possibly because of, relatively high growth would seem to undermine that statement. And although inequality has come down notably, as a region, Latin America still maintains the highest levels of inequality, further undermining the standard pessimism on the prospects for progress. Inequality in Latin America, Birdsall further explains, is of the destructive kind, reflecting privileges and limiting opportunities to the many. That is most certainly true and gives all the more reason to document how increases in economic freedom, which tend to undermine state favoritism in the economy, affect inequality. This paper attempts to add to the emerging picture, which will tell a fuller story as the effects of policies and institutions, as measured by economic freedom indicators, play out in the longer term.

Research Methodology

This study uses comparative analysis run in Python among Latin American countries across inequality and economic freedom indicators. Latin American countries in this study include those for which enough data are available: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. The analysis focuses on the period between 1970 and 2016, the most recent year for which data are available.

The level of inequality is measured using the Gini index dataset from the World Bank. “Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution.” (World Bank) A Gini score of 0 represents perfect equality, while a score of 100 implies perfect inequality. The economic freedom dataset comes from the *Economic Freedom of the World: 2018 Annual Report* (EFW) produced by the Fraser Institute. The index published in the EFW measures the degree of economic freedom across countries based on five

areas: size of government, legal system and property rights, sound money, freedom to trade internationally, and regulation of credit, labor, and business. Countries are graded on a scale of 0 to 10, where 10 represents more economic freedom.

This paper is organized as follows. The “Datasets” section provides a description of the datasets collected for this study. The “Data Analysis” section discusses the analytical methods used to clean the datasets and explore the data further. The “Key Findings” section analyzes the results and highlights the main findings. The section on “Recommendations” discusses the possible actions that future researchers should take as a result of this study. Finally, the conclusion summarizes the main findings of this paper.

Datasets

Two different datasets were downloaded for the purpose of this paper. The Gini Index data were downloaded from the World Bank Open Data website and came in the format of .xls. It contains observations for 264 countries and regions from 1960 to 2016. These observations are classified by country name, country code, indicator name, and indicator code. The data are considerably discontinuous. For example, in 1979 there is data for only three countries.

The economic freedom scores were downloaded as a .xlsx file from the Fraser Institute’s website. It evaluates 162 countries from 1970 to 2016 according to each country’s levels of economic freedom for five main categories. The EFW data is displayed at 5-year intervals from 1970 to 2000, and annually thereafter.

Data Analysis

Data Pre-Processing

Both datasets were read and cleaned-up using Python. The data reduction consisted of removing columns and rows that were not needed for the analysis. For the Gini Index dataset, that meant removing the year columns for which there was no data available for any of the countries, as well as the country code, indicator name, and indicator code columns. A similar process was applied to the economic freedom file. The sub-categories that compose the five areas of the index were removed to simplify the analysis.

For both datasets, the year column was coerced into integers, and the columns containing the economic freedom and Gini Index scores were coerced into floats. Once merged, both dataframes were indexed by year and country. The data pre-processing concluded with the sub-selection of the 17 Latin American countries used for the analysis.

Data Mining

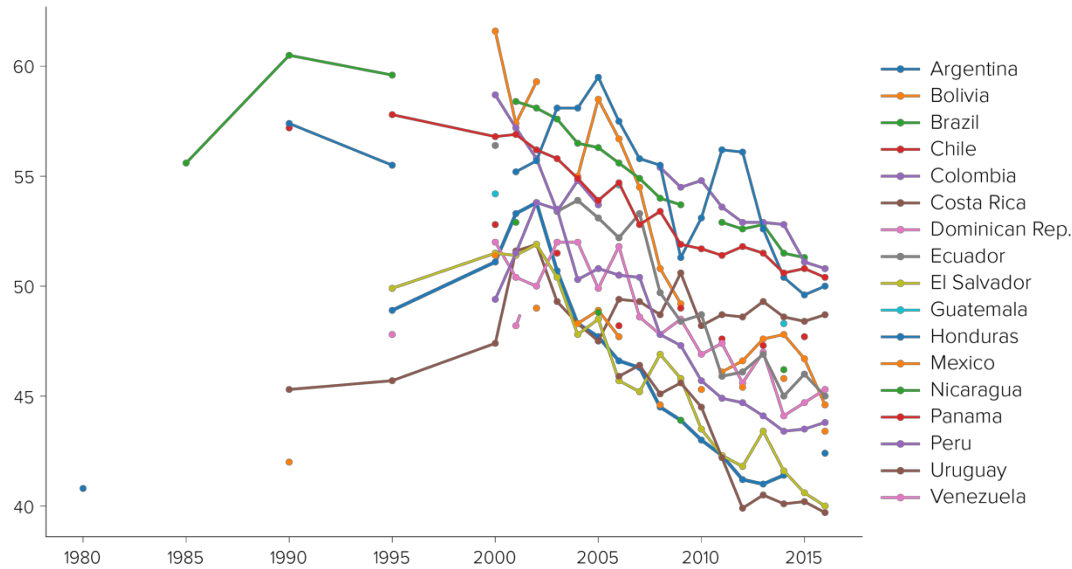
Python packages used for the analysis include Pandas, Matplotlib, and NumPy. Line charts were used to explore overall trends in economic freedom and inequality for each Latin American country and the region as a whole. Moreover, the percentage changes in the variables for each country provided further insight on the patterns in inequality and economic freedom that Latin American countries followed between 1980 and 2016. Countries were also classified into four groups according to the percentage changes in both variables over specified time periods. After plotting the Gini Index together with the economic freedom scores for each country over the full time period (1970–2016), countries were re-classified according to the behavior of both variables over time.

Key Findings

Overall Trends in Inequality

Latin America is the most unequal region in the world. The Gini data are discontinuous for almost all countries and there is only enough such data for the region beginning in 2000 to conduct a reliable analysis. As Figure 1 illustrates, from 2000 onwards, almost all Latin American countries experienced a decline in the Gini coefficient. Costa Rica, however, increased its Gini score from 45.3 in 1990 and to 48.7 in 2016. Before 2000, countries for which there is data available, showed an increase in their levels of inequality. These countries are Argentina, Bolivia, Costa Rica, and Brazil.

Figure 1: Gini Index over Time, 1980–2016



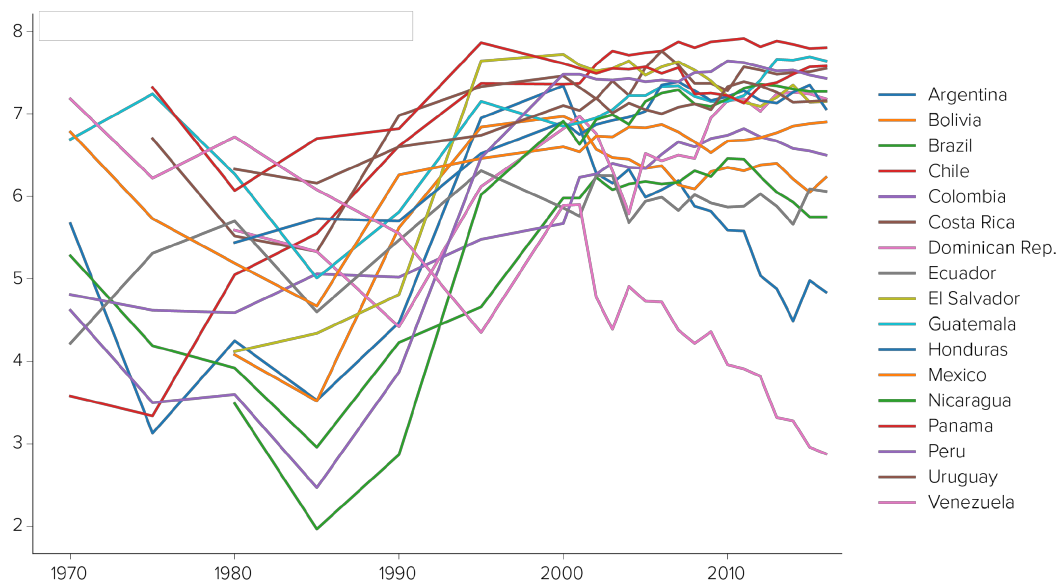
Source: World Bank, World Development Indicators.

Overall Trends in Economic Freedom

Latin America has increased its level of economic freedom in the past few decades (Figure 2). This trend became more pronounced after 1985 when some Latin American countries undertook major economic reforms.

Three distinct periods can be identified from 1970 to 2016. During the first period that goes from 1970 to 1985, some countries show an increase in their levels of freedom, while others follow the opposite path. A second period between 1985 and 2000, reveals a positive trend towards higher levels of economic freedom for most Latin American countries. Lastly, from 2000 to 2016, countries either maintained their levels of freedom or increased them but in a much slower pace and magnitude in comparison to the previous period.

Figure 2: Economic Freedom over Time, 1970–2016



Source: James Gwartney et al., *Economic Freedom of the World: 2018 Annual Report* (Vancouver: Fraser Institute, 2018).

Two countries stand out: Chile and Venezuela. In the 1970s Chile, one of the least free countries in Latin America at that time, began major economic reforms. It implemented free-market policies that led to economic takeoff, which in 2016 ultimately landed Chile in the top 20 nations among the 162 countries the EFW analyzes. Venezuela is the polar opposite of Chile. Once the freest country in Latin America, “Venezuela has experienced a lengthy decline in economic freedom that started long before Hugo Chavez assumed the presidency in 1999. But Chavez, his United Socialist Party of Venezuela, and successor, Nicolás Maduro, have presided over a continued stunning slide in economic freedom” (McMahon, 2016). As a result, Venezuela fell to last place from 2010 to 2016 in the EFW index. On its scale from 0 to 10, where 0 is less freedom, Venezuela lost more than 3 points from 1970 to 2016.

Economic Freedom and Inequality in Latin America

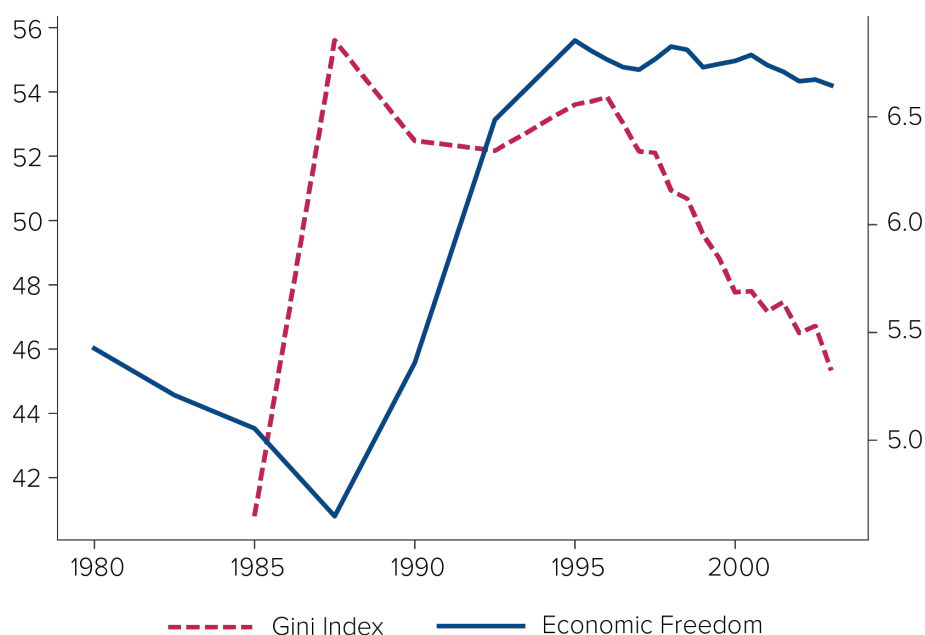
As a region, Latin America saw a steady decline in its economic freedom from 1970 to 1985.¹ During the following 15 years, economic freedom noticeably increased, moving from

¹ Not enough data are available for the Gini Index for 1980.

almost 4.5 in 1985 to 6.7 in 2000 on the 10-point scale. Meanwhile, inequality declined from 56 on the Gini scale in 1985 to 54 in 2000. From 2000 to 2016, economic freedom has remained almost the same while inequality has dropped by almost 20 percentage points.

Figure 3 shows how gains in inequality have taken place while or immediately after economic freedom has increased. Do all Latin American countries follow this same pattern?

Figure 3: Gini Index and Economic Freedom over Time, 1970–2016



Source: James Gwartney et al., *Economic Freedom of the World: 2018 Annual Report* (Vancouver: Fraser Institute, 2018) and World Bank, World Development Indicators.

Economic Freedom and Inequality in Latin American Countries

Table 1 displays the percentage changes in economic freedom and inequality for the 17 countries in Latin America for which there is sufficient data. Since the Gini data is discontinued, both changes are calculated using the first and last year for which Gini data is available. For example, Chile has economic freedom data available only from 1970 to 2016, but Gini data available from 1990 to 2015. Thus, the percentage changes for both economic freedom and the Gini Index are calculated between 1990 and 2015.

Table 1: Percentage Changes in Economic Freedom and Inequality

Country	Years	Percentage change in Gini Index	Percentage change in economic freedom
Argentina	1980–2016	3.92	13.88
Bolivia	1990–2016	6.19	10.85
Brazil	1985–2015	-7.73	94.26
Chile	1990–2015	-16.61	17.85
Colombia	2000–2016	-13.46	14.64
Costa Rica	1990–2016	7.51	8.17
Dominican Rep.	2000–2016	-12.88	5.28
Ecuador	2000–2016	-20.21	3.41
El Salvador	1995–2016	-19.84	-6.41
Guatemala	2000–2014	-10.89	11.68
Honduras	1990–2016	-12.89	23.86
Mexico	2000–2016	-15.56	4.55
Nicaragua	2001–2014	-12.67	10.11
Panama	1995–2016	-12.8	-3.56
Peru	2000–2016	-11.34	-0.67
Uruguay	2006–2016	-13.51	2.29
Venezuela	1995–2006	-1.88	8.51

Source: Author's calculations.

The largest decline in inequality took place in Ecuador. The Gini Index fell by 20.21 percentage points from 2000 to 2016 at the same time economic freedom increased by 3.41 percentage points. By contrast, Costa Rica experienced an increase in both inequality and economic freedom between 1990 and 2016 of 7.51 and 8.17 percentage points respectively.

The largest increase in economic freedom (94.26 percentage points) occurred in Brazil between 1985 and 2015. The Gini Index decreased by 7.73 percentage points during the same time period. El Salvador saw the largest decline in economic freedom. Its economic freedom

score decreased by 6.41 percentage points while inequality fell 19.84 percentage points between 1995 and 2016.

Countries can be classified into four distinct areas based on whether economic freedom and inequality either increased or decreased (see Table 2). Three countries —El Salvador, Panama, and Peru— show a decrease both in inequality and economic freedom. By contrast, Argentina, Bolivia, and Costa Rica exhibit an increase in both indicators. A third, and largest, group of 11 countries shows increases in economic freedom and decreases in inequality. None of the countries studied present increases in inequality and decreases in economic freedom. The next section will look into the evolution of economic freedom and inequality over time for each country.

Table 2: Classification of Latin American Countries

		Gini Index	
		Decrease	Increase
Economic Freedom	Decrease	El Salvador Panama Peru	
	Increase	Brazil Chile Colombia Dominican Rep. Ecuador Guatemala Honduras Mexico Nicaragua Uruguay Venezuela	Argentina Bolivia Costa Rica

Source: Author's calculations.

Economic Freedom and Inequality in Latin American Countries over Time

Figures 4–20 tell a more complete story of the evolution of economic freedom and inequality over a more complete time period. They reveal when changes in the Gini Index took place and if those changes were accompanied to some degree by changes in economic freedom.

Three main groups of countries can be identified: countries that report declines in the Gini Index at the same time that they attain higher levels of economic freedom; countries that experience a fall in the Gini Index only after economic freedom increases; and outlier countries for which no pattern could be identified.

Brazil, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, and Uruguay belong to the group of countries that increased their levels of economic freedom while inequality declined. The Brazilian, Chilean, Colombian, Dominican, Mexican, and Uruguayan cases are the most outstanding. For these countries the largest declines in inequality took place at the same time that economic freedom levels were increasing at a faster pace. For the rest of the countries in this group, the gains in equality happen while economic freedom is increasing but a slower pace than the other countries in the group.

Figure 4: Brazil

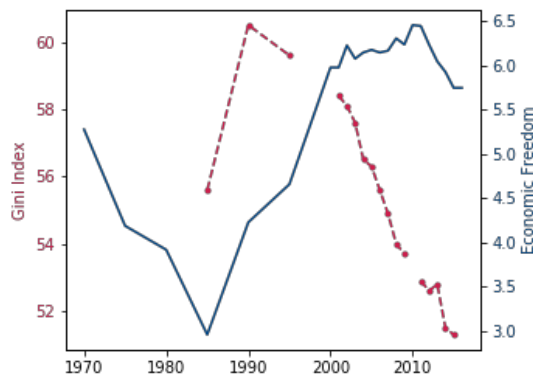


Figure 5: Chile

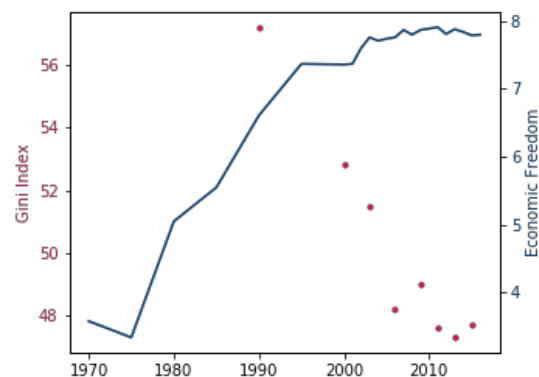


Figure 6: Colombia

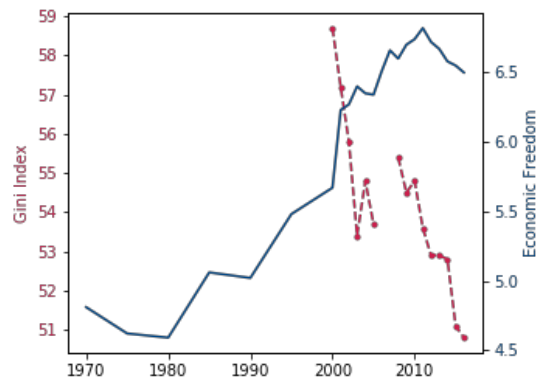


Figure 7: Dominican Republic

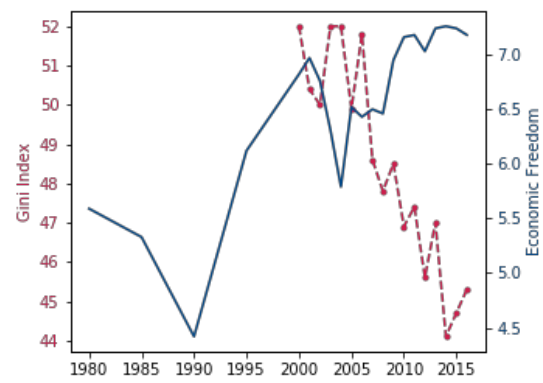


Figure 8: Ecuador

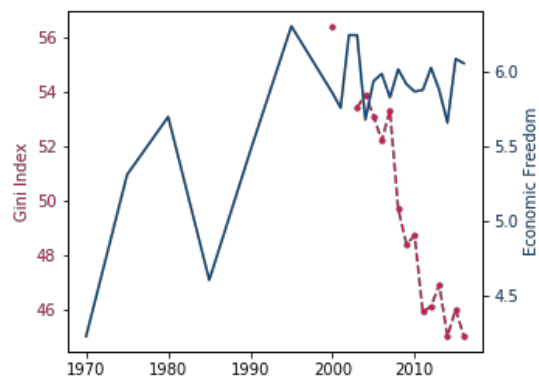


Figure 9: Guatemala

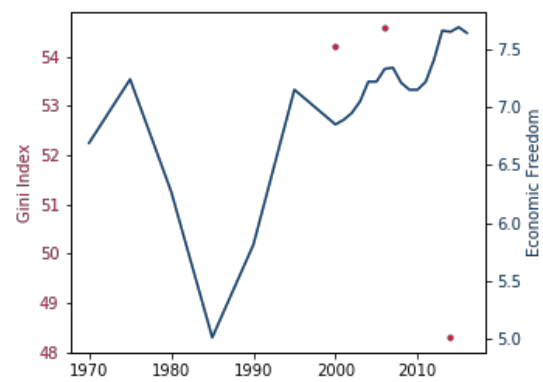


Figure 10: Honduras

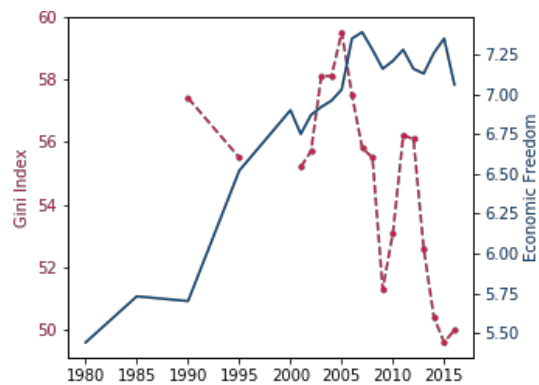


Figure 11: Mexico



Figure 12: Nicaragua

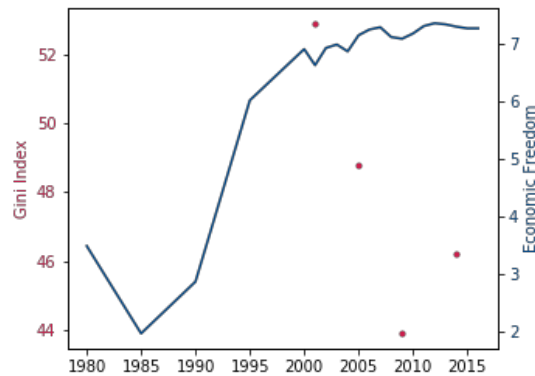
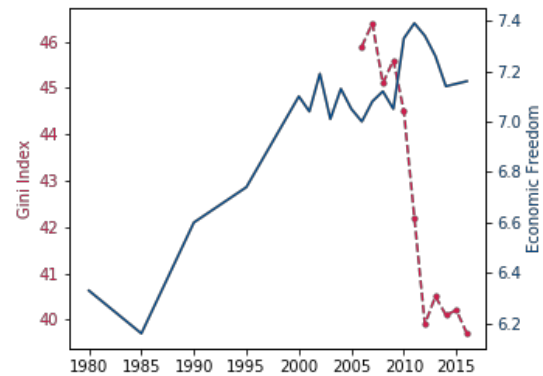


Figure 13: Uruguay



For other countries, the declines in the Gini Index began at least 10 years after increases in economic freedom. These countries are Bolivia, Peru, El Salvador, Panama, and Argentina. Bolivia's increase in economic freedom started in 1985 at 3.52 and climbed to 6.97 in 2000. In this same year inequality started decreasing until 2016. While inequality was declining, economic freedom decreased at a slower pace and smaller magnitude. Peru and Panama follow Bolivia's pattern with inequality declining some 10 to 15 years after economic freedom began increasing. Argentina saw its score in the Gini Index decrease 15 years after economic freedom started climbing. It is also worth noting that Argentina's rating in economic freedom saw a dramatic reduction beginning in 2000. 14 years after economic freedom started declining, Argentina showed a rise in inequality. El Salvador, however, demonstrated the first decline in the Gini Index almost 25 years after economic freedom started climbing.

Figure 14: Argentina

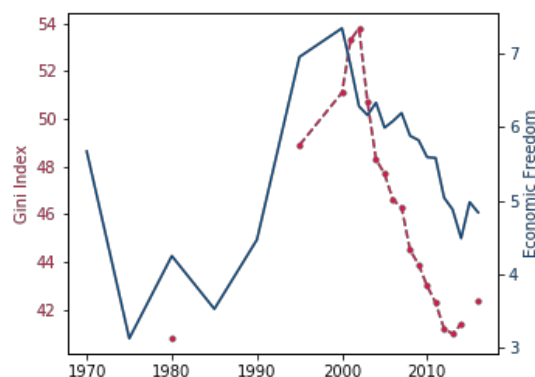


Figure 15: Bolivia

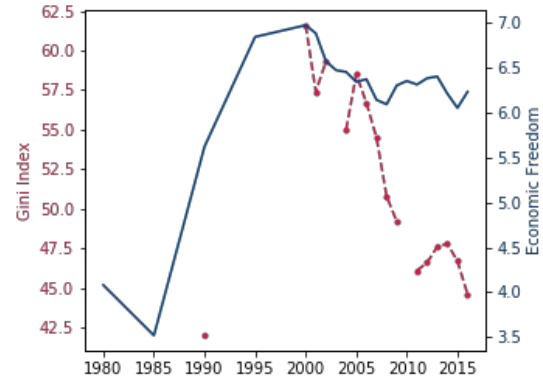


Figure 16: El Salvador

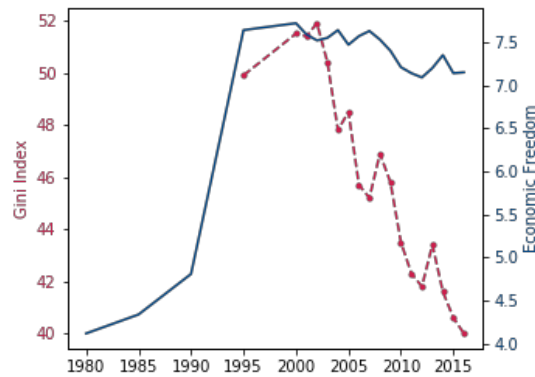


Figure 17: Panama

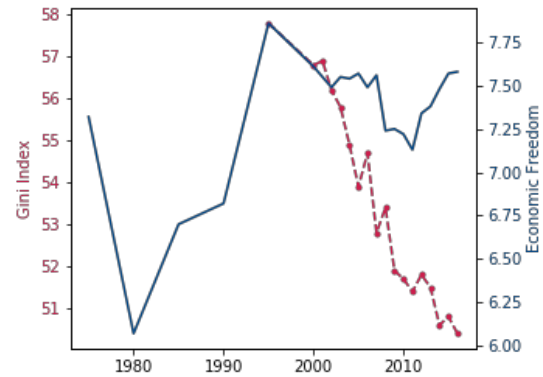
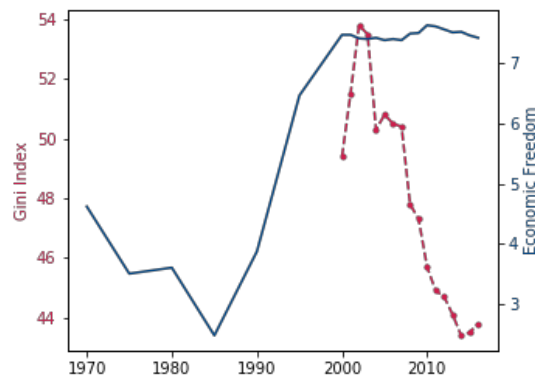


Figure 18: Peru



Only two countries do not seem to follow any pattern while or immediately after economic freedom increases. Venezuela's economic freedom rating decreased from 7.18 points in 1970 to 2.88 in 2016. Its Gini Index increased from 48 in 2000 to almost 53 in 2005; it then declined abruptly to almost 46 in 2006. Costa Rica also showed increases and decreases in the Gini Index at the same time economic freedom marked a positive trend. For example, as economic freedom increased from 6.98 in 1990 to 7.76 in 2006, the Gini Index jumped from 45.3 in 1990 to 51.9 in 2002, and fell to 47.5 in 2005. The Gini Index demonstrated similar behavior with ups and downs through the rest of the period, although with vicissitudes of smaller magnitude.

Figure 19: Costa Rica

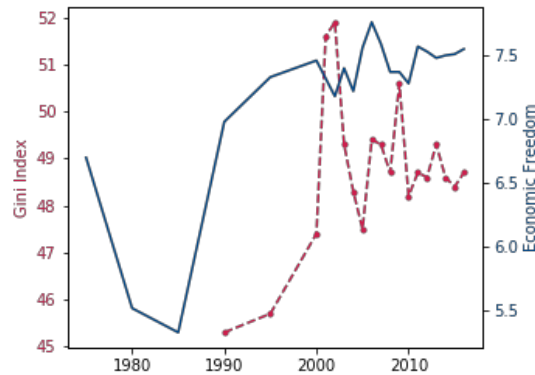
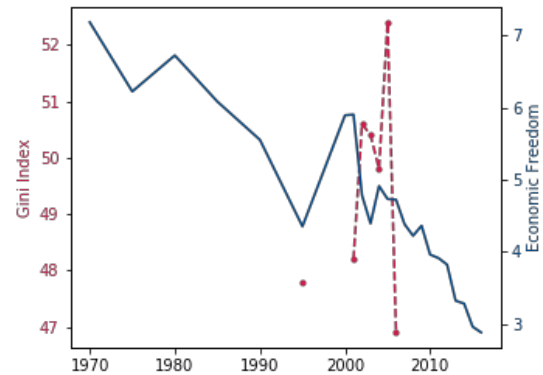


Figure 20: Venezuela



Recommendations

Given that the Gini Index is discontinuous throughout the 1970–2016 period for many countries, it would be useful to compile a more complete measure of inequality. A dataset with data points for inequality that went back to 1970 would help to analyze in greater depth the extent to which inequality relates to changes in economic freedom. If so, the study of these lags would provide a better understanding of how and when changes in inequality based on changes in economic freedom can be expected to happen.

Moreover, since the index published in the EFW measures the degree of economic freedom across countries based on five areas, it would be interesting to explore to what degree, if any, each of these categories correlate with the data on inequality or explain the changes in that variable.

Conclusions

While some academics have found that economic freedom substantially increases inequality, others report that economic freedom is associated with decreases in inequality. The aim of this study was to explore the relationship between income inequality and economic freedom in Latin America between 1970 and 2016.

Almost all Latin American countries have increased their levels of economic freedom in the late 1980s and early 1990s, and showed a decline in inequality beginning in 2000. Overall trends indicate that there might be a negative correlation between economic freedom and

inequality. 15 out of the 17 countries analyzed report increases in economic freedom and declines in inequality. These changes in inequality, however, do not necessarily take place at the same time as the changes in economic freedom. For some countries, for example, the decline in inequality occurs more than a decade after there is an increase in economic freedom.

Based on the Latin American data and this analysis, we can conclude that an increase in economic freedom does not necessarily result in an increase inequality, and more often than not results in its decrease.

Biographies

Guillermina Sutter Schneider is a graduate student in the Data Science Program at The George Washington University and a research and project manager at a Washington, DC think tank. Her research focuses on international development and inequality.

Dr. Nima Zahadat is a professor of Data Science and Information Systems Security at The George Washington University. He has also held positions as Chief Security Officer, Chief Information Officer, Director of security, Director of Training Solutions, Dean of Computer Science, Program Chair of Information Systems, and Director of Operations. Dr. Zahadat's research interests are data science, data mining, information visualization, mobile security, information security, digital forensic, and risk management.

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