

Foreign Capital Inflows and Economic Well-being: A Statistical Analysis of 46 Sub-Saharan African Countries From 1995-2015

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Abstract:

Variation in the economic well-being among sub-Saharan African countries is among the highest of any region in the world. Despite the efforts of many economists, the full extent of this variation remains unexplained. This paper attempts to address this gap by further exploring the role of foreign capital inflows. This project also extends the concept of well-being beyond GDP growth, to include measures of poverty and inequality. I find that the observed capital inflows have significant effects on all three measurements of well-being for the chosen countries over this period. Of particular note is the finding that migrant remittances, are strongly correlated with reductions in poverty measured at three different thresholds, and that relationship is strongest at the lowest measure. These findings suggest that the level of affluence as well as the generosity of the diaspora community has significant effects on the well-being of the domestic populations of developing economies.

Introduction

Between 2000 and 2010 Africa, as a continent, enjoyed a staggering average annual real GDP growth rate of 5.4% a year.¹ In contrast, the world average annual growth in real GDP for the same period was 3.27%.² Although this rate slowed slightly after 2010, Africa's growth still remained above the world average. However, not all African countries shared equally in this growth. For example, while Nigeria boasted an incredible 1125.85% growth in GDP from 2000 to 2014, Botswana achieved only 180.90%.³ Part of this discrepancy has been explained by technicalities in the way GDP is calculated, however there still remains vast interstate inequality.⁴ This massive discrepancy raises many questions. While there is a significant body of research on development that attempts to explain this phenomenon, there is relatively limited formal understanding of the role of remittance payments in this process. This project will attempt to address this gap in the literature by assessing what role remittances have played in sub-Saharan economies over the last twenty years. The project also considers foreign direct investment (FDI) and official development assistance (ODA). The reason for this inclusion is primarily to have them as a means of comparison with remittances, because ODA and FDI should both theoretically have an impact on these measures of well-being.⁵

¹ Dominic Barton et al. "3 reasons things are looking up for African economies." World Economic Forum. May 5, 2016. Accessed December 12, 2017.

<https://www.weforum.org/agenda/2016/05/what-s-the-future-of-economic-growth-in-africa/>.

² GDP growth (annual %). "The World Bank. 2017. Accessed December 12, 2017.

<https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2010&start=2000>.

³ "World Development Indicators." World Development Indicators | DataBank. 2017. Accessed December 11, 2017.

<http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>.

⁴ Morten Jerven. "Research Note: Africa by numbers: Reviewing the database approach to studying African economies." *African Affairs* 115, no. 459 (2016): 348.

⁵ Muhammad Azam, et Al. "Corruption, workers remittances, Fdi and economic growth in five South and South East Asian countries: A panel data approach." *Middle East Journal of Scientific Research* 15, no. 2 (2013): 184.

Economic development in sub-Saharan Africa is certainly a topic that has received substantial attention. Some of the predominant theories attempting to explain variation in economic growth range from colonialism, and the subsequent institutions established, to levels of education and corruption. While this project does not dispute the importance of such factors, it asserts that workers' remittances also play a significant role in explaining well-being. To give some context, in 2013 remittances sent to developing countries equaled \$413 billion, compared to only \$135 billion sent in international development aid.⁶ This figure alone shows the importance of understanding the impacts of this capital inflow.

Remittances not only surpass the volume of development aid; there are also many other good reasons to believe that they directly influence well-being at the household level. The theoretical importance of remittances to household well-being is supported by findings from research on cash transfer programs.⁷ One recent study from this past year found that cash transfer programs in Zambia had a positive long-term impact on standards of living.⁸ Remittances are another form of cash transfer: putting money into the hands of poorer demographics.

This project will provide a brief background of the relevant historical and economic context traditionally used to understand economic well-being and development in sub-Saharan Africa. I begin with a discussion of the major schools of thought which currently dominate the field of international development, as well as a few more minor, but nevertheless, significant branches. I will then further elaborate on the role that remittance payments have played globally,

⁶ Dilip Ratha. October 2014. Accessed January 24, 2018. https://www.ted.com/talks/dilip_ratha_the_hidden_force_in_global_economics_sending_money_home.

⁷ Lia Fernald C H, Paul J. Gertler, and Lynnette M. Neufeld. "Role of Cash in Conditional Cash Transfer Programmes for Child Health, Growth, and Development: An Analysis of Mexico's Oportunidades." *The Lancet* 371, no. 9615 (2008): 828-37.

⁸ Handa Sudhanshu et al. "Can Unconditional Cash Transfers Raise Long-term Living Standards? Evidence from Zambia." *Journal of Development Economics* 133 (July 2018): 42-65.

and within Africa, and provide further justification for the assertion that such payments are crucial to understanding development in the post-Cold War world. This section will conclude with a discussion of the inadequacy of GDP alone as a measure of well-being. It will propose additional alternative measures which, together with GDP, provide a more holistic and accurate understanding of human development.

This paper employs a panel series analysis to test the relationship between capital flows—including remittances, ODA, and FDI—and three different measures of well-being: economic growth, inequality, and poverty. This methodology is the most appropriate for identifying the impacts of multiple factors on a dependent variable over a significant time period. The analysis includes countries in Sub-Saharan Africa from 1995 until 2015.

Finally, this paper will conclude with an analysis of the results, as well as a discussion of recommendations. The discussion has implications for both international and national economic and migration policies. FDI and ODA are found to be largely insignificant factors, which suggests a rethinking of many current development practices. Remittances on the other hand, are shown to positively influence every one of the measures of well-being examined in this paper. The migration implications in particular may prove controversial given the current resurgence of protectionism and nationalism seen sweeping across the globe.

Review of the Literature

There are many competing theories seeking to explain the causes of economic success or failure in developing countries. The first school of thought, which is particularly relevant to

sub-Saharan Africa, emphasizes the experience of colonialism on development.⁹ One central argument in this school is that geography led to the creation of different colonial systems, which in turn had lasting impacts on the development of the nations that now occupy those same locations.¹⁰ The next school, the economic institutionalists, asserts the primacy of domestic institutions in explaining economic well-being, and is closely linked with the colonialists. The argument in this school of thought is that fiscal, judiciary, and political institutions, are the primary explanatory factor for economic well-being.¹¹ The third major school emphasizes the belief that trade and trade barriers explain differential economic growth. The benefits of trade are largely based on David Ricardo's theory of comparative advantage.¹²

Some other discussions also consider the role of capital, both natural and human. Natural capital has been shown to have both positive and negative effects for economic growth due to the volatility in commodities prices that often accompanies it.¹³ In addition to natural capital, human capital, in the form of education, is also often cited in explaining growth patterns.¹⁴ The most obvious way to increase human capital is through education. While the exact impact of education

⁹ Daron Acemoglu et al. "The Colonial Origins of Comparative Development: An Empirical Investigation" *The American Economic Review* 91, no. 5 (2001): 1369-1401. ; Daron Acemoglu et al. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution" *Quarterly Journal of Economics* 117 no. 4 (November 2002): 1231-1294.

¹⁰ Acemoglu et al. "The Colonial Origins of Comparative Development: An Empirical Investigation" 1369.

¹¹ Abdullahi D. Ahmed, and Abu N.m. Wahid. "Financial structure and economic growth link in African countries: a panel cointegration analysis." *Journal of Economic Studies* 38, no. 3 (August 2011): 331-357. ; Rodrik et al. 135. ; Raju Singh et al. "Determinants and Macroeconomic Impact of Remittances in Sub-Saharan Africa." *Journal of African Economies* 20, no. 2 (October 25, 2010): 312-340.

¹² Helena Norberg-Hodge. "Sustainable Economies-Local or Global? In *The Future of Sustainability*, 99-115, 2006.

¹³ Frederick Van Der Ploeg, and Steven Poelhekke. "Volatility and the Natural Resource Curse." *Oxford Economic Papers* 61, no. 4 (2009): 727.

¹⁴ Thorvaldur Gylfason. "Natural resources, education, and economic development." *European Economic Review* 45, no. 4-6 (May 2001): 847-859. ; Kwabena Gyimah-Brempong et al. "Higher Education and Economic Growth in Africa." *Journal of Development Studies* 42, no. 3 (April 2006): 509-529. ; "World Development Report 1995." *World Development Report*, 1995.

on human capital is contested, there is evidence that higher education is positively correlated with income growth, specifically among African countries.¹⁵

Finally, many have examined how FDI and ODA influence economic well-being. Both FDI and ODA represent similar forms of capital inflows, and despite a significant body of research showing that aid, on its own, is not significant in explaining growth rates, there are still studies which support the validity of ODA, and so it is included in the model below.¹⁶ FDI, on the other hand, has been repeatedly shown to have a statistically significant impact on growth, although the magnitude of the impact depends on many domestic and international factors.¹⁷

The Effects of Colonialism

While the institution of colonialism has long been criticised for its effects on the colonized economies, modern understanding of the extent of the significance of colonialism on development in Africa began to truly be cemented in 2001 as a result of the seminal work of Acemoglu et al.¹⁸ Their research used mortality rates of European settlers to determine the nature of the institutions created during colonialism. They found that areas with high mortality rates for European settlers were more likely to experience extractive colonial institutions (a prime example being the Belgian colony in Congo), whereas areas with low mortality rates experienced

¹⁵ Gyimah-Brempong, K., et al., 525.

¹⁶ Craig Burnside and David Dollar. "Aid, Policies, and Growth ." *American Economic Review* 90, no. 4 (September 2000): 847-868. ; Henrik Hansen, and Finn Tarp. "Aid and Growth Regression." *Journal of Development Economics* 64, no. 2 (2001): 547-570.

¹⁷ Olawumi Awolusi, and Olufemi Adeyeye. "Foreign direct investment and economic growth in Africa: A comparative analysis." *International Journal of Sustainable Economy* 9, no. 3 (2017): 183-198. ; Muhammad Azam, et Al. "Corruption, workers remittances, Fdi and economic growth in five South and South East Asian countries: A panel data approach." *Middle East Journal of Scientific Research* 15, no. 2 (2013): 184-190. ; Eduardo Borensztein et al. "How Does Foreign Direct Investment Affect Economic Growth?" *Journal of International Economics* 45 (May 20, 1997): 115-135. ; Robert Feenstra and Gordon Hanson. "Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras." *Journal of International Economics* 42, no. 3 (May 1, 1997): 371-393. ; Mullins and Mahabir. 243-261.

¹⁸ Acemoglu et al. "The Colonial Origins of Comparative Development: An Empirical Investigation" 1369-1401.

constructive institutions (a prime example being the United States).¹⁹ The reason for this is that in areas with high mortality rates, European settlers were unwilling to invest in the establishment of fundamentally sound institutions. Instead, they created extractive colonial institutions, which did not guarantee protection of private property rights, or governmental checks on power, and were designed primarily to transfer wealth out of the colony. Constructive institutions, on the other hand, became “Neo-Europes,” which encouraged investment and economic growth. Acemoglu et al. argue that the effects of these colonial institutions continue to be felt in the present, although they are not necessarily deterministic.²⁰ Although Rodrik et al. in 2004 criticized this article for not sufficiently incorporating the effects of trade into their models, their argument remains a largely accepted explanation for differential economic outcomes.²¹

The role of colonialism has since continued to be explored, and scholars within this school have made further their claims. For example, Acemoglu et al. expanded on their original study a year later, with an article arguing that the experience of colonialism effectively reversed the status of rich and poor areas that became colonies.²² They use urbanization and population data to show that European colonizers were more likely to create institutions that encouraged investment in relatively poorer countries, while largely extracting the wealth of relatively richer countries.²³ The article goes on to argue that this reversal in relative wealth, and encouragement

¹⁹Ibid., 1370

²⁰Ibid., 1395

²¹Rodrik et al. 135.

²²Acemoglu et al. “Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution” 1231-1294.

²³ Ibid., 1231

of investment occurred in the late 18th century, just in time for these areas to make full use of industrialization.²⁴

Other significant work on the role of colonialism in development suggests links between political affiliations and foreign aid payments, as well as the survival of democratic institutions.²⁵ For example, one study finds that an increase in time spent as a colony has a strong correlation with the amount of foreign aid sent by the colonizing country.²⁶ Another study suggests that the survival of democracy can be explained by which European empire colonized the country.²⁷ In summary, this group of scholars focuses primarily on the effects of colonialism and how they persist into the present.

The Role of Institutions

Many economists agree that domestic institutions play a role in explaining variation in growth patterns. Institutionalist economists, however, argue that institutions do not simply play a role, but rather are the most significant factor. Acemoglu et al. would certainly consider themselves members of this group as well, as their work was focused on the origins of institutions. The reason for the distinction in this project is to elevate the relevance of colonialism for the sub-Saharan region. In effect the division becomes a matter of emphasis, with colonialism pertaining particularly to the region being studied and thus warranting a distinct category. Institutionalists as described in this paper, therefore, represent the work of scholars

²⁴Acemoglu et al. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution" 1256-1259.

²⁵Alberto Alesina, and David Dollar. "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth* 5, no. 1 (March 2000): 33-63. ; Bernhard, et Al. "The Legacy of Western Overseas Colonialism on Democratic Survival." *International Studies Quarterly* 48, no. 1 (March 2004): 225-250.

²⁶ Alesina, and Dollar. 45.

²⁷ Bernhard et al. 247

who more generally focus on the role of domestic institutions. The seminal work among this group comes from Rodrik et al.'s 2004 study which examined the role of institutions, trade, and geography on development, and ultimately declared that institutions “trump” the other two as a primary explanatory factor economic success.²⁸ The core argument in this paper, as well as in much of the work of other institutionalists, is that while many combinations of factors impact growth—worker productivity, human capital, natural resource capital, foreign inflows—institutional quality influences the magnitude of these effects. In particular, studies show that the strength of financial and banking systems is significant in explaining economic growth among African nations.²⁹ One study indicates that the quality of financial institutions has an effect on productivity and efficiency, whereas banking systems impact growth through their effect on capital accumulation.³⁰

There are also those who challenge the causal nature of institutions on growth.³¹ An often cited article by Glaeser et al. suggests that human capital is in fact a more basic source for growth. From this perspective, countries achieve growth as a result of good policies set by autocrats, and only then do these countries revise and improve their institutions.³² This idea of the importance of policy has also been challenged however, by studies that find that, controlling for the effect of institutions, macroeconomic policy such as inflation rate targets and deficit spending, had relatively minimal effects on explaining market volatility.³³

²⁸ Rodrik, et al. 132-165.

²⁹ Ahmed, and Wahid. 331-357.

³⁰ Ibid., 331

³¹ Edward Glaeser et al. "Do Institutions Cause Growth?" *Journal of Economic Growth* 9, no. 3 (September 2004): 271-303.

³² Ibid., 271

³³ Acemoglu et al. "Institutional causes, macroeconomic symptoms: Volatility, crises and growth." *Journal of Monetary Economics* 50, no. 1 (January 2003): 49-123.

Impacts of Trade

Trade was long the most often cited explanatory factor for development among economists, but support for the trade-led hypothesis has dwindled. The seminal piece of scholarship in this school of thought is Frankel and Romer's 1999 article which suggests a large, though only moderately significant, positive correlation between trade and income growth.³⁴ This article rejects the notion that the effects of trade can be understood through correlation between trade and income because, it argues, trade is not determined exogenously. The analysis instead adopts a model based on geographic factors on the grounds that these factors are not determined by policy or income levels, and they can only affect the wealth of individuals by influencing the ways in which those individuals trade with those around them.³⁵ In effect, they use geography as an instrument to propagate and facilitate trade. Their findings suggest that a 1% increase in trade relative to GDP increases income per person by at least one half of a percent.³⁶

A similar study conducted this year however, found only a meager correlation between bilateral trade openness in Africa and an increase in growth after accounting for endogeneity.³⁷ The one exception is that trade with China has been highly beneficial for resource rich countries with predominantly export-based economies, as well as some non-landlocked countries. Another article from 2014 which used a Granger causality approach found no evidence for the trade-led growth hypothesis in a study of 21 African nations.³⁸

³⁴ Frankel, Jeffrey A., and David Romer. 379-399.

³⁵ Ibid, 394.

³⁶ Frankel and Romer, 381.

³⁷ Mullings et al. 243.

³⁸ Kojo Menyah et al. "Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach." *Economic Modeling* 37 (February 2014): 386-394.

Education and Human Capital

There is a constant debate in the world of economics over the impact of investment in human capital versus physical capital. One study shows that for African nations, an investment in human capital can be as much as three times as effective as an investment in physical capital.³⁹ Although the authors concede that this number is likely higher than the actual return on investment vis-à-vis physical capital, it does appear that investment in human capital is a worthwhile policy for many sub-Saharan countries. Another study also finds investment in human capital to be a significant avenue for growth among African countries, but only when there exists a sufficient capital stock.⁴⁰ The study finds that investment in physical capital is more impactful than in education, but only because education is worth the most when it is paired with advanced technology. Furthermore, there are researchers who argue that it is the quality, rather than the quantity of education that is significant for development.⁴¹ Many in this camp argue that the push to increase the number of children attending school has come at the cost of providing quality education; none of the economists who believe in the primacy of human capital would argue that poor education counts as human capital.

Other research indicates that countries with higher reserves of natural capital tend to invest less in education.⁴² One study suggests that investment in natural resources has a crowding out effect on investment in human capital in the form of education.⁴³

³⁹ Gyimah-Brempong et al. 526.

⁴⁰ Francis Teal. "Higher Education and Economic Development in Africa: A Review of Channels and Interactions." *Journal of African Economies* 20, no. 3 (2011): 51-79.

⁴¹ EA. Hanusake. "Why Quality Matters for Education." *Finance and Development* 42, no. 2 (June 2005): 15-19.

⁴² Glyfason. 847-59.

⁴³ Ibid., 847

FDI and ODA

Foreign investment is commonly thought of as being beneficial for growth, primarily for its ability to provide liquidity, but also for its role in facilitating technology transfers. The same article from this year which found only limited evidence in support of trade-led growth in Africa, did however, find strong evidence that FDI has played an important role.⁴⁴ The general logic in support of FDI as impacting growth is twofold. First, FDI provides access to capital which may not otherwise be available, both for small and large businesses in developing countries. Second, along with the flow of capital comes the infusion of technological advances and technical training that increases the human capital of the receiving country, and therefore has a significant effect on growth. An often cited study from Borensztein et al. provides evidence that FDI is indeed a source of technology transfer, but also that the magnitude of the impact on growth depends on the existing stock of human capital within the receiving country.⁴⁵

Other studies suggest that the effectiveness of FDI alone is relatively ambiguous, however countries with strong financial institutions seem to benefit significantly from FDI.⁴⁶ Unfortunately, for many African countries, the lack of strong financial institutions may render the effects of FDI negligible, or at least minimal. A 2017 study of South Africa, Nigeria, Egypt, Kenya, and Central African Republic found generally limited effectiveness of FDI.⁴⁷ In countries with slightly more developed financial institutions the effects of FDI would likely be higher. For

⁴⁴ Mullings et al. 256.

⁴⁵ Borensztein et al. 115.

⁴⁶ Laura Alfaro et al. "FDI and economic growth: the role of local financial markets." *Journal of International Economics* 64 (2004): 89-112.

⁴⁷ Awolusi, et al. 183-198.

example, over 50% of the rise in the wages of Mexico's skilled labor force has been attributed to FDI and the maquiladoras along their northern border with the United States.⁴⁸

The Case for Remittances

Studies have shown that another form of foreign capital inflows, remittances, are negatively correlated with the percentage of the population living in poverty.⁴⁹ A recent report from 2015 examining the impacts of foreign capital inflows suggests that remittance inflows, in addition to FDI, may be growth encouraging.⁵⁰ It is from this scholarship, that I assert the importance of remittances in explaining variations in economic growth. Although there are some general assumptions about the nature and effects of remittances, there is an insufficient understanding of the exact impact of remittances on growth rates. Remittances not only surpass the volume of development aid; there are also many other good reasons to believe that they directly influence household well-being. Remittance payments have proven to be countercyclical, meaning that they increase in times of economic hardship.⁵¹ Other forms of foreign capital inflows, such as FDI for example, are much more quick to vanish at the first signs of economic downturn in a country.⁵² The stability in remittances enables households in developing economies to act according to their long-term interests, such as pursuing higher education, without the threat of having their lives reduced to financial turmoil at the first sign of a recession. This would suggest that while remittances may have growth-inducing qualities, they

⁴⁸Feenstra and Hanson, 371.

⁴⁹Richard Adams and John Page. "Do international migration and remittances reduce poverty in developing countries?" *World Development* 33, no. 10 (October 2005): 1645-1669.

⁵⁰Muhammad Azam, and L. Gavrilla. "Inward foreign capital flows and economic growth in African countries." *Journal of Applied Economic Sciences* 10, no. 3 (March 1, 2015).

⁵¹ Ratha, Dillip. 2013. *The Impact of Remittances on Economic and Poverty Reduction*. Washington, DC: Migration Policy Institute. 1

⁵² Ibid., 3

should also reduce poverty ratings as they provide purchasing power to those who may not otherwise have a source of significant income.

Data and Method

The dependent variables for this project are the three measures of economic well-being, GDP growth, inequality and poverty (measured at three thresholds), and the independent variables are the three types of capital inflows, FDI, ODA and remittances each per capita. The log of the independent variables was ultimately used in the final regressions in order to reduce the effects of outliers skewing results. Inflation and unemployment are two of the main macroeconomic indicators which can be influenced by domestic institutions, and so they are controlled for. The Heritage Foundation Index of Economic Freedom is used to control for the degree of financial and capital market liberalization, which is again a measure of domestic institutions, but is also directly related to trade. The Freedom House Index is used to control for the level of democratic values of a country, which again is pertinent to the institutionalist school. Conflict is controlled for simply because the presence of a large interstate or civil war would have obvious consequences for well-being. Years of compulsory education is also included to account for human capital formation, and natural resource rents, which is the surplus value of natural capital minus the cost of extraction, is used to control both for natural capital endowments, as well as some of the effects of geography. Lastly net trade per capita is also included due to the arguments made in the trade school of development.

The goal of the analysis is to explain the variation in economic well-being among sub-Saharan African countries. It examines the effect of three distinct types of capital

inflows—FDI, ODA and diaspora remittances—on three major components of economic well-being: GDP growth, inequality, and poverty.

While the literature commonly praises the effectiveness of FDI, recent studies have shown that remittances may also be growth encouraging, and that they may also be negatively correlated with the percentage of the population living in poverty.⁵³ The exact nature of this poverty alleviation has not yet been identified however. It follows logically that some level of affluence would seem to be necessary in order for migration to occur and thus enable the remittances in the first place. Additionally, remittances are a highly regressive form of capital transfer, and thus a significant percentage of initial principle is devoted to processing fees.

H_{a1} : Diaspora remittances will be negatively correlated with poverty, and that relationship will be stronger when poverty is measured at a higher threshold.

Expanding on this assumption that remittance inflows will favor citizens who are relatively more affluent, as well as from existing literature which suggests that ODA may be conditional upon UN voting patterns as well as a host of other issues not related to political institutions or economic policy, the second hypothesis is developed below.⁵⁴ In addition to remittances and ODA, FDI has also been shown to be positively correlated with inequality by way of increasing labor wages in Mexican Maquiladoras.⁵⁵ The primary point of consideration is that all three forms of capital inflows should only benefit certain demographics, leaving the rest of the population relatively worse off.

⁵³ Adams and Page. 1668-1669.

⁵⁴ Alesina and Dollar. "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth* 5, no. 1 (1998): 55.

⁵⁵ Feenstra and Hanson. 391.

H_{a2}: Remittance inflows, ODA and FDI are all positively correlated with inequality among Sub-Saharan African countries.

The last hypothesis stems primarily from the countercyclical nature of remittances compared to FDI. As mentioned in the literature review section ODA is not generally expected to be a statistically significant predictor of economic growth, however FDI has been shown to be growth encouraging. In addition to the stabilizing nature of a countercyclical access to liquidity, remittances will also be an avenue for populations to finance their education, thus accelerating their human capital formation.

H_{a3}: Diaspora remittances will have a greater impact on GDP growth than FDI or ODA.

This study seeks to identify general relationships between capital inflows and three measures of economic well-being in sub-Saharan Africa. To do so, I employ a panel series analysis of 47 countries from the years 1995-2015. A regression is the most appropriate test for this project as, for each of my three hypotheses I have a single dependent variable (poverty, inequality and growth respectively), which can be expressed as interval-ratio data. The panel-series aspect is necessary because of the repeated observations over time. Given that the strength of statistical analysis is improved by the number of cases, and because the project seeks to identify patterns across the entire region, as many sub-Saharan countries as possible are included. The only exceptions are due to data constraints. This leaves the project with 46 countries, and data from every year since 1995 up until 2015. There are intermittent gaps in the data for some indicators, which is certainly not ideal, and may distort the findings to some

degree, however it does not constitute systematic misrepresentation. Given the nature of the Gini index and poverty ratios, many countries only had data for these indicators for a few of the years within the sample. Because these indicators are slow to change over time, and because they appear to change in a predictably linear fashion from the data that is available, the choice was made to interpolate data for the missing values. This decision was justified by the fact that it added hundreds of cases to the sample, increasing the accuracy of statistical tests without making unreasonable assumptions about the trends of change in variables with missing data. After performing Hausman tests, the only regression which met the necessary conditions for a random effects regression was for the Gini. The other four regressions were performed with fixed effects.

The analysis begins in 1995 because it is the earliest year for which data for all relevant indicators are available. The year 2015 is the terminal boundary because more recent data are not available. Though data for sub-Saharan Africa has been criticized for being incomplete and occasionally inaccurate, studies have shown that data roughly 18 months removed are more accurate.⁵⁶

Analysis

This section will begin with an introduction to the findings. It will then move on to a discussion of the results of the regressions as they pertain to the hypotheses, and an explanation of the significant findings, as well as the possible shortcomings. Next, it will discuss the theoretical implications of the findings, and how they are relevant to the research identified in the literature review. Table 1.1 shows the descriptive statistics.

⁵⁶ Jerven, Morten. "Research Note: Africa by numbers: Reviewing the database approach to studying African economies." *African Affairs* 115, no. 459 (2016): 348. doi:10.1093/afraf/adw006.

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP Growth (annual %)	1,170	4.258	8.653	-51.03	149.9
Gini	1,044	45.36	9.508	21.2	91.7
Poverty ratio at \$5.50 (%)	1,044	85.04	16.47	6.6	100
Poverty ratio at \$3.20 (%)	1,044	70.2	22.46	2.5	100
Poverty ratio at \$1.90 (%)	1,044	49.24	25.11	0	100
Inflation	1,086	75.89	1056.43	-35.83	24,411.03
Unemployment (%)	1,149	9.613	7.61	.3	39.3
FDI (per capita)	1,215	75.41	296.95	-914	6944
ODA (per capita)	1,215	78.107	91.13	-14	928
Remittances	676	9.622	44.63	0	383.59
Heritage Foundation Index of Economic Freedom	832	53.77	8.002	21.4	77
Freedom House Index	1,192	0.3355	.4723	0	1
Conflict	1,121	0.2024	.402	0	1
Compulsory Education Years	703	7.837	1.848	4	12
Natural Resource Rents (per capita)	1,176	13.32	14.03	0	89.166
Net Trade (per capita)	952	-100.47	361.72	-2727.409	2287.45

Table 1.2 Descriptive Statistics for Variables Included in the Analysis of Well-being

Pertaining to the hypotheses, the results are mixed, as is shown in figure 1.3, the summary table for all regression coefficients. For H_{a1} , we fail to reject the null hypothesis; while remittances are negatively correlated with poverty at all thresholds, that correlation is strongest at the *lowest* threshold (\$1.90), shown in Model 3, and diminishes as relative affluence increases (as seen in Models 4 and then 5). This is the exact opposite of what was hypothesized. Moreover all three of these results are highly significant. While this result is not what I expected to find initially, upon researching the role of cash transfers, the result is consistent with previous findings. In general, as cash transfers make up a larger portion of an individual's income (i.e. for relatively poorer populations holding the average amount of remittance transfer constant), they will have a greater effect on well-being.

	Dependent Variable				
	GDP Growth	Gini	Poverty ratio at \$5.50	Poverty ratio at \$3.20	Poverty ratio at \$1.90
Model	(1)	(2)	(3)	(4)	(5)
Remittances	0.4969*	-.02656	-0.7799***	-1.901***	-2.806***
FDI	0.1826	0.5924**	-.4082	-0.0915	-0.5023
ODA	0.3942	0.269	0.4802	0.184	0.5636
Inflation	0.01	0.0869**	-0.0143	-0.387	-0.0533
Unemployment	-0.123	0.1593^	0.5483**	0.7626***	0.5708*
Heritage Index	-0.2815***	0.0608	-0.1495*	-0.0368	0.204
Freedom House Index	1.019	1.712**	-1.642**	-3.047***	-4.670***

Conflict	-0.2205	-1.310 [^]	-0.2782	-0.3595	-1.433
Compulsory Education	-4.006 [^]	-0.5260**	-0.8893**	-0.9885**	-0.6378
Natural Resource Rents	0.0481	-0.0778*	-0.0123	-0.0386	-0.1442 [^]
Net Trade	-0.0002	-0.0018 [^]	-0.0039**	-0.0054*	-0.0073**
Note: * ** *** denote significance at the 5% 1% and 0.1% level, respectively. ^ denotes significance at the 10% level.					

Table 1.2 Results from Multivariate Panel Analysis Predicting Well-being in Sub-Saharan African Countries, 1995-2015

We also fail to reject the null hypothesis in regards to H_{a2} . While FDI and ODA are correlated with an increase in the Gini coefficient (model 2), both migrant remittances are negatively correlated (meaning they reduce inequality). However, only the relationship for FDI is statistically significant. While this possible relationship with FDI and ODA and a rise in inequality may seem inherently negative, that is not necessarily true. Economists often refer to what is called the Kuznets curve for explaining such trends. The Kuznets curve is a bell-shaped depiction of the rise and fall in inequality which accompanies quick economic growth, and the eventual plateauing that follows. What this graph represents is the fact that with periods of economic growth, there will be some individuals who are better equipped to maximize their economic gain than others. This does not mean, however, that all of the benefits of this economic gain are to be had by *only* a small minority. Essentially, while some certainly benefit more, all (or at least most) benefit some. In this way, FDI and ODA, though possibly correlated with domestic inequality, do not necessarily lower standards of living, and may in fact improve them.

This interpretation is challenged by the fact that neither FDI nor ODA were shown to be significantly correlated on their own with GDP growth.

We are able to reject H_{a3} : diaspora remittances are statistically significantly correlated with GDP growth, and this correlation is greater than that between FDI or ODA and GDP growth. Moreover the results for FDI and ODA are not even statistically significant, meaning there may not be a relationship at all. The primary mechanism through which remittances encourage growth is their countercyclical nature. The safety net that the diaspora provides is unique to this capital flow, and inherently reduces the negative effects of market volatility to which both FDI and ODA are subject to varying degrees.

The results of this project suggest that diaspora remittances are a much more effective form of private capital flow for stimulating economic well-being than FDI. Remittances are shown to be strongly negatively correlated with poverty, as well as simultaneously positively correlated with GDP growth. FDI has a statistically significant relationship with only one variable, domestic inequality, and this is a positive correlation. This finding contrasts with the literature that has found significant, positive correlations between FDI and GDP growth. This is likely a result of poorer quality of institutions for many sub-Saharan countries, which is a condition upon which many of the benefits of FDI are often argued to be dependent. Additionally, ODA was not a significant predictor of any of the measurements of economic well-being. This finding is in line with the literature, which suggests that ODA is not effective in promoting growth or combating poverty.

Conclusion

There are a number of ways in which this paper could be expanded upon by future research. One of the more obvious is to illustrate the diminishing marginal returns of remittances on poverty alleviation as relative affluence increases. This project identified the existence and direction of this trend, but makes no claims about the size of incremental changes in output of poverty reduction at varying levels. Accurately identifying such a measure would allow policymakers to have more confidence about the exact effect of changes in policy designed to either increase or decrease immigration.

Another step developing countries could take would be to institute a better framework for diaspora communities to remit. Currently remittance payments are a highly regressive form of capital flow, which is largely due to insufficient infrastructure being in place to facilitate transfers. This failure in infrastructure is reflected in the fact that the African continent is the most expensive area in the world to remit to.⁵⁷ Countries seeking to reduce their poverty rates are encouraged to fund public works which support infrastructure that enables faster, more reliable transfer of liquidity from diasporas to domestic populations. In a sense this recommendation supports an economic institutionalist approach in that improvements in domestic institutions is posited to allow developing countries to improve their well-being.

Another avenue of future research is the exploration of these findings on a country-by-country basis. Variation in the economics of sub-Saharan countries is extreme, as the standard deviations for many variables in table 1.1 indicate. This means that there are almost certainly

⁵⁷ Dilip Ratha. October 2014. Accessed January 24, 2018. https://www.ted.com/talks/dilip_ratha_the_hidden_force_in_global_economics_sending_money_home

countries near the higher or lower boundaries of affluence wherein the generalizations made in this paper would either not hold true or be even more pronounced. One suggestion for a project designed to explore this variation would be the identification of three countries, one relative affluent, one relatively poor, and one ‘middle-ground’ country which could then be explored in accordance with the same model as developed in this paper. This would allow future researchers to have a better idea of how these capital flows impact different economies, and thus allow policy makers to more informed decisions on a country by country basis.

However the research is ultimately expanded, it will inevitably have implications for migration policy. The results from this paper suggest nothing but positive effects on domestic well-being for migrant sender countries. The controversy is far more likely to come from the recipient countries of these migrants, either due to economic, or simply xenophobic concerns. Therefore a final avenue for future research would be to further examine the impact of the economies of recipient countries according to the same measures of economic well-being used in this paper.

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