

Brazil Inequality Report

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Executive Summary

Data

Three datasets on wealth and status distribution in Brazil were analyzed: 2015 World Bank centile estimates of income, and International Labor Organization (ILO) income by occupation data for the years 2017 and 2012.

Results

According to all three datasets, Brazil's population is highly risk acceptant. The data provided by the World Bank examines risk sensitivity based on income, while the datasets taken from ILO examine risk sensitivity by occupation. Both methodologies show that the highest earners and the highest earning occupations are the most risk acceptant.

Significance for Risk Taking and Stability

Brazil is fairly average when compared to other countries that were measured for political stability by the Fragile States Index. However, its population is highly acceptant of risk with a mean Arrow-Pratt score of -5.68, placing it in the 94th percentile of the study. Despite a drastic decrease in Brazil's income inequality during the last decade, coupled with numerous affirmative action plans put in place for racial and ethnic minorities, its black and female populations still suffer from a disproportionate amount of discrimination (Loveman, 2012; Ystanes, 2018). As one measure of social unrest, Brazil's homicide rate is in the top 10% of countries; homicide and risk acceptance are strongly correlated (Daly, 2016; Kuznar, 2019b).

Implications for US Interests

The US sees Brazil as a crucial centerpiece of Latin America's geopolitical structure and stability. Despite this, the US has weak economic interests in Brazil when compared to other larger countries with which the US has bilateral trade (OEC, 2017). The potentially anti-Chinese administration lead by President Jair Bolsonaro could prove to be a valuable regional ally for the US (Santibanes, 2018). Brazil's risk acceptant population gives the US an opportunity to grow its political clout and economic engagement given that it can provide Brazil's citizens with a clear path for economic improvement by enhancing opportunities for its ambitious population. If growth does not meet the population's ambitions, then their frustrations may manifest in social unrest and increased illicit activity as people seek other avenues for improvement.

Implications for China's Interests

China possesses strong economic and political interests in Brazil, and it has funneled large amounts of foreign direct investment (FDI) from Chinese companies. Both China and Brazil are members of the BRICS association that is designed to foster increased political connectiveness between leadership of its five member states. This joint membership, as well as China's involvement with other regional organizations, affords Brazil multiple platforms to interact with China in a political capacity (Ellis, 2017). Despite these available avenues the recent election of President Jair Bolsonaro poses several concerns for Beijing over the security of its investments, given Bolsonaro's anti-Chinese rhetoric. Brazil's risk acceptant population

gives China an opportunity much in the same way it gives the US, making it available for influence as long as its population sees it can benefit from outside Chinese influence.

Implications for Russia's Interests

Russia sees the recent elections in Brazil and other Latin American countries as opportunities to expand its influence and leverage within Latin America (Gurganus, 2018). The risk acceptant nature of Brazil's population leaves it open to influence if Russia can provide support to the government and its population. In order to present itself as a viable political and trade partner, Russia has used arms deals, energy initiatives, and propaganda disseminated through media to gain favor with state actors and harm the United States' influence at the same time. Russia is also a member of the BRICS association (Ellis, 2017).

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Introduction

This is a summary report on inequality in Brazil compiled as part of the Aggrieved Populations project conducted in support of the 2019 Strategic Multilayer Assessment (SMA) Future of Great Power Competition and Conflict project conducted for the JS-J39.

This report provides background on why the country was chosen, relevant historical background, literature review concerning inequality in the country, synopses of empirical data sources and analyses, and a concluding section that summarizes the findings. It is not intended to provide a comprehensive analysis of inequality and grievance in the country, but to place the empirical analyses conducted on this country in their social and political context and to highlight interesting cases of inequality pertinent to risk acceptance and great power competition. The analyses focus on the measurement of population risk sensitivity as a function of measured inequality using the Arrow-Pratt measure of risk aversion, whose positive values indicate risk aversion and negative values indicate risk acceptance. Studies have shown that risk acceptance is associated with social unrest, terrorism and other forms of social disruption (Kuznar 2007; 2019). The full explanation of the underlying method and theory is presented in the summary report, *Inequality, Risk Sensitivity and Grievance in Context: Summary of Aggrieved Populations Country Reports*, submitted as part of this SMA project. This report is intended to be supporting material to that report and presumes familiarity with it.

In order to create an inclusive and more representative set of countries, an effort was made to include countries from each major region of the world (Africa, Central Asia, East Asia, Europe, Latin America, the Middle East, North America, South Asia).

Why Brazil?

Brazil was chosen for four reasons: 1) It is a country from the South America region, 2) it has a large developing economy critical in the world economy, 3) it has high levels of poverty and inequality, violence, and social unrest, and 4) both China and Russia are seeking influence in the country and region.

Great Power Interests in Brazil

The United States considers Brazil the nexus of Latin American security and economic growth. Brazil is the US's largest trade partner in South America, although it is only responsible for less than 2% of US imports and exports (OEC, 2017). Instead, the US's strongest interests in Brazil are geopolitical in nature. Brazilian President Jair Bolsonaro's election in 2018 potentially provides the US with an opportunity to not only grow its influence in Brazil, but also in the larger Latin American region (Santibanes, 2018). President Bolsonaro has expressed a willingness to work with the US to grow political ties and economic opportunities in ways that the former Brazilian administration refused. An ideological shift toward the privatization of Brazilian companies brings it closer to mirroring the US's economic system than it ever has previously. Brazil's close geographical proximity to Venezuela would also give the US an ally that could aid in controlling the current Venezuelan crisis.

China views Brazil as a crucial target of its Latin American economic engagement because it is the region's largest economy and possesses large deposits of rare earth minerals. While China only receives 3% of all imports from Brazil, it is still a higher percentage than that of the US (OEC, 2017). While China's economic activity within Brazil makes up a small portion of its total economic activity it does not diminish the political

importance of Chinese projects within the country. Beijing currently is undertaking 87 infrastructure, economic, and business projects throughout the country (Ellis, 2017). Like the US, China views Brazil as the most regionally important state in South America. This distinction has led to China making Brazil the most invested in country by Chinese businesses throughout all Latin America (Avendano, 2017). Beijing has also been attempting to grow bilateral military and cultural ties by sending Chinese officers to Brazil's jungle warfare school in Manaus in addition to hosting several hundred Brazilian officers in both its naval academy and national defense university with varying lengths of enrollment (Ellis, 2017).

Russia views Brazil as an opportunity to expand its interests into the region, while at the same time harming the US's interests. It has looked to leverage Brazil's latest political change in its most recent election using propaganda, economic incentives, and arms sales (Gurganus, 2018). It is speculated that Russia's meddling in Central and South America is in response to the US and its allies' involvement in Russia's former Soviet republics and the Balkans. While the means that Russia is relying upon to influence the region are mostly economic and energy related, it is believed that Russian President Vladimir Putin's foreign policy motives for pursuing these activities in Brazil is focused on increasing Russia's geopolitical clout. Despite Russia's hopes for increased political influence in Brazil, President Bolsonaro views an alliance with the US more favorably and has gone as far as to engage in talks with the US concerning placing a military base in Brazil to counteract Russia's influence (Savarese, M. & Prengaman, P. 2019).

Literature Review on Inequality in Brazil

Brazil experiences racial and gender inequality with minorities and women receiving low compensation compared to much of its workforce (Loveman, 2012). In response to the drastic inequality suffered by minorities and women, who earn slightly more than half of what their white male counterparts make and in some cases less than a third, there have been several affirmative action plans put in place by Brazil's national and regional governments aimed at aiding these underprivileged groups (Loveman, 2012 & Ystanes, 2018). Even with improvements over the last decade, Brazil still has income inequality with the top 5% of the country controlling as much wealth as the remaining 95% (Alvarez, 2017). However, even with ethnic and gender discrimination, the income inequality gap has shrunk tremendously over the last decade due to a growing economy and fiscal policy changes.

Country-Level Measures of Inequality in Brazil

Brazil was initially assessed with a collection of country-level metrics. These metrics provide measures of the country's inequality compared to other nations, inequality within the country, social conditions that may be consequences of that inequality, and the prognosis for stability in the future (**Error! Reference source not found.**).

Brazil's per capita GDP is lower than average at just under \$10,000. Brazil is markedly average when measuring country wide inequality and measures of statewide stability. However, it has one of the largest Gini coefficients of all countries. Brazil has a very low Arrow-Pratt score, ranks 148 of 158 countries with a score of -5.68, placing it in the 94th percentile of countries in this study.

Table 1. Brazil: Basic Statistics on Inequality

Measure	Value	Rank	Source
Inequality Compared to Other Nations			
Per Capita GDP 2018	\$9896	67 of 187	WB
Country Measures of Inequality			
Inequality-adjusted Human Development Index (IHDI) 2018	0.578	78 of 151	UN
Gini Coefficient 2015	51.3%	14 of 184	WB
Informal Employment as % of Total Employment 2016	46%	65 of 112	ILO
Measures of State Instability			
Fragile States Index 2018	68.7	105 of 175	FFP
Terrorism Index 2018	1.388	89 of 160	IEP
Probability of Mass Killing 2018	0.008	66 of 161	EWP
Risk Sensitivity			
Average Arrow-Pratt Measure 2015	-5.68	148 of 158	This Study
<p>*EWP – Early Warning Project, FFP – Fund for Peace, IEP – Institute for Economics and Peace, ILO – International Labor Organization, UN – United Nations, WB – World Bank</p> <p>-The Inequality-adjusted Human Development Index (IHDI) is a UN measure of well-being and is a scale based on per capita GDP, life expectancy and education levels of the population.</p> <p>- The Fragile States Index is based on twelve conflict risk that include security apparatus, factionalized elites, group grievance, economy, economic inequality, human flight and brain drain, public services, state legitimacy, human rights and rule of law, demographic pressure, refugees and IDPs, and external interventions. The potential range of the index is zero (no fragility to 120 total fragility).</p> <p>- The Terrorism Index scores each country on a scale from 0 to 10; where 0 represents no impact from terrorism and 10 represents the highest measurable impact of terrorism.</p>			

Prognosis for Change to 2029

Brazil has been decreasing its overall income inequality and plans on implementing affirmative action programs designed to help minority populations and women to gain more income and attain better living standards (Loveman, 2012; Ystanes, 2018). So far there has been a drastic decrease in income inequality country wide. However, there are still sharp differences between the top earners in Brazilian society and the rest of the country. Despite the fact that inequality has decreased in recent years, Brazil's population has ironically become increasingly risk acceptant according to data taken from ILO. There is no evidence that either of these trends will stop. With the election of conservative President Bolsonaro, there is a possibility of a reversal of the policies that reduced Brazil's inequality (Tonnenssen, 2019). With respect to China, given Bolsonaro's accusation that China unjustly cornered Brazil's market on rare earth minerals, China is facing more difficult access for doing business (Lapper, 2019). Despite this China maintains deeply engrained in the Brazilian economy, which is an influence that will prove difficult for Bolsonaro to remove.

Empirical Data on Inequality in Brazil

Dataset 1: 2016 Brazil World Bank Quintile Data

The World Bank provides data on the highest and lowest decile, and quintiles, of percentage of income or consumption.¹ These data are used to calculate the individual country's Gini coefficients. While not exactly measuring the actual income, the percentage of overall income provides an approximation. These Brazilian data were gathered in 2016.

Figure 1 presents the original data and the fitted distribution curve from which the Arrow-Pratt risk sensitivity measures will be derived, as well as the Arrow-Pratt measures of risk sensitivity.

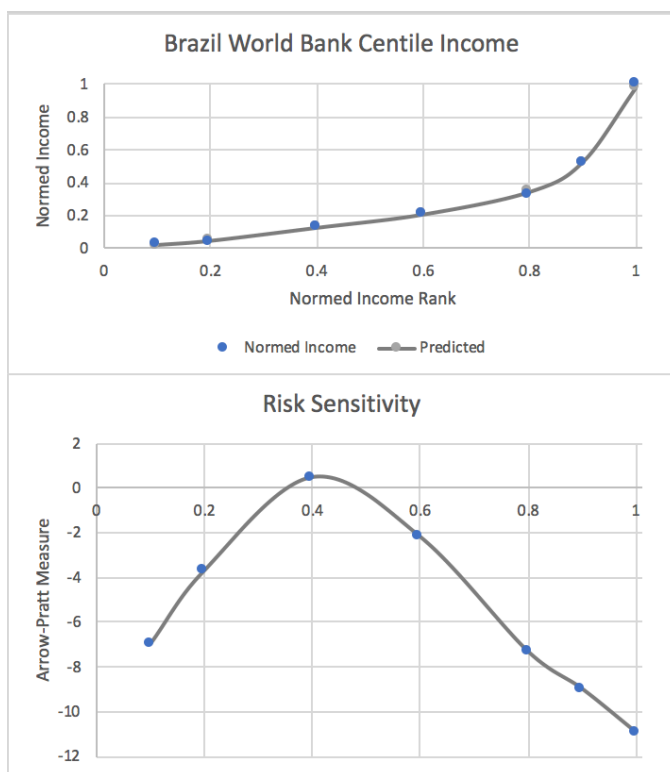


Figure 1: Distribution of Income, World Bank Quintiles Brazil 2015 and associated Risk Sensitivity.

Summary Dataset 1: 2016 Brazil World Bank Quintile Data

According to data taken from the World Bank in 2016, most of Brazil's population is risk acceptant, with an average Arrow-Pratt score of -5.68. Those earning the least have an Arrow-Pratt score of -7 while those earning the most skew the average Arrow-Pratt score due to their low score of less than -10. While the results are slightly skewed toward those earning the highest income due to their high-risk acceptance, the only segment of income earners that score as risk averse can be found on the second quintile of data with a score that is positive, but is still less than one.

¹ Data drawn from <http://wdi.worldbank.org/table/1.3>

Dataset 2: Brazil ILO Income by Occupation 2017

The data taken from the ILO provides the number of employees working in specific occupational categories and the average income of those employees. This study uses two datasets taken from the ILO in order to provide a sense of change in risk acceptance within Brazil's population.

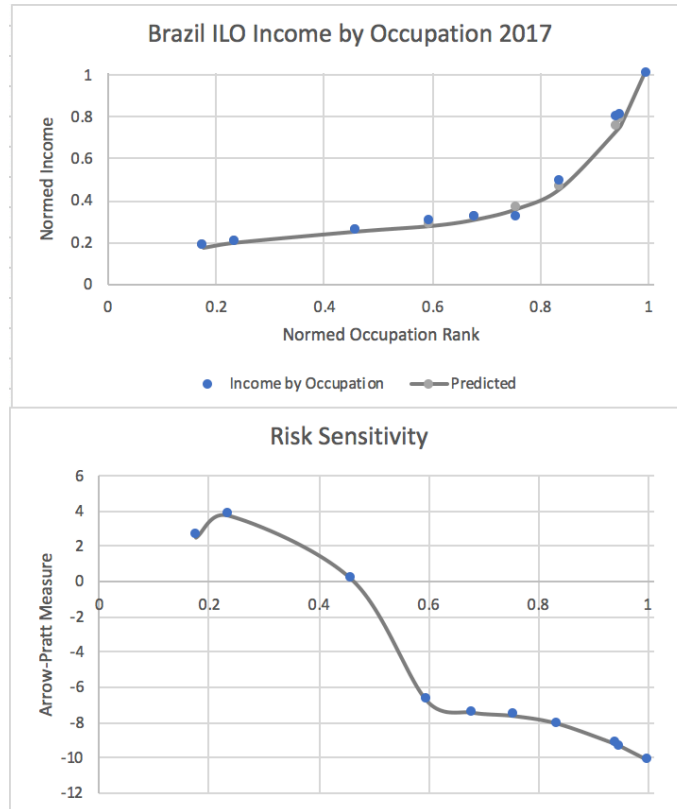


Figure 2. Brazil ILO Income by Occupation 2017 and associated Risk Sensitivity

Summary Dataset 2: Brazil ILO Income by Occupation 2017

According to the data provided by the ILO in 2017, most occupations in Brazil are risk acceptant and the occupations earning the highest incomes are the most risk acceptant. The mean Arrow-Pratt score is -5.24. The occupations earning the lowest incomes are risk averse, with the highest score of 4 being registered between the second and third decile. The most risk averse occupations are elementary occupations and skilled agriculture, while the most risk acceptant occupations are those in the military and those filling managerial roles.

Dataset 3: Brazil ILO Income by Occupation 2012

The 2012 data provided by the ILO was collected with the same methodology as it was in 2017. It provides data on occupations, the number of employees in each, and their average wages.

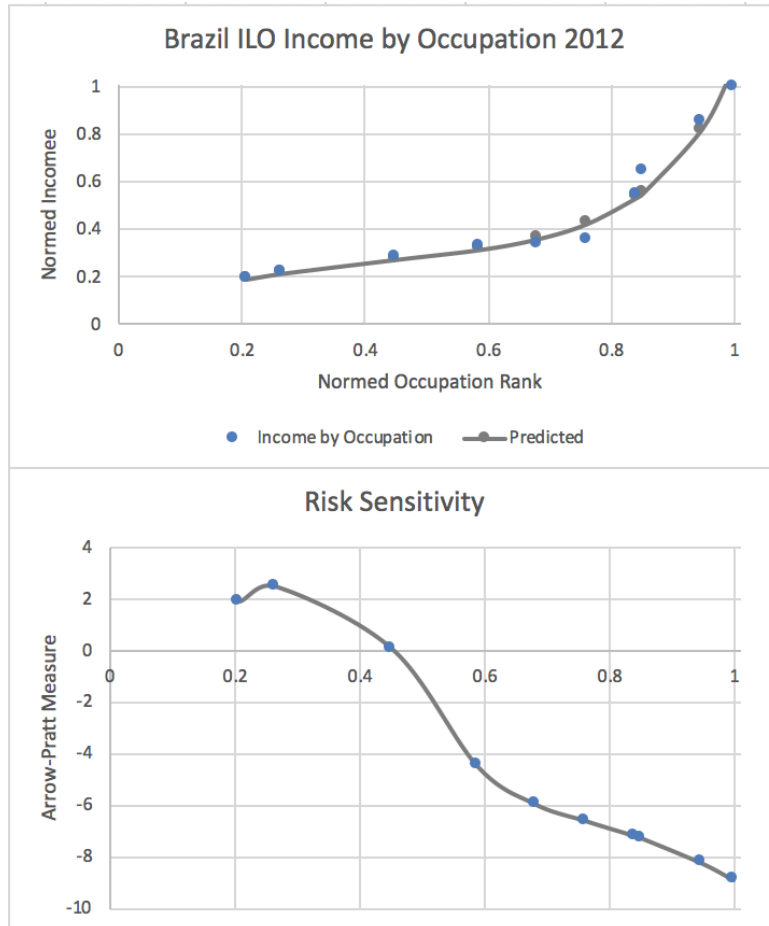


Figure 3. Brazil ILO Income by Occupations and associated Risk Sensitivity

Summary Dataset 3: Brazil ILO Income by Occupation 2012

Figure 3 shows ILO data from 2012. This gives the study the ability to see a change in risk acceptance over time from 2012 to 2017. The mean Arrow-Pratt score in 2012 is -4.42. According to the 2012 data provided by the ILO, there has been a change between 2012 to 2017 that has seen the population of Brazil become more risk acceptant. The change in the mean Arrow-Pratt score is 0.82 with the score dropping from -4.42 to -5.24. While the average Arrow-Pratt score changed the occupations that are the most risk averse and risk accepting stayed constant over these five years.

Findings on Inequality in Brazil

Brazil suffers from high levels of socioeconomic inequality that is suffered by its ethnic minorities and women (Loveman, 2012). The gap in wealth attainment is extreme with the top 5% controlling more than the remaining 95% of the country (Alvarez, 2017). This statistic is slightly misleading as Brazil has made significant progress in bringing millions of its people out of poverty, through making fiscal policy changes and enacting affirmative action programs for its underprivileged population (Ystanes, 2018).

Relevance to Instability and Social Cleavages

Brazil still suffers from social and racial cleavages that are mostly economic in nature, where large disparities between minorities, women, and their white male counterparts (Loveman, 2012). However, Brazil has made large gains in the last decade to pull millions of its citizens out of poverty and decrease overall inequality (Loveman, 2012; Ystanes, 2018). Improvements in its economic power, overall quality of life, and rule of law have caused the US, China, and Russia to pursue further involvement with Brazil on an economic and political level. However, the Brazilian population's acceptance of risk could prove a spoiler for any of the great powers if adversaries are able to present themselves as a stronger and more positive influence for the country that is also capable of providing opportunity for its population and most particularly, for its most risk acceptant elites.

Opportunities and Pitfalls for the US and Adversaries

The United States sees Brazil as the key to gaining a wider amount of influence and control over the majority of Latin America (Santibanes, 2018). The US also sees the potential to increase its influence on the Venezuelan crisis due to Brazil's close geographical location. Leaders in Washington believe a newly elected president in Jair Bolsonaro could be a potential ally in the region as his views are thought to align more with the current administration in Washington than its predecessors. Brazil's risk acceptant population could put US interests in the country at risk if any discontent they feel is blamed on US policy, or if aid and diplomatic overtures from other countries provide an attractive alternative. According to the Pew Research Center's global attitudes survey, more Brazilian citizens had a favorable view of China than the US (Vice, 2017). Even with President Bolsonaro's anti-Chinese rhetoric, the overall population of Brazil and its growing involvement with Chinese investors could lead the people to favor China's interests over those of the US.

China

China's interests in Brazil are under threat following President Jair Bolsonaro's election victory. President Bolsonaro has made anti-Chinese statements and is highly suspicious of China's aggressive foreign direct investment into Brazil and the rest of Latin America (Spring, 2018). This is potentially highly problematic for China, as it has more than 80 economic or infrastructure projects and investments currently underway in Brazil (Ellis, 2017). It has also continued to increase its soft power push by sending its military officers to Brazil's jungle warfare school and hosting Brazilian officers in its national defense university and naval academy. President Bolsonaro's election has put China's aspirations for furthering Brazil's economic dependence on China at risk. However, the people of Brazil still favor China slightly over the US (Vice, 2017). This, coupled with the Brazilian population's risk acceptance, could lead to grass roots social movements that run contrary to Bolsonaro's desire to move away from further Chinese involvement.

Russia

Russia does not have economic or strategic interests in Brazil at the level that the United States or China does. Instead, Russia has taken advantage of Brazil's elections to dispense anti-US propaganda and has

pursued several energy initiatives and arms sales to increase its own political clout (Gurganus, 2018). This is a strategy that Russia has applied to several other states in the region including Peru and Argentina. While the initiatives are mostly economic in nature, it is believed that Russia has predominately anti-US geopolitical aspirations when dealing with Latin American countries. Less than 40% of Brazilians hold a favorable view of Russia, thus lending Moscow little ability to cultivate a grass roots movement through Brazil's risk acceptant population compared to China or the US (Vice, 2017).

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