

Ethiopia Inequality Report

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Executive Summary

Data

Five datasets on wealth and status distribution in Ethiopia were analyzed: 2016 World Bank quintile and decile estimates of income, International Labor Organization (ILO) income by occupation estimates for 2013, and USAID Demographic and Health Survey (DHS) data from 2016 on wealth factor scores and agricultural land ownership and 2005 data on wealth factor scores.

Results

Ethiopia is paradoxical; compared to other countries it is an extremely poor nation with an extremely high economic growth rate and low inequality across the entire population. However, Ethiopia's strides in economic growth and reducing inequality are uneven across socio-economic, rural/urban, educational, and ethnic lines. Economic growth has been differentially enjoyed by well-educated, urban elites from minority ethnic groups such as the Tigray.

Significance for Risk Taking and Stability

The differential distribution of Ethiopia's limited wealth has led to grievances from poorer uneducated members of ethnic groups such as the Oromo and Amhara as well as risk acceptant elites from these ethnic groups. These grievances have erupted into protests that have destabilized the Ethiopian government and led to the resignation of the Tigray Prime Minister and the recent (June 2019) assassination of the Army Chief of Staff and the president of Amhara State in a coup attempt. The groups that the authors would predict to be acceptant of taking political risks appear to be acting upon their grievances.

Implications for US Interests

Ethiopia is the United States' primary ally in East Africa and one of the US' most important allies on the continent. To that end, the US continues to invest heavily in the country through foreign direct investment and governmental aid. The current shape of inequality and its attendant social unrest threaten these interests. Ironically, China's aggressive involvement in Ethiopian development may enable it to eclipse US influence. The US is in danger of losing its influence in Ethiopia no matter what direction the country goes economically and politically.

Implications for China's Interests

China is currently the primary investor in Ethiopia, through foreign direct aid (especially in infrastructure) and loans. Inequality fueled instability threatens these investments. However, China's larger investment (2.5 times that of the US) provides it the opportunity to eclipse US influence if Ethiopia stabilizes.

Implications for Russia's Interests

Russia has not invested nearly as much in Ethiopia but has recently signed an agreement to support the development of Ethiopian nuclear capability. Ethiopian political instability may threaten this Russian

investment. However, if Ethiopia stabilizes and continues to grow economically, then Russia would gain a strategic and economic advantage and consequent leverage in Ethiopia.

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Introduction

This is a summary report on inequality in Ethiopia 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 analyze countries from each major region of the world (Africa, Central Asia, East Asia, Europe, Latin America, the Middle East, North America, South Asia).

Why Ethiopia?

Ethiopia was chosen for four reasons: 1) It is an East African country, 2) it is ethnically diverse with a history of oppressive relations between the central government and ethnic minorities, 3) it is extremely involved in contentious relations with its neighbors, and 4) both China and Russia are seeking influence in the country and region.

Great Power Interests in Ethiopia

Ethiopia has become an African focal point for US, Chinese, and Russian competition for influence in the African Continent. The US has had a continuous and largely supportive relation with Ethiopia since 1903, cooling markedly during its communist period (1974-1991), but strengthening since. A multi-ethnic coalition overthrew the communist Ethiopian government in 1991 and as a result operates as a federation of nine ethnically defined administrative regions. Consequently, ethnic divisions are a key dimension of Ethiopian politics that flare up and threaten to destabilize the country (Lupahla & Mncwabe, 2019), and threaten US interests. The political party that has dominated Ethiopia since the fall of the communist government is the Ethiopian People's Revolutionary Democratic Front (EPRDF), which has historically been dominated by elites from the Tigray ethnic group of northern Ethiopia (International Crisis Group, 2019). The Tigray comprise only about 4% of Ethiopia's population. Ethiopia's two largest ethnic groups, the Ahmara and Oromo, account for about 20% and 35% of Ethiopia's population respectively. Tensions are mounting over uneven political power sharing and economic development between the ruling minority Tigray and the majority Oromo and Amhara, erupting in protests and challenges to the Ethiopian government in 2016 and resulting in hundreds of deaths, tens of thousands of detentions, and the

resignation of the Tigray prime minister in 2018.¹ Despite his replacement by an Oromo member of the EPRDF, Abiy Ahmed, protests have continued and on June 23, 2019, Ethiopia's Army Chief and the President of the Amhara state were assassinated in a coup attempt led by an Amhara general.² Ethiopia remains deeply divided along ethnic lines that coincide with relative political power and economic prosperity differences.

The US has historically been the main investor in Ethiopia through official government aid and foreign direct investment (FDI), although Russia is making inroads and China has emerged as Ethiopia's primary investor (Geiger & Goh, 2012; Hailu, 2017). According to the International Monetary Fund (IMF), trade with the US accounts for 9.1% of Ethiopia's GDP.³ The US considers Ethiopia a key ally in Africa and its most important ally in the Horn of Africa.⁴ Clearly, Ethiopia's instability driven by ethnic inequality threatens these US interests.

China has increased investment in Ethiopia in the past decade and is currently Ethiopia's main investor (Geiger & Goh, 2012; Hailu, 2017) whose trade is equivalent to 22.8% of Ethiopia's GDP.⁵ This close economic association is reinforced by increasingly close political support between both countries (Geiger & Goh, 2012). These close relations are reported in Chinese media, including the primary areas of cooperation of mutual trust, cooperation on Belt and Road Initiatives, cooperation in international affairs,⁶ and concerns with political instability in Ethiopia.⁷ China appears to be investing heavily in Ethiopia in an effort to counter US influence and to establish a potentially critical foothold on the African continent as a link in its Belt and Road Initiative. Consequently, this gives China tremendous leverage, including the ability to call in its economic investment over the Ethiopian government, which it has done recently.⁸ Ethiopia's political unrest threatens China's investment in the country's economic development, and Chinese media reports have taken notice of the potential destabilization of the continent.⁹ Ethiopia figures as a key link in China's Belt and Road Initiative link to Africa.¹⁰

The size of the Russian economy, relative to the US and China, does not provide it with much ability to compete in Ethiopia. However, Russia has recently as of April 2019 signed an important nuclear power development agreement with Ethiopia to establish a nuclear science research facility and a nuclear power plant; a similar agreement was made with the Republic of Congo.¹¹ Recent unrest could potentially threaten these long-range plans.

¹ See <https://www.hrw.org/tag/ethiopian-protests> on recent Ethiopian riots

² See <https://www.theguardian.com/world/2019/jun/23/ethiopia-coup-attempt-leaves-army-chief-shot-says-pm> on recent coup attempt

³ Trade data available at: <https://www.imf.org/en/Data>

⁴ Official US diplomatic relations with Ethiopia: <https://www.state.gov/u-s-relations-with-ethiopia/>

⁵ Trade data available at: <https://www.imf.org/en/Data>

⁶ Chinese cooperative relations with Ethiopia: http://www.xinhuanet.com/english/2019-01/04/c_137719357.htm

⁷ Chinese concerns with Ethiopian stability: http://www.xinhuanet.com/english/2018-03/17/c_137044112.htm

⁸ Chinese economic leverage over Ethiopia: <https://www.theafricareport.com/11080/ethiopias-china-challenge/>;
<https://www.cnbc.com/2018/02/23/china-investment-state-of-emergency-ethiopia-latest.html>

⁹ Chinese concerns with Ethiopian stability: http://www.xinhuanet.com/english/2018-03/17/c_137044112.htm

¹⁰ Ethiopia in China's Belt & Road Initiative: <https://www.cnbc.com/2018/02/23/china-investment-state-of-emergency-ethiopia-latest.html>

¹¹ Russian nuclear investment in Ethiopian nuclear power: <http://www.globalconstructionreview.com/news/ethiopia-and-russia-sign-three-year-nuclear-power/>

Literature Review on Inequality in Ethiopia

Ethiopia has some of the lowest inequality and most rapid economic growth in the world (greater than 10%), due to an aggressive economic development policy enacted after 2000 and based on a principle of improvements in the agricultural sectors and subsequent development in industry (Bank, 2014; Cornia & Martorano, 2012; Geda, Shimeles, & Weeks, 2009). However, economic growth has not impacted all ethnic groups and socioeconomic levels equally. Within the rural agrarian sector, inequality is similar to other developing countries (Gebeyehu et al., 2018). Urban inequality exhibits a relatively low Gini coefficient for inequality (0.338) and a particularly strong effect of education as an inequality leveler (Nebebe & Rao, 2016). Similarly, a survey of Ethiopian businesses revealed a positive effect of education on business innovativeness (Schumetie & Watabagi, 2019). This same study demonstrated negative effects of corruption and political instability on businesses' ability to innovate.

Ethiopia appears to be paradoxical. It is one of the world's poorer countries but is undergoing simultaneously rapid economic growth and decrease in its inequality. However, these changes are not being perceived or felt equally across the socioeconomic, urban/rural and ethnic dimensions. The rural sector, approximately half of Ethiopia's population, remains highly unequal within its own ranks; there are few wealthy and many poor farmers. Levels of inequality within the urban sector have fallen, but those with education benefit disproportionately. Finally, and most destabilizing, ethnic groups upon which the federated government of Ethiopia is based, have not shared equally in this new found prosperity, fueling rising ethnic conflicts that threaten to destabilize the Ethiopian state. Alarming symptoms such as the growth of ethnic militias (International Crisis Group, 2019) and the recent assassination of the Army Chief of Staff and the Amhara State President reveal challenges to Ethiopia's continued economic growth and inequality leveling, not to mention the survival of the state itself.

Country-Level Measures of Inequality in Ethiopia

Ethiopia will be 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.**).

Ethiopia is a poor country. Its national per capita GDP is \$873, placing it in near the bottom of all countries, and it has a very low Inequality-adjusted Human Development Index (IHDI), also placing it in the lower third of countries. Its Gini coefficient based on income, however, is near the median of all countries, indicating it has a typical level of inequality.

Table 1. Ethiopia: Basic Statistics on Inequality

Measure	Value	Rank	Source
Inequality Compared to Other Nations			
Per Capita GDP 2018	\$873	162 of 187	WB
Country Measures of Inequality			
Inequality-adjusted Human Development Index (IHDI) 2018	0.331	130 of 151	UN
Gini Coefficient 2015	39.1%	84 of 184	WB
Informal Employment as % of Total Employment	--	--	ILO
Measures of State Instability			
Fragile States Index 2018	99.6	15 of 175	FFP
Terrorism Index 2018	5.631	26 of 160	IEP
Probability of Mass Killing 2018	0.023	29 of 161	EWP
Risk Sensitivity			
Average Arrow-Pratt Measure 2016	-4.5	95 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>			

Ethiopia is a very fragile state, having a Fragile States Index in the top 15 of 175 countries. It also scores very high for terrorism and the probability of mass killings scoring near the 85th percentile for both compared to other countries.

Prognosis for Change to 2029

Ethiopia's economy continues to grow, and poverty is decreasing, although the level of inequality remains the same, preserving the social fissures and grievances that fuel social unrest between ethnic groups and between poor and wealthy Ethiopians. Therefore, the political situation in Ethiopia, including resentment between ethnic groups and social unrest, is likely to remain the same.

Empirical Data on Inequality in Ethiopia

Dataset 1: 2016 Ethiopia World Bank Quintile Data

The World Bank provides data on lowest and highest decile, and quintiles of percentage of income or consumption.¹² These data are used to calculate their Gini coefficients. While not exactly measuring the actual income, the percentage of overall income provides an approximation. The Ethiopian data were gathered in 2016. **Error! Reference source not found.** presents the original data and the fitted

¹² Data drawn from: <http://wdi.worldbank.org/table/1.3>

distribution curve from which the Arrow-Pratt risk sensitivity measures will be derived, as well as the Arrow-Pratt measures of risk sensitivity.

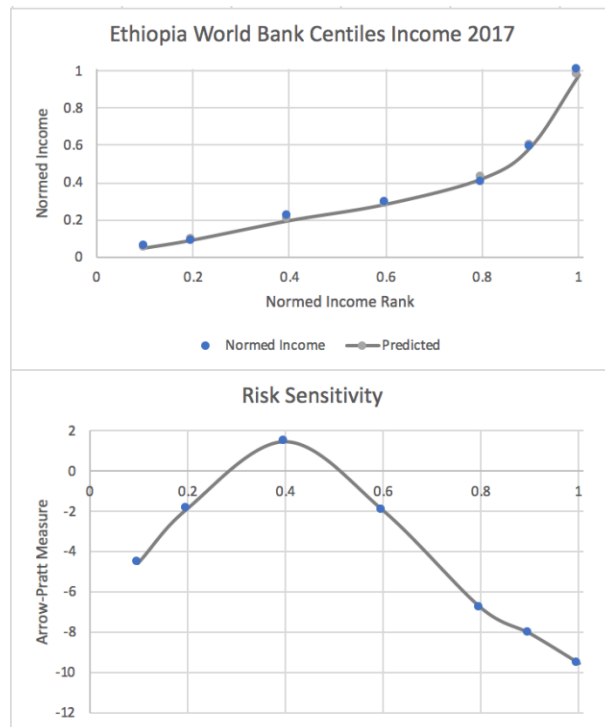


Figure 1: Distribution of Income, World Bank Quintiles Ethiopia 2017 and associated Risk Sensitivity.

Summary Dataset 1: 2016 Ethiopia World Bank Quintile Data

The risk sensitivity data paints a picture of a typically risk acceptant population. The average Arrow-Pratt measure of risk sensitivity is -4.50 placing Ethiopia a little above the average of -4.64 for all countries (**Error! Reference source not found.**). The lowest 30% of the population is risk acceptant, there is a modestly risk averse segment of the population from the 30th to 50th percentiles in income, and the population becomes increasingly risk acceptant up to the wealthiest who exhibit a very high degree of risk acceptance (**Error! Reference source not found.**).

Dataset 2: Ethiopia ILO Income by Occupation 2013

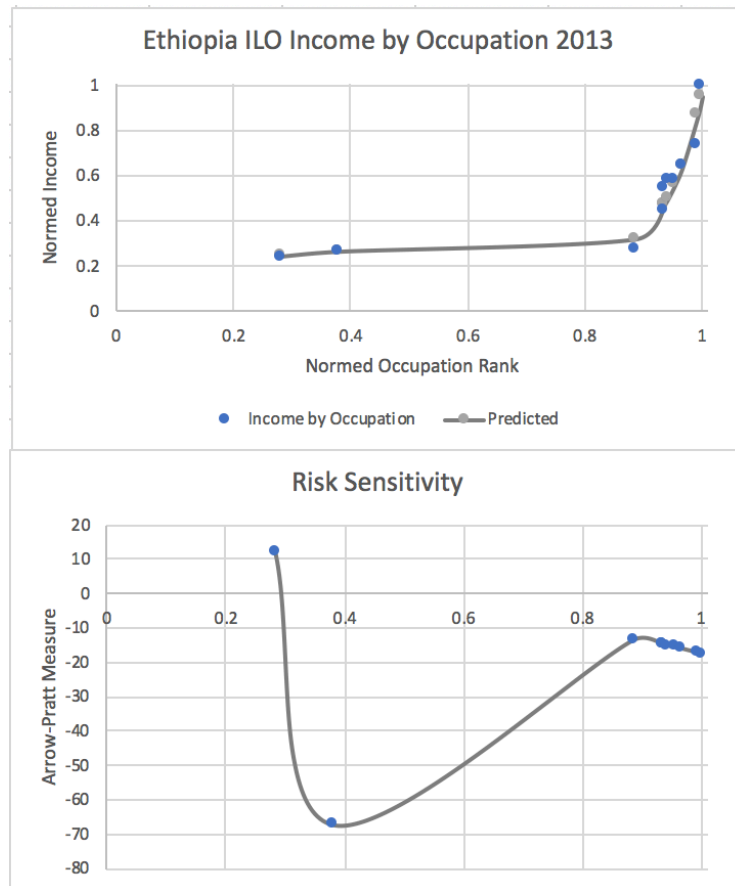


Figure 2. Ethiopia ILO Income by Occupation 2013 and associated Risk Sensitivity

Summary Dataset 2: Ethiopia ILO Income by Occupation 2013

The mean Arrow-Pratt measure is -17.99, which is extremely low. Only one occupation, the lowest, elementary occupations (including subsistence farmers), was risk averse according to these data. The next lowest occupation, service and sales workers, was extremely risk acceptant, and the highest occupations, including technicians, professionals, and managers, were risk acceptant. The unusually high level of risk acceptance is driven by the fact that 89% of the population is in elementary, service, or agricultural occupations, and only 11% are in higher income occupations that require education, creating a rapid increase in social status and income among those with education. This rapid increase creates an extreme jump in status that creates extreme risk acceptance for those between elementary low-level workers and those with education requiring jobs.

Dataset 3: USAID DHS 2016 Ethiopia Wealth Factor Score

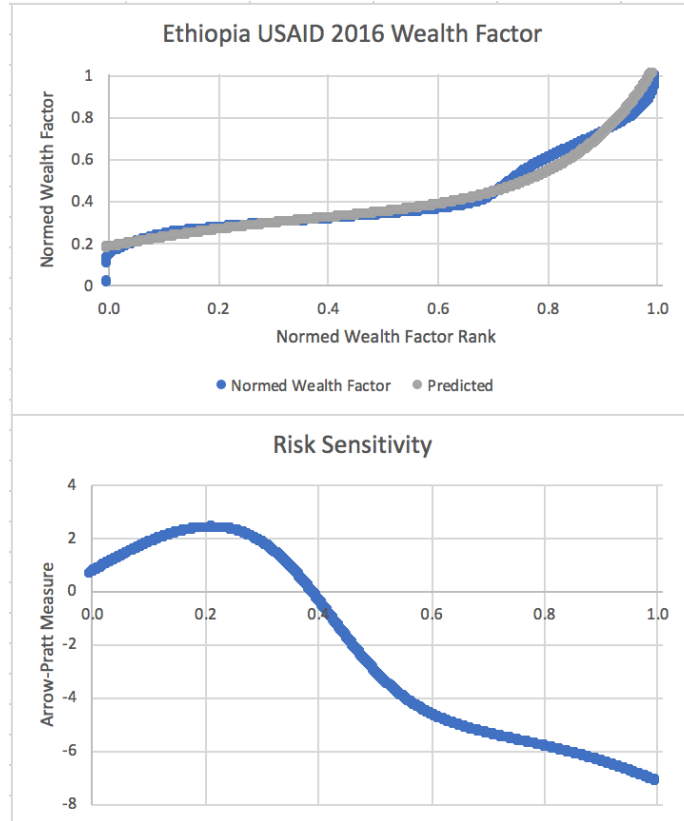


Figure 3. Ethiopia 2016 Wealth Factor Scores and associated Risk Sensitivity

Summary Dataset 3: USAID DHS 2016 Ethiopia Wealth Factor Scores

The USAID 2016 survey provided data on the wealth factor score for 16,650 households. Based on these data, the mean Arrow-Pratt score was -2.26, which is higher than most other countries assessed on this measure. Ethiopia's distribution of wealth factor scores is atypical; there is a rapid rise around the 70th percentile, which slightly levels off around the 90th percentile, indicating an emergent upper middle class. An emerging upper middle class would be consistent with the decreasing Gini coefficients seen in the past 19 years (Cornia & Martorano, 2012). This oscillation was not matched with the analysis' curve fitting procedure, which may have omitted potentially important shifts in risk sensitivity in the population. Further analysis suggests that the lower 40% of the population is risk averse, and the upper 60% of the population exhibits increasing risk acceptance as the wealth factor score increases. The mismatch in the curve fit suggests that there may be spikes in risk acceptance around the 70th percentile and the 90th percentiles where the raw data exhibit a concave upward shape. In summary, the USAID wealth factor scores suggest that Ethiopians in the lower, and largely agrarian, sector are risk averse, and the middle and upper classes are increasingly risk acceptant, with potential spikes near the upper middle class and upper-class transitions.

Dataset 4: USAID DHS 2016 Ethiopia Agricultural Land Ownership

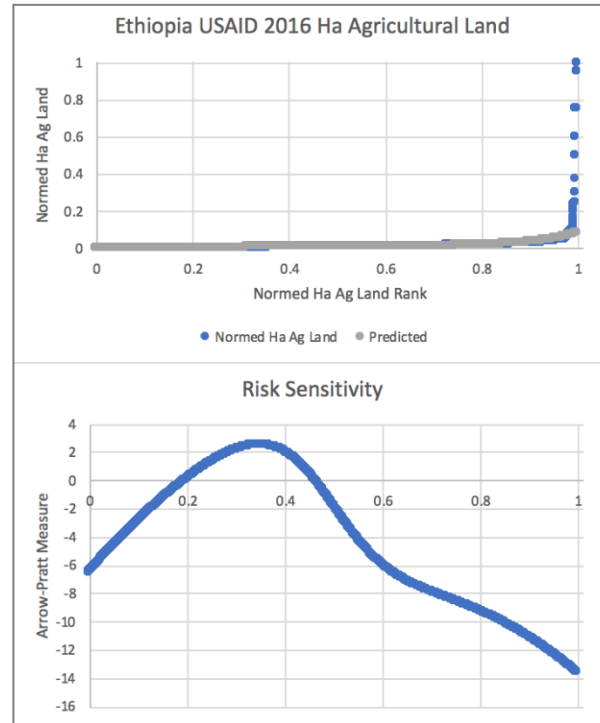


Figure 4. Ethiopia 2016 Distribution of Agricultural Land (ha) and associated Risk Sensitivity

Summary Dataset 4: USAID DHS 2016 Ethiopia Agricultural Land Ownership

The 2016 USAID DHS survey provided data on agricultural land ownership for 9229 households. The inequality was extreme. The median agricultural land holding was 10 hectares, and 4% owned large tracts of land greater than 50 Ha, while 96% were small land holders. This large inequality resulted in a mean Arrow-Pratt measure of -5.98, indicating a largely risk acceptant population with respect to agricultural land. The data indicate risk acceptance among the poorest farmers (below the 20th percentile), a risk averse segment from the 20th to 50th percentiles (still small land holders) and increasing risk acceptance for the top 50% of agricultural land holders. These data appear are consistent with Gebeyehu et al. (2018) who found that inequality within the rural sector is high as among other developing countries.

As an additional note, the curve fitting procedure grossly underestimated the land holdings of the wealthiest 2% of landholders. Their wealth in land increases extremely rapidly, which would create an extremely concave upward curve resulting in extremely high levels of risk acceptance. Therefore, the risk acceptance of the wealthiest agricultural landowners is probably underestimated.

Dataset 5: USAID DHS 2005 Ethiopia Wealth Factor Score

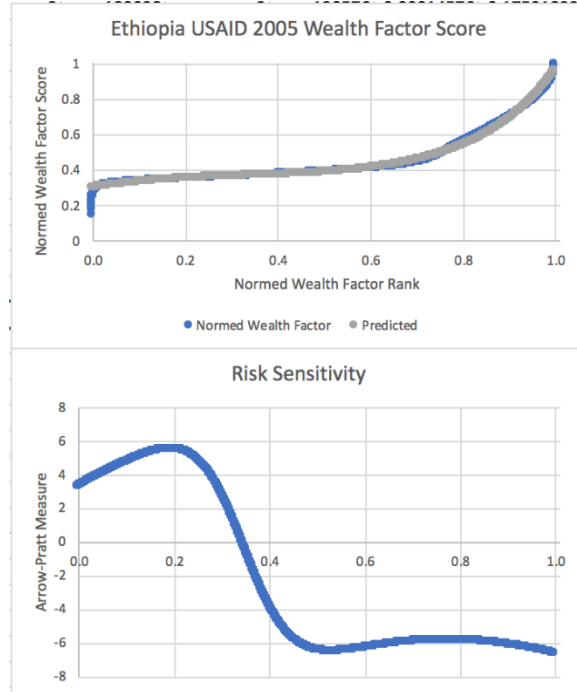


Figure 5. Ethiopia 2005 Wealth Factor Scores and associated Risk Sensitivity

Summary Dataset 5: USAID DHS 2005 Ethiopia Wealth Factor Score

In 2005, USAID DHS reported a survey of 13,721 households for which wealth factor scores were available. The mean Arrow-Pratt score was -2.25 for these data, nearly identical to the score estimated for the 2016 survey. Similar to the 2016 data, the curve demonstrates a misfit between the 70th and 90th percentiles. However, for the 2005 data, the misfit is only slight, probably only throwing off the risk sensitivity measurements slightly. The 2005 wealth factor scores indicate a risk averse lower class below the 35th percentile, which rapidly shifts to a more or less uniformly risk acceptant population above the 35th percentile. Interestingly, the slight bulge in wealth factor scores between the 70th and 90th percentiles in the 2005 data increases over the decade as exhibited in the 2016 data. This indicates a rapid rise of an upper middle class in Ethiopian society during this decade.

Findings on Inequality in Ethiopia

Relevance to Instability and Social Cleavages

Ethiopia presents a seeming paradox of a rapidly growing economy, extreme poverty, and low inequality. However, economic growth and poverty need not be correlated with inequality, they are two separate phenomena. Furthermore, Ethiopia's rapid economic progress is experienced differentially across urban/rural, uneducated/educated, and historic ethnic divides, providing for many opportunities for grievance between and cross-cutting ethnic lines. These grievances have erupted into violence and direct challenges to state control in the past four years. Education is a key factor in a household head's ability to tap into Ethiopia's economic growth and may be manifest by the growing bulge in upper middle-class wealth factor sores in the past decade. While social programs have targeted the rural agrarian community, data indicate that its access to agricultural land remains highly unequal, mirroring the distribution neutral growth (DNG) posited by Geda et al. (2009); the agrarian sector has decreased its poverty, but all ships have risen equally, maintaining the inequality levels that fuel grievance. Finally, well-educated Tigray elite are resented by other ethnic groups, especially the Oromo and Amhara, and even though Ethiopia's current Prime Minister, Aye Ahmed, is Oromo, he is still a member of the ruling party EPRDP party and possibly cannot quell widespread protests against his government (International Crisis Group, 2019).

Opportunities and Pitfalls for the US and Adversaries

Ethiopia has been one of the US' key allies in Africa and East Africa; this relationship is undergirded by heavy US investments in Ethiopia through trade and economic aid, which demonstrate a commitment to Ethiopia's continued growth. The ethnic and other socioeconomic divisions in Ethiopia that are fueling current unrest threaten Ethiopia's continued growth and therefore US interests.

China

China has emerged as Ethiopia's primary benefactor (Chinese trade now accounts for 2.5 times the US trade with Ethiopia) and Ethiopia represents an entry point for China into Africa. Political instability, fueled by inequalities along ethnic lines, can threaten China's widespread investments in Ethiopian infrastructure.¹³ On the other hand, stability in Ethiopia would potentially solidify China's role as the primary benefactor of and beneficiary from Ethiopian progress.

Russia

Russia has a small, but potentially important footprint in Ethiopia economically. Notably, in April 2019, Russia signed an agreement to help Ethiopia develop a nuclear power capability through educational and infrastructural support. As with China, political instability, fueled by inequalities along ethnic lines, can threaten Russia's widespread investments in Ethiopian development. Conversely, stability in Ethiopia would potentially solidify Russia's role as the primary benefactor of and beneficiary from Ethiopian progress in nuclear capability.

¹³ Threats to China's investments in Ethiopia: <https://www.cnbc.com/2018/02/23/china-investment-state-of-emergency-ethiopia-latest.html>

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