THE IMPACT OF FINANCIAL DEVELOPMENT ON POVERTY ALLEVIATION IN SUB-SAHARAN AFRICA: HOPE BEYOND NET ODA?

By

MANYANI, Talent Khayelihle

THESIS

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Abstract

Around 80% of the Sub-Saharan African population lives below the $2 a day poverty line, under miserable conditions because of armed conflicts, and bad governance. By using private credit as a measure of financial development and the poverty gap, as a proxy for poverty, this paper studies the impacts of financial sector development on poverty. This paper employs the panel data econometric analysis and the results suggest that financial development can contribute to poverty alleviation in Sub-Saharan Africa.

Keywords: financial development, poverty, panel data

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1. Introduction

1.1. Poverty in Sub Saharan Africa

Poverty continues to be the dark subject associated with Africa, particularly Sub Saharan Africa. Almost 1 in 2 people in Sub Saharan Africa is poor, and this isn't surprising in a region marred with political conflicts, poor governance systems, terrorism, dictatorships and corruption. In spite of all the disheartening statistics and reality, in line with the Millennium Development Goals, in Sub-Saharan Africa the extreme poverty rate of $1.25 a day in 1990 quoted in 2005 prices was cut by 50% in the year 2010, according to the World Bank 2005 Report. Between 1999 and 2010 extreme poverty rates in Sub-Saharan Africa (SSA), dropped by 10%. Similarly in SSA, life expectancy at birth has improved significantly from 42.4 years in 1969, to 45.9 years in 2004. Infant mortality per 1000 live births has decreased, (149 in the 60's, to 101 in 2004, to 77 in 2010 (World Bank, Report; Development Indicators 2005).

However, SSA countries continue to have the lowest life expectancy in the world compared to other regions (United Nations 2004). The number of poor people in SSA has increased between the years 1981 and 2010 since twice the number of poor people lives in SSA in 2010 as compared to 1981. In 1981 SSA contributed 11% of the world total poor people (World Bank 2013). For this cause many humanitarian organizations and countries have pumped huge amounts of money as donor aid into Africa, to fight the scourge of poverty. The impact of this aid money is still open to discussion. Most SSA countries are well over 20 years, but they still struggle with poverty to this day, simply because most solutions which are employed are not sustainable. Africa needs a sustainable solution applicable even in the poorest of the countries to fight poverty. Financial development is proposed in this study as another viable option to poverty alleviation, but this of course will have to start with its respective development in SSA countries.

1.2.Research Question

By promoting transactions, the financial sector is an important building block for private sector development. The financial sector plays an important role in reducing risk and vulnerability. Besides, the financial sector increases the ability of households to access basic services like health and education. To this end, I propose Financial Sector Development (hereafter referred to as FSD) as a more possible solution to lessen poverty in SSA. Can financial development help fight poverty in SSA even when controlling for foreign aid (net-ODA) and other country specific macro-socio-political effects? Can the banks by promoting credit access for the poor, help poor households to invest in productive assets that can, boost their incomes in the short and long run?

1.3.Hypothesis

Firstly, financial sector development matters and significantly plays a positive and direct role in poverty alleviation. Secondly, the impact of financial sector development on poverty alleviation outweighs that of net ODA and economic growth.

1.4.Research Objective

In this study, I analyze the impacts of FSD on poverty in SSA beyond those of net-ODA and economic growth. I admit to the resolve that FSD has a positive impact on poverty alleviation. If this holds, then it can cause a great impact on policy reforms in SSA. Governments will prioritize FSD, instead of trying to wipe out poverty through seasonal food relief, or donor aid.

1.5.Contribution to existing literature

This work contributes to current literature by factoring in the political, social and economic context of SSA, and by looking at the impacts of financial development on poverty, beyond the contribution of net-ODA and economic growth. Equally, to the best of my knowledge this work

includes control variables like remittances and FDI among other variables to check for political stability and corruption, variables which haven't been included in more or less similar studies like, Beck, Demirgüç, and Levine 2007, Jeanneney and Kpodar 2008, Jalilian & Kirkpatrick 2007. Also, this study doesn't only focus on one FSD measure, but uses three variables against two poverty variables, for robustness checks to clearly identify if FSD plays an important role on poverty alleviation.

1.6.Methodology and preliminary Findings

In using a panel fixed effects estimator with robust standard errors and a panel IV fixed effects estimator, with clustered standard errors: First, the results show that financial sector development through all its proxy variables has a significant and direct positive impact on poverty alleviation. Second, as well as the direct impacts financial sector development reduces poverty significantly, even when controlling for economic growth, net ODA and other socio-political country specific effects. Third, net ODA was found to be insignificant in the fight against poverty, while in the financial sector development was overwhelmingly significant to poverty reduction, giving FSD an advantage as a potential tool for poverty alleviation.

1.7.Research Outline

The first part of this report will address existing literature surrounding the topic of financial development, and its impact on poverty alleviation. Data analysis will follow next, as I define the major variables and summary statistics used in this study and their significance in defining what they represent. Before the conclusion, we will have the results interpretation and the policy implications section as we look at the different results stemming from our regressions.

2. Literature review

Financial Development has direct and indirect effects on poverty. Promoting credit access to the poor, reducing transaction costs, and promotion of savings explain the direct effects. Impacts of financial development on poverty through economic development reflect the indirect effects. The literature review, will explain FSD in SSA and the flaws in the financial markets. Further, I'll review the literature on the direct impacts of financial development and poverty and last I'll look at the indirect impacts of financial development on poverty.

2.1. Financial sector development in Africa.

The African Development Bank in the Africa Economic Brief 2010[1], highlights the poor financial infrastructure that Africa has in general. The AFDB reports that only 20% of African families had bank accounts as of that time. An example is Kenya a leading country in Africa, of which just 30% of Kenyans had a bank account in 2012. While Benin a country of 7 million people, has only 35 banks. Financial illiteracy, geographical isolation of some communities, and deficient infrastructure, contributes to the weak development of the financial sector in SSA.

Besides, geographical isolation of some communities and deficient infrastructure contribute to the high cost of providing financial services to the poor. In most communities, banks have to incur huge costs to just open a single branch in some of these remote areas. The AFDB report further states, some countries in Africa have as low as one bank branch for every 100000 people (case of: Ethiopia, Uganda, and Tanzania) compared with 100 in Spain.

However, there are disparities in the bank branch distribution across countries as some countries like Namibia, Zimbabwe and Botswana have more than four bank branches per 100000 people.

[1]Peter Ondiege; The African Development Bank In the Africa Economic Brief Volume 1, Issue 8 of December 2010; Mobile Banking in Africa: Taking the Bank to the People.

With institutions for deposits (banks) SSA has the lowest average (16.6%) compared with the developing countries average (63.5%). In SSA the savings rate has increased significantly from 16.1% in January 2002 to 20.38% in January 2014, nevertheless this is a far cry from the savings rate recorded in the early 70's. An all high of roughly 25% savings rate was recorded in the early 80's (Ondiege 2010).

2.2.Imperfections in the financial sector

Imperfections in the financial sector, such as asymmetric information, contract enforcement costs and transaction costs negatively affects many poor entrepreneurs and families who lack collateral security, and enough credit history. Besides, market imperfections can explain persistent poverty as some studies have pointed out, Becker and Tomes (1979, 1986). In their paper, Becker and Tomes, explain how government policy through taxes and redistribution of wealth can have negative effects on the poor in the long run. These constraints block or negatively affect the transfer of capital to poor people, and therefore increasing inequality. Yet with financial sector widening, competition between financial intermediaries will address the issue of costs, forcing them down and improving on the quality of services provided by these financial institutions.

2.3.Financial Development and it's direct effects on poverty

The poor benefit from FSD, through access to credit, improved savings, and risk management. Through highlighting investment ideas, overseeing borrowers, exerting corporate control and promoting the exchange of goods and services banks help the poor, Levine (1997)[2]. These basic roles of the financial sector help to assign financial instruments to suiting individuals. At the same time makes sure clients depositing their money in the banks incur a fair return.

[2] (Levine 1997) Financial Development and Economic Growth: Views and Agenda

Pooling savings can enable the poor to amass and access funds in a secure place overtime to finance large, expected future spending or investment. Mobilizing savings also creates an opportunity for relending the collected funds into the community. Savings play a huge role in economic growth, as they are the chief source of investment capital. In the developing world, according to the World Bank SSA has the least savings ratio, when compared with South and East Asia which have higher savings ratios (42% from 2008). FSD addresses these problems as it creates a free market between savers and investors, by creating a conducive and good environment to both camps, hence its importance in fighting poverty in SSA. With investments, there is economic growth, employment, capital build-up and an increase wages, all of which directly impact on the consumption trends of the poor. Some banks and financial intermediaries also go on awareness campaigns teaching people on the benefits of savings, a part that is still lacking in most SSA countries.

Beck (2007)[3] find in their results that FSD, boosts incomes of the poorest 20% and reduces income inequality. The researchers realize drops in income inequality are a result of around 40% of the long-run impact of FSD on the growth of incomes of the poorest 20%. On the other hand 60% of the impact of financial development on total economic growth explains the decline in income inequality. Also the results reveal that financial development causes a drop in the headcount ratio at the $1 poverty line, even when controlling for average growth.

These findings specify the importance of FSD for the poor. Access to credit to fund income giving projects might explain the growth in incomes of the poorest 20%.

Besides, if the poor can access credit at low cost they can invest in educating their children a cost that reaps huge benefits in the long-run. Similarly, since most of the SSA poor

[3] Finance, Inequality and the Poor : Beck, Demirgüç, and Levine 2007

people live in rural areas, growth in incomes can be explained by an improvement in the productivity of their agricultural assets. As credit becomes more accessible, poor people can invest in productivity improving tools and machinery in their agricultural practices. In turn, the increase in productivity may create surplus for these households, the surplus is in turn sold and converted into monetary gain. McKinnon (1973) states that poor people in developing countries don't invest their savings. In the same paper McKinnon explains that if the poor were to deposit their savings in financial institutions, not only would they earn real rates of return they could also amass wealth.

With an increase in competition in the financial sector, the poor can benefit from access to the financial institutions at a lower cost. The poor people can equally cushion themselves against future financial shocks, with more access to credit markets. The poor can plan and invest notable in education, and better health care. In developing poor countries the poor have to save before they can invest, in so doing poor African countries can become less dependent on external debt. Investment will stem from an increase in savings, and for the poor to save more; they need financial institutions which will give them value for their savings. Additionally, even if the poor were not going to benefit from investment opportunities, they would still benefit from real returns on their savings and deposits. Also, McKinnon explains how FSD through better resource allocation helps in innovating and adoption of new technology. McKinnon uses an illustration of a farmer who cannot afford a particular investment out of his own savings.

The farmer needs to borrow, to buy some piece of equipment (that is to invest in "new technology") which would increase his productivity, and enable him to earn a higher income

(McKinnon 1973)[4].Therefore, by mobilizing savings, and increasing credit, financial institutions promote new investments across the economy. This infers that financial institutions have a positive impact on overall productivity in the economy. Caskey (2006) builds on the need for poor households to have access to formal financial intermediaries. They do so, by stating the extra costs the poor without accessible formal financial intermediaries will have to face and bear. In their study, conducted in Mexico and the United States, Caskey (2006), finds the unbanked (population without access to banks) pay an extra cost. This extra cost is for transaction costs, time and insecurity in not using formal financial intermediaries. They also find that unbanked households in Mexico have more home ownership than the unbanked households in the USA.

This result results in questions on the existence of non-formal institutions of credit used by the unbanked in Mexico which do not exist in the USA. Also, unbanked households in both countries were characterized by low income and low education levels (Caskey, Duran et Solo 2006)[5]. Similarly, in SSA since poorer households are in the rural areas, they are already isolated from the bank branches which exist mainly in the urban areas. So they have to make-do, with unofficial channels of credit. In explaining the informal financial sector, we can also add that it develops in response to controls existing in the formal financial intermediaries. Barriers existing in the financial sector provide for the possibility of monopolies, by it worsening the plight of the poor.

On informal financial intermediaries in Ghana, Aryeetey (1991), finds that institutional barriers and the ease of physical access may explain why households stick to the informal sector for their

[4] McKinnon, Ronald I., Money & Capital in Economic Development, Washington, D.C., the Brookings Institution, 1973.
[5] John P. Caskey , Clemente Ruíz Durán, Tova Maria Solo, The Urban Unbanked in Mexico and the United States

financial needs (Aryeeetey 1991)[6]. Convincingly, Caskey et al (2006), in their study find that in the USA 53 % of the people surveyed didn't have bank accounts because of the absence of savings. While in Mexico, a country rather underdeveloped compared with the USA, had 70% of the people saying they didn't have bank accounts because of the transaction costs (Caskey, Duran et Solo 2006).

With better access to credit, the poor can invest in riskier, yet rewarding investments. Credit may also be used to finance investment in education or health, and can thus promote increasing human capital (Gregorio 2006)[7]. Thus, savings mobilization can have a significant impact on growth by increasing investment, productivity and human capital. By making more capital available to innovators, financial intermediaries that facilitate diversification may also increase technological change and thus economic growth and later poverty decrease.

Credit can strengthen the productive assets of the poor by enabling them to invest in productivity-enhancing new 'technologies' such as new and better tools, equipment, or fertilizers. Also, the poor can invest in education and health, all of which provide for a higher income in future. Credit can also be an important cause in creating or expanding small businesses, thus producing self-and wage-employment and increasing incomes.

Expanding the supply of financial services will increase income growth for the poor, therefore delivering a direct impact on poverty decrease (Hossein et Colin 2005)8. Further, improved access to financial markets may help lessen the vulnerability of the poor to the financial shocks they face without savings or insurance. Eswaran and Kotwal argue that just the knowledge that

[6] Aryeetey and Gockel 1991: Mobilizing domestic resources for capital formation in Ghana, The role of Informal Financial Sectors.
[7] José De Gregorio economic growth in Latin America: from the disappointment of the twentieth century to the challenges of the twenty-first century
[8] Hossein Jalilian, Colin Kirkpatrick; Does Financial Development Contribute to Poverty Reduction? 2005

credit will be available to cushion consumption against income shocks, can make a household more willing to adopt more risky technologies. These risky investments become the potential source of improved productivity and increased incomes for the poor (Kotwal 1990)[9].

For the same reason, access to credit and other financial services is likely to decrease the proportion of low-risk, low-return assets held by poor households for precautionary purposes. Therefore access to credit will enable the poor to invest in potentially higher risk, but higher return assets (such as education) (Deaton 1991)[10]. Eswaran and Kotwal add that growth in the incomes of the poor and an increase in their individual savings follows economic development. Similarly, improvements and expansion to the irrigation techniques follow agrarian development. This development lessens the dependency of farmers on weather and afterwards lessening the doubt related to rainwater dependency.

In conclusion Eswaran and Kotwal state improving credit markets can simplify diversifying risk across individuals whose consumption trends are not correlated. This results in transferring credit from those without any financial problems to those hard hit by financial shocks.

2.4.Financial Sector development and its indirect impacts on poverty

FSD can also fight poverty indirectly, through its effects on economic growth. Cross-country studies show there are significant differences between economic growth and poverty decrease across countries. Nonetheless, the incomes of the poor rise (and fall) proportionately with average incomes (Aart et David 2001). As the incomes of the poor increase they spend more on consumption and usually in rural Africa, they equally invest in farming equipment. Increasing

[9]Mukesh Eswaran and Ashok Kotwal; *Implications of Credit Constraints for Risk Behavior in Less Developed Countries*

[10] Angus Deaton, *Savings and liquidity constraints*, Econometrica, Vol. 59, No. 5 (September, 1991), 1221-1248, ,

income pushes poor people out of poverty. Unfortunately, because of inequality and misallocation of state wealth, the poor remain poor.

With economic growth, follows job creation, an increase in the general wage level to the benefit of poor people. In SSA joblessness has spread across sectors and geographical divides (ILO 2013) and is appalling (7.5% in 2011) compared with the world average (5.89% in 2011), and.[11] Unemployment is high in the rural areas, and higher in the urban areas. This is because of growth in the informal sector. Expectant people flood the cities from the rural areas, with the hopes of getting better paying employment opportunities.

Goldsmith (1969)[12], using data on 35 countries from 1860 – 1963, found evidence of a relationship between economic growth and financial development over long periods. Also, he found that periods of rapid economic growth have often been accompanied by an above-average rate of financial development (Goldsmith 1969). Further, King and Levine (1993)[13] using various measurements for financial development study 80 countries over the period 1960 – 1989, and find evidence of a strong, positive link between financial development and economic growth. In their results they find that financial development is strongly associated with real per capita GDP growth. Also, they find that financial development is robustly correlated with predicted future economic growth rates, physical capital build-up and improvements in economic efficiency (Robert et Ross 1993). Levine, et al, in a different study use both cross-sectional data and panel data to focus on three measures of financial intermediation (private credit, commercial-central bank, liquid liabilities). They do this to capture not only the size of financial institutions, but also their credit channeling capacities. They find that financial development has a positive impact on

[11]ILO ; Global Employment Trends 2013: Facts and figures for Sub-Saharan Africa, Article | 22 January 2013

[12]R. W. GOLDSMITH Financial Structure and Development, (New Haven and London: Yale University Press, 1969

[13]King and Levine (1993)Finance and Growth: Schumpeter Might be Right

economic growth. Also underlining the impact could be because of the indirect influence of financial development on economic growth (Thorsten, Ross et Norman 2000)14. These results are also in line with earlier studies by Schumpeter whose results favor the growth-enhancing view of financial intermediation (Schumpeter Joseph 1934)15.

In conclusion to their study Thorsten, Ross & Norman (2000) state that their findings are in line with theoretical models that assume and state that better competitive financial institutions accelerate economic growth. Their results stand against models that predict the growth-retarding impact of financial development. Finally, they imply that if economists can clearly specify legal, and governance related policy reforms that promote financial development, these policies may well positively influence economic growth (Thorsten, Ross et Norman 2000).Expectedly, the impact of financial development on economic growth is not without critics, who find the positive role of financial intermediaries on economic growth small. Calderon and Liu (2003) also adopt an innovative econometric technique to analyze this issue, using data on 109 countries for the years 1960-1994[16]. Their results show bidirectional cause that is FSD has a causal impact on growth, and growth also has a causal impact on FSD.

However, the impact of FSD on growth is more important, relative to the impact of growth on FSD, particularly in developing countries where it explains 84% of the overall relationship over a 10 year period (though also in industrial countries over longer periods, where it explains 57% of the relationship over a 10 year period). This suggests that financial sector

[14] Levine, Loayza & Beck, Financial intermediation and growth: Causality and causes, Journal of Monetary Economics

[15]Schumpeter (1934), The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle

[16] Calderon & Liu (2003) ,The Direction of Causality Between Financial Development and Economic Growth;

under-development is more likely to hold growth back in developing countries. Therefore, FSD has a two pronged approach when it comes to poverty.

1. It can directly reduce poverty as it improves financial resource allocation to the poor and increases their access to lines of credit.
2. Indirectly through economic growth. Due to the high demand labor wages are generally pushed up and this increase in incomes has a direct impact on the consumption of the poor which in turn affects their poverty.

The major drawback to the impacts of FSD on poverty could be financial repression. Financial repression explains how government controls, laws, and other nonmarket limits prevent the financial intermediaries of an economy from functioning at their full ability. The policies that cause financial repression include interest rate ceilings, liquidity ratio, high bank reserve needs, among others. McKinnon (1973)[17] and Shaw (1973)[18] argue that based on the past government intervention in the financial sector restricts competition in both developed and developing countries and in so doing discourages investments.

3. Data, summary statistics, and econometric methods

To carry out our statistical analyses, we need mainly measures of poverty and measures of financial development. Also, we need econometric methods and models to identify and discover the link between financial sector development and poverty. This part of our study, therefore highlights, defines, interprets and describes the variables, the models and descriptive statistics, inclusive of basic correlations. The measurement indicators used in this study, are all from the

[17] Ronald McKinnon (1973) , Money and Capital in Economic Development (1973), Brookings Institute

[18] EDWARD S. SHAW: Financial Deepening in Economic Development, Oxford University Press, London-Toronto, 1973.

World Bank database, the poverty variables specifically come from the Povcalnet. All the financial sector indicators (Bank Assets ratio, M2, Private credit) are from the Global Financial Development Database. The explanatory and control variables in this study are from the World Bank, database.

3.1. Data: Financial Development

To measure financial development, I choose indicators that measure the depth of the financial sector, and the size of the financial sector. These are the commonly used indicators as they are strongly and positively related to economic growth. Accurately to measure financial development we need indicators that cover, how the efficiency of the financial system lessens transaction costs, improves allocation, mobilizes savings and exerts corporate governance. Unfortunately it's never easy to build such measurement variables; therefore I use traditionally available and used indicators of FSD robustly related to economic growth.

a) Private Credit

Private Credit is the total value of credit by financial intermediaries to the private sector as a % of GDP. This is a sound measure of FSD and a reflection of private savings as it excludes credit issued by the central bank. Used by Ross and Zervos (1998), it doesn't count credit to the public sector, as much as credit to state owned businesses. Similarly, it excludes inter or cross claims of one group of intermediaries on another (Ross et Zervos 1998). Also, private credit to GDP has been shown to grow faster and experience faster rates of poverty decline (Thorsten, Ross et Norman 2000); (Beck, Asli et Ross 2007). Private credit distinguishes credit issued by money banks or financial institutions other than the central bank. Further private credit helps capture the difference between credit issued to the private sector and credit issued to the public sector.

Higher ratios of private credit may represent higher financial intermediation and financial development. Thus, private credit is a good measure to identify, credit from individual savers, through financial intermediaries, to private firms. In SSA private credit as a ratio to GDP ranges from as low as 0.15% for Congo Zaire in 2000 to as high as 81.91% in South Africa in the year 2007. The average private credit to GDP ratio for SSA during the period covered by this study was 14.43%.

b) M2 + Quasi-money (M2):

Money and quasi-money is currency outside banks, demand deposits other than those of the central government, time savings, and foreign currency deposits of resident sectors other than the central government as a % of GDP. M2 measures the liquidity supplies of the economy and the size or depth of the financial intermediaries in a country. The major weakness of this measure is that it does not highlight the transfer of society's savings to the private sector entrepreneurs and private sector projects. Thus, basic roles of financial intermediaries are inaccurately captured. In this study, in SSA the average M2 as a % of GDP was 24.81%, significantly higher than the ratio of private credit to GDP. Also the ratio ranged from as low as 0.83% in Zaire Congo, in the year 2000, to as high as 101.88% in Angola in the year 1985.

c) Bank Assets Ratio to GDP:[19]

The bank assets ratio to GDP measures the total assets held by deposit money banks as a share of GDP. These assets include claims on domestic real nonfinancial sector which includes central, state and local governments, nonfinancial public enterprises and private sector. Deposit money

[19](International Monetary Fund, International Financial Statistics, and World Bank GDP estimates)

banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.

Commercial banks are expected to be more effective in earmarking savings to productive projects. Commercial banks are likely to oversee the management, and increase in savings mobilization in the economy than Central Banks. Nonetheless, this indicator doesn't capture how the financial resources are distributed. Also, commercial banks aren't the only financial institutions mobilizing, pooling and spreading the nation's financial resources. Hence, this indicator may fail to capture or highlight the country specific variations in financial development.

3.2.Data: Poverty

To study the impacts of FSD on poverty, we use two proxies for poverty namely, poverty gap and the headcount ratio. These indicators complement and supplement each other. The data for poverty is at three year intervals from 1981-2010; therefore all variables including the financial development indicators are averaged over three year intervals. The head-count is a ratio of poor people against those above the poverty line, while the poverty gap does a better job in measuring poverty intensity. For robust results we use these two poverty measurement variables to clearly see if financial sector development has any effect on poverty at all.

a) Poverty headcount ratio at $1.25 a day (PPP)

This is the ratio of people living under the $1.25 a day poverty line as a % of total population. This indicator is easy to use and explain, but then weak as it doesn't measure the gravity of the poverty. It doesn't 'measure how poor is poor, and how far those poor people are far from the poverty line. For instance even if incomes of the richer of the population where cut in half, the headcount will most likely not change, so it is difficult at times to use it as a measure of poverty,

especially in countries with great inequality. Furthermore the headcount ratio which is a measure of absolute poverty focuses on households and not individuals. In so doing the headcount ratio might imply that a given % of households are poor, while this figure might relatively mean a great % of the population is poor (given large households).

b) Poverty Gap at the $1.25

Poverty gap is the average shortfall of the poor people's incomes from the poverty line (counting the non-poor as having zero shortfall), expressed as a % of the poverty line. In averaging, the incomes of the poor and evaluating how far they fall from the poverty line, the poverty gap indicates not only the depth, but the intensity of poverty. The poverty gap also makes it easy for policy makers to identify the cost of lessening poverty. Poverty gap is the cost of reducing poverty, because it shows how much would have to be transferred to the poor to bring their incomes or expenditures up to the poverty line.

3.3. Econometric methodology

3.3.1. Panel Fixed Effects

I begin by running panel fixed effects regressions on data for all the countries averaged over three year periods. All my dependent and explanatory variables data are averaged over three year periods. Our model is;

$$y_{i,t} = \alpha y_{i,t-1} + \beta FD_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}.$$

In the model, $y_{i,t}$ is either the logarithm of (i) the poverty gap, (ii) the headcount ratio for country i. $FD_{i,t}$ is the Private Credit or the bank assets ratio, or the M2, and $X_{i,t}$ implies a

number of country specific conditioning variables in period t. In this model I control for ***net ODA*** as we're interested in the impacts of FSD beyond the contribution of foreign aid, and ***economic growth*** for mean income growth. Further, I control for ***inflation*** to cover the prevailing macroeconomic conditions, ***trade*** to capture the degree of market and country international openness**.** I also control for the tertiary gross enrollment ratio ***schooling*** a**s** an indicator of human capital stock in the economies. Also, ***control of corruption***, ***government effectiveness*** and ***political stability***[20] to control for the prevailing political atmosphere and efficiency of government. I include **FDI**, ***remittances***, ***population growth*** and an interaction term as extra variables. Controlling for corruption is in response to the blame put on corrupt government officials for the ineffectiveness net ODA. Therefore, to strengthen my theory I control for corruption to see if financial development can have a positive impact on poverty alleviation beyond the effects of corruption. For robustness checks in Table 2, I interact private credit and net ODA individually with economic growth, to see if these two fare any better in countries with relatively high economic growth.

Additionally I also run the same regressions on my primary poverty measure, using different FSD proxies namely m2 and the bank assets ratio, to check the validity of my assumptions. Similarly, I interact net ODA with Economic growth to see if financial development will have significant impacts in conditions where net-ODA has positive impacts on poverty alleviation under a positive economic growth environment.

3.3.2. Instrumental variables Fixed Effects

The relationship between financial development and poverty might be reverse. Poverty, may lead people to be innovative, leading to a greater demand in financial services. In which case if the banks respond positively we might see growth in the financial sector as these poor

[20] The three variables are specifically from the World Governance Indicators, produced by the World Bank.

people start up small income creating projects, and save the little profits they make. This might actually be the case in most Sub-Saharan countries which rely greatly on farming for sustenance.

To this end, to account for causality, we use a fixed effects instrumental variable estimator with clustered standard errors.

This estimation method is robust to heteroskedasticity and also to serial correlation. For my the instruments I use lagged values of the explanatory variables, this gives us consistent results, but the robustness of the coefficients subscribe to the assumption that we don't have serial correlation. To account for these issues, which may bias our results, I test for the weight of my assumptions by running the Hansen J test for over identified restrictions. The null hypothesis for this test is that the instruments are valid instruments, meaning that they are uncorrelated with the error term and that the instruments are exogenous and correctly excluded from the estimated equation.

3.4. Descriptive statistics and correlations

Table 1, using Panel Data of 40 Sub-Saharan countries presents descriptive statistics and correlations for our measurement variables for the period between 1981 and 2010, averaged over three year intervals. Data collection in SSA countries left out, inclusive of Somalia, Congo (COG), and South Sudan, countries has been hampered by armed conflicts. Also left out is Zimbabwe, Sao Tome principle, Comoros Island, Mauritania and Mauritius which don't have sufficient poverty information during the period of study. With the remaining countries we collect sufficient data, which provides for us a strongly balanced dataset, whose results can be relied upon.

It is striking to highlight the positive correlation ship between, the measures of financial development and the measures of poverty. Consistent with earlier work, financial development is positively and significantly correlated with GDP per capita growth, but negatively correlated with Headcount (Honohan, 2004). This indicates that countries with more developed financial systems experience a faster reduction in poverty levels. Private Credit, M2 and the bank's assets ratio to GDP have a negative impact on poverty.

Meaning an improvement in financial development will lead to a decline in poverty. Interestingly, measures of financial development have greater impact on the poverty gap than on the headcount. This might mean that financial development fights poverty more efficiently, by reducing income inequality, and the intensity of the degree of poverty experienced by the poor households.

3.5. Table 1: Summary Statistics and Correlations

Part A presents the descriptive statistics and Part B and C present the pair-wise correlations. Private Credit is the log of financial resources provided to the private sector by domestic money banks as a share of GDP. Bank assets ratio equals the log of bank capital and reserves to total assets as a % of GDP. M2, money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government. Net ODA equals the logarithm of the net official development aid (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita.

Panel A

Variable	Obs	Mean	Std. Dev.	Min	Max
Headcount	400	3.812606	0.6695849	0.07863	4.5866
Poverty Gap	400	2.893102	0.9555011	-1.5506	4.28386
Private Credit	330	2.3077	0.8557582	-1.156	4.32998
Bank Assets	330	2.610753	0.7969728	-0.9269	4.44617
M2	379	3.091247	0.4974219	0.20727	4.62379
Net ODA	387	2.101561	1.203579	-7.7021	4.65743
Economic growth	386	2.133913	10.79895	-25.718	126.9526

Panel B

	Headcount	Poverty Gap	Private Credit	Bank Assets	M2	Net ODA	Eco Gro
Headcount	1						
Poverty Gap	0.9664*	1					
Private Credit	-0.3359*	-0.3392*	1				
Bank Assets	-0.3283*	-0.3357*	0.9425*	1			
M2	-0.2697*	-0.2962*	0.6903*	0.7217*	1		
Net ODA	0.3921*	0.3721*	-0.2359*	-0.2242*	-0.1275	1	
Economic Growth	0.0951	0.081	0.0356	0.0344	0.0369	0.0973	1

4. Empirical results

In this section I present the results from the regressions I run between financial sector development and poverty through the proxy variables or both poverty and financial sector development. Private Credit as it considers the distribution effect of savings to the private sector is my main proxy for financial development. Similarly, poverty gap, which is a more robust measure of poverty, is my main dependent poverty proxy. For robustness checks, I use the headcount for poverty while for FSD I use the bank assets ratio and M2.

In Table 2 and 3, I present results for Private Credit, against both the poverty gap and the

headcount ratio. I present results for regressions run using the panel fixed effects estimator and the IV fixed effects estimator. Also, I include explanatory variables, to explain prevailing macroeconomic environment, the political environment and the effects of external help.

For robustness, I reproduce the regressions in Tables 2, using the Bank Assets ratio in Table 5, while using M2 in Tables 6 and 7. In Table 4 I use the Bank Assets ratio as a proxy for FSD. All the results report the R^2 and number of observations, while also the IV fixed effects estimators report the Hansen test statistic for over identifying restrictions, p-value (OIR).

The null hypothesis for the OIR, states that the instruments used are valid, and this test holds true in my analysis. For all my IV fixed effects results the null hypothesis for the OIR is not rejected, confirming the weight of my instruments.

4.1.Table 2: Private Credit and the Poverty Gap

Poverty gap is the log of the % of population living in households with consumption or income per person below the $1.25 poverty line. Private Credit is the log of financial resources provided to the private sector by domestic money banks as a share of GDP. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Personal remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects opinions of the likelihood the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions1 - 5 are estimated using panel fixed effects with robust standard errors, while regression 6 is estimated using the IV panel fixed effects estimator with clustered standard errors. All specifications report the R-squared, while on the other hand regression 6 reports the Hansen statistic of over identification restrictions.

	(1) Fixed Effects Poverty Gap	(2) Fixed Effects Poverty Gap	(3) Fixed Effects Poverty Gap	(4) Fixed Effects Poverty Gap	(5) Fixed Effects Poverty Gap	(6) IV Fixed Effects Poverty Gap
Private Credit	-0.213	-0.331	-0.282	-0.295	-0.338	-0.424
	(3.01)**	(3.94)**	(2.13)*	(2.21)*	(2.36)*	(2.96)**
Net-ODA	0.145	-0.021	-0.008	0.044	0.108	-0.030
	(3.10)**	(0.41)	(0.18)	(0.84)	(2.00)*	(0.53)
Economic Growth	0.015	0.027	0.014	0.019	0.010	0.021
	(1.50)	(2.23)*	(0.88)	(1.17)	(0.09)	(1.91)
Inflation	0.065	-0.062	-0.054	-0.009	-0.003	-0.076
	(1.57)	(1.58)	(1.60)	(0.33)	(0.13)	(1.72)
Political Stability		-0.166	-0.245	-0.316	-0.310	-0.165
		(2.20)*	(2.99)**	(4.22)**	(4.43)**	(2.04)*
Trade			-0.354	-0.429	-0.448	
			(2.14)*	(3.46)**	(3.81)**	
Government Expe			0.315	0.301	0.280	
			(1.13)	(1.31)	(1.20)	
Remittances			0.014	0.005	0.015	
			(0.35)	(0.15)	(0.44)	
Lag Schooling			-0.081	-0.099	-0.098	
			(2.04)*	(2.87)**	(2.97)**	
Population Gro				0.223	0.205	
				(1.89)	(1.58)	
Government Effectv				-0.505	-0.553	
				(2.83)**	(2.95)**	
Control of Corruption				0.032	0.035	
				(3.42)**	(4.24)**	
Pvt Credit*Eco Gro					0.020	
					(0.66)	
Net ODA*Eco Gro					-0.021	
					(1.30)	
_cons	2.888	3.571	4.303	3.652	3.760	
	(12.97)**	(14.91)**	(6.83)**	(5.66)**	(6.65)**	
R^2	0.14	0.20	0.43	0.53	0.55	0.19
N	319	183	108	108	108	171
OIR test(p value)						0.3674

* $p<0.05$; ** $p<0.01$

Private credit in the above models enters negatively significant to the poverty gap for all the regressions 1-6. First at $p < 1\%$ for regressions 1, 2 and 6 while secondly for regressions 3, 4 significant at the $p < 5\%$ level 5. This implies that financial development has strong to very strong impacts on poverty reduction. To control for endogeneity we employ the fixed effects estimation technique, and to control for reverse causality and omitted variable bias, we employ the use of the instrumental variable fixed effects estimator using internal instruments. The Hansen test which tests for the validity of the instruments, confirms the weight of our instruments, by failing to reject the null hypothesis which states that our instruments are valid.

To control for potential serial correlation I use clustered standard errors which are not only robust to heteroskedasticity, but also to within serial correlation. According to the results in Table 2, a 1% change in private credit can lead to between 0.213% to 0.424% reductions in the poverty gap. As for net ODA, its results prove insignificant to poverty reduction, though, while it's a welcome result to note that when we control for political stability the sign to the coefficient of net-ODA becomes negative, it is nonetheless insignificant. Only when we control for population growth, control of corruption and government effectiveness does the sign for insignificant coefficient becomes positive. This could be due to the contribution of corruption to poverty in SSA. Most SSA, countries are plagued by corruption at the highest levels of governance.

Of the 40 countries of study 37 countries are doing badly with respect to control of corruption, as according to the World Bank governance indicators these countries have poor governance performance. Economic growth, according to these results, doesn't contribute to reducing the poverty gap, most likely because of inequality and weak institutions that seemingly benefit the few grace to the high levels of corruption.

Inflation when controlling for political stability, assumes a negative insignificant impact on poverty gap, since under high inflation most basic services needs go beyond the reach of many poor people. On the other hand, not only does inflation erode the buying power of consumers, but it also erodes the wages of the poor, which more times than often are never adjusted for inflationary effects. Political Stability contributes to poverty alleviation, by assuring a sustainable and stable geopolitical atmosphere for the implementation of short and long term government policies in the fight against poverty.

Countries with stable political environments can plan and since there is continuity of government, there is more room for improved project implementation, crafting of long-term policies, and attracting foreign investors for long-term business ventures. Sustainable development can only be possible in countries with effective governments and stable political conditions, for example, looking at SSA, many of the countries are rocked in political conflicts and have a history of coups d'états. Countries which are doing better economically and in many respects in SSA, are those free from prolonged political conflicts, and whose governments are quite effective, namely South Africa, Namibia, and Botswana.

Another example will be looking at countries north of the Sahara which constitute the top ten biggest economies in Africa, and fair equally well on governance and institutional quality performance. For the other explanatory variables the results are the same as those for the impact of private credit on the headcount ratio in Table 3, namely schooling and government effectiveness, which consistently enter negatively significant to the poverty gap and the headcount even when controlling for possible effects of economic growth on the performance of private credit or net ODA as captured by the two interaction terms.

4.2. Table 3: Private Credit and the Headcount ratio.

The dependent variable is Headcount ratio, which equals the log of the % of the population living in households with consumption or income per person below the poverty line of $1.25. Private Credit is the log of financial resources provided to the private sector by domestic money banks as a share of GDP. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Personal remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects perceptions of the likelihood that the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions1-5 are estimated using panel fixed effects, while regression 6 is estimated using IV fixed effects estimator with. All specifications report the R-squared, while regression 6 reports the over identification restrictions statistic.

	(1) Fixed Effects Headcount	(2) Fixed Effects Headcount	(3) Fixed Effects Headcount	(4) Fixed Effects Headcount	(5) Fixed Effects Headcount	(6) IV Fixed Effects Headcount
Private Credit	-0.174	-0.219	-0.197	-0.212	-0.211	-0.231
	(3.85)**	(3.84)**	(2.07)*	(2.30)*	(2.19)*	(2.35)*
Net-ODA	0.100	-0.018	-0.028	0.003	0.044	-0.021
	(3.05)**	(0.50)	(0.88)	(0.09)	(1.20)	(0.56)
Economic Growth	0.006	0.017	0.007	0.009	0.035	0.013
	(1.12)	(2.09)*	(0.63)	(0.84)	(0.44)	(1.69)
Inflation	0.017	-0.044	-0.022	0.001	0.005	-0.055
	(0.93)	(1.50)	(1.12)	(0.05)	(0.33)	(1.66)
Political Stability		-0.088	-0.159	-0.223	-0.223	-0.094
		(1.81)	(2.91)**	(4.79)**	(4.98)**	(1.86)
Trade			-0.187	-0.228	-0.232	
			(1.67)	(2.75)**	(2.92)**	
Government Expe			0.241	0.239	0.233	
			(1.26)	(1.67)	(1.65)	
Remittances			0.014	0.007	0.015	
			(0.56)	(0.36)	(0.71)	
Lag Schooling			-0.059	-0.070	-0.070	
			(2.23)*	(3.08)**	(3.22)**	
Population Gro				0.189	0.170	
				(2.65)*	(2.08)*	
Government Effectv				-0.281	-0.293	
				(2.43)*	(2.35)*	
Control of Corruption				0.024	0.025	
				(4.03)**	(4.51)**	
Pvt Credit*Eco Gro					0.001	
					(0.04)	
Net ODA*Eco Gro					-0.014	
					(1.23)	
_cons	3.944	4.312	4.583	4.059	4.039	
	(28.75)**	(27.89)**	(9.52)**	(9.31)**	(10.88)**	
R^2	0.15	0.16	0.44	0.55	0.56	0.16
N	319	183	108	108	108	171
Over Identifying Restrictions test(p value)						0.3570

* $p<0.05$; ** $p<0.01$

Private credit in the above regression models enters significantly to headcount in all regressions 1–6 under both the panel fixed effects and dynamic panel estimator with errors robust to heteroskedasticity. A 1% increase in private credit will lead to a reduction in the headcount ratio by between, 0.17 % - 0.315% a range consisting of both the panel fixed effects and instrumental variable panel estimators. In using the instrumental variable fixed effects estimator to cancel out reverse causality, we apply lagged variables of explanatory exogenous variables as instruments, to get consistent and robust results. As in Table 2, to account for potential within serial correlation, I use clustered standard errors, which are robust to both heteroskedasticity and serial correlation. The Hansen test for over identifying restrictions accepts the null hypothesis, which holds to the assumption that our instruments are valid. Similarly, by using lagged variables in our model we get results that prove causality and not just a mere correlation between our dependent variables and independent variables.

The above results are significant even when controlling for the socio- economic and political environments in the corresponding countries covered by this study. The result is echoed when we control for population growth, control of corruption, political stability, remittances, schooling, FDI and trade. Interestingly, in regression 2 when we control for political stability net-ODA assumes a negative though insignificant result on the headcount and this result holds even under the dynamic panel estimator with the exception of regressions 4 and 5 when we control for government effectiveness and control for corruption. In these regressions government effectiveness enters negatively significant to the headcount implying a significant contribution to headcount reduction, while in the same regressions net-ODA and inflation assume positive insignificant results. This might imply that countries with relatively effective governments might not need social net ODA per see since the locally formulated policies of the government are

equally effective towards fighting poverty. Hence, given this countries should consider redirecting net ODA towards infrastructural development and stimulation of economic growth. Similarly, political stability enters negatively significant against the headcount at a 1% level from the 3rd to the 5th regression, implying the importance of stable political environments in formulating and enforcing meaningful and sustainable government policies in the fight against poverty. Additionally, schooling enters negatively significant to the headcount in regressions 3-5, making a point for improved education quality and access. In this model we use a lagged variable for schooling. It only makes sense to say the benefits of this year's gross tertiary enrollment will have effects in the coming years and not in this very same year per see. In tertiary enrollment SSA falls behind at 8.1%, according to the World Bank (2012, all income levels) while East Asia & Pacific stand at 30.7%, Middle East & North Africa at 33.9%, Latin America & Caribbean at 43%, Europe & Central Asia 63.1%.

Population growth as expected enters positively significant to the headcount ratio; this makes perfect sense in the case of Sub Saharan Africa, when population growth isn't followed by more job creation and improved access to social services for all. Of course the debate on the effects of population on poverty is still ongoing with the Neo-Malthusians arguing that reduced fertility rates play a part in poverty reduction. Joshi & Schultz (2007) found out that high fertility rates can and do act as a brick wall to poverty reduction and economic growth; though he remains skeptical about how strong this relationship is as opposed to neo Malthusian who purport that this is a very strong relationship (Joshi 2007)[21]. Similarly Canning & Schofield (2007) found that a birth every three years, greatly underplayed the role of females in labor force

[21] Joshi S., Schultz P. T. 2007 Family planning as an investment in development: evaluation of a program's consequences in Matlab, Bangladesh

participation by 20% (Canning 2007)[22]. In turn, this decline in income, in turn, would reduce the household expenditure, reducing consumption and thus pushing a great many homes into poverty. The results for the interaction terms for both private credit and net oda are insignificant to the headcount, though it is worth to note that for net ODA*Economic growth the coefficient is negative, nonetheless insignificant. This implies that the impacts of private credit and net ODA on headcount are not conditioned by economic growth, and since economic growth itself enters insignificant to the headcount, it only makes sense to conclude by saying that economic growth in SSA hasn't led to faster reductions in poverty. Inequality might be one of the reasons why economic growth hasn't translated into poverty reduction.

In most of SSA the cliché, the rich get richer while the poor get even poorer holds true in most respects, also partly due to high corruption levels as confirmed by the impacts of corruption on headcount, which stand positively significant. In most of SSA, countries have poor governance performance and as such weak corruption control as such corruption enters positively significant to the headcount ratio at a 1% level implying a strong relationship between corruption and poverty. According to the control of corruption index, of the 40 countries in this study only three countries (Botswana, Namibia and South Africa) have relatively good governance performance in the fight against corruption.

This reveals that SSA has quite a number of channels through which it can combat poverty, not only in the short run, but also in the long run. These results imply that given some good set of institutions and policies SSA can benefit from financial development, improved quality if education and increased trade.

[22] Canning D. E., Schofield H. 2007 The effect of fertility on female labor supply and household poverty in Indonesia

4.3.Table 4: Bank Assets and the Poverty Gap

Poverty gap is the log of the % of population living in households with consumption or income per person below the $1.25 poverty line. Bank assets ratio equals the log of bank capital and reserves to total assets as a % of GDP. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling (L.1.) is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects perceptions of the likelihood that the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions1 – 5, estimated using panel fixed effects, with robust standard errors while (6) reports IV fixed effects with clustered standard errors.

	(1) Fixed Effects Poverty Gap	(2) Fixed Effects Poverty Gap	(3) Fixed Effects Poverty Gap	(4) Fixed Effects Poverty Gap	(5) Fixed Effects Poverty Gap	(6) IV Fixed Effects Poverty Gap
Bank Assets	-0.222	-0.290	-0.301	-0.282	-0.311	-0.227
	(3.14)**	(3.48)**	(2.12)*	(1.88)	(2.03)*	(2.39)*
Net ODA	0.136	-0.023	0.002	0.046	0.125	-0.120
	(2.92)**	(0.43)	(0.04)	(0.81)	(2.31)*	(1.16)
Economic Growth	0.013	0.026	0.010	0.016	0.039	0.035
	(1.16)	(2.11)*	(0.61)	(0.97)	(0.40)	(2.02)*
Inflation	0.063	-0.070	-0.053	-0.012	-0.004	-0.086
	(1.53)	(1.82)	(1.55)	(0.38)	(0.14)	(0.52)
Political Stability		-0.170	-0.246	-0.306	-0.300	-0.082
		(2.23)*	(3.01)**	(3.96)**	(4.13)**	(0.51)
Trade			-0.307	-0.371	-0.378	
			(1.84)	(2.80)**	(3.06)**	
Government Exp			0.325	0.306	0.292	
			(1.18)	(1.31)	(1.25)	
Remittances			0.015	0.008	0.021	
			(0.36)	(0.21)	(0.56)	
L.1.			-0.087	-0.106	-0.104	
			(2.19)*	(3.01)**	(3.04)**	
Population Growth				0.207	0.175	
				(1.76)	(1.44)	
Government Effectiv				-0.501	-0.537	
				(2.77)**	(2.78)**	
Control of Corruption				0.021	0.023	
				(2.75)**	(3.51)**	
Private Credit*Eco Gro					0.011	
					(0.40)	
Net ODA*Eco Gro					-0.026	
					(1.87)	
_cons	3.000	3.584	4.229	3.527	3.553	
	(12.57)**	(14.13)**	(7.13)**	(5.18)**	(6.00)**	
R^2	0.13	0.17	0.44	0.52	0.54	0.22
N	319	183	108	108	108	78
OIR						0.9102

* $p<0.05$; ** $p<0.01$

For robustness checks, in the above regressions I use the bank assets ratio as a proxy for FSD. The bank assets ratio enters significantly to reduction in the poverty gap through equations 1 – 3 and 5-6. For regressions 1 and 2 the bank assets enters strongly significant to the poverty gap while for the last two regressions it enters significantly to the poverty gap. Given the model and specifications used I find that a 1% increase in the bank assets ratio will lead to between 0.22% to 0.31% reductions of the poverty gap.

As in Table 2 and Table 3, I find here that schooling and political stability continue to contribute significantly to poverty alleviation. Also, trade in these regressions contributes positively to poverty alleviation. The other explanatory variables, namely government expenditure, inflation, trade and remittances enter insignificantly to the poverty gap, but they retain their coefficient signs (+ or -) similar to those in tables 2 and 3. Similarly, we also control for the effects of the population growth, as the population size determines the demand of financial resources and other social services. Of significance is the fact that when we introduce government effectiveness and control of corruption the Bank Assets ratio is insignificant to poverty reduction at a 5% level. This might mean given strong institutions, the banks though significant at the 10% level their contribution to poverty reduction is down played by some other government initiatives.

Controlling for political stability is inspired by recent literature which studies the contribution of institutions to development and economic growth, a component in which most SSA countries still fall behind. According to the Fund for Peace, 70% of the 10 most failed states, are Sub-Saharan African countries. The significance of a stable political atmosphere in any country, can bring about investments, long term government projects and consistency in social service delivery to curtail poverty in developing countries. As such these results have strong policy

implications, as SSA looks at the post 2015 MDG's era.

4.4. Table 5: Bank Assets ratio and the Headcount ratio

The dependent variable is Headcount ratio, which equals the log of the % of the population living in households with consumption per person below the poverty line of $1.25. Bank assets ratio equals the log of bank capital and reserves to total assets as a % of GDP. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects perceptions of the likelihood that the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions1 – 5, estimated using panel fixed

	(1) Fixed Effects Headcount	(2) Fixed Effects Headcount	(3) Fixed Effects Headcount	(4) Fixed Effects Headcount	(5) Fixed Effects Headcount	(6) IV Fixed Effects Headcount
Bank Assets	-0.180	-0.187	-0.221	-0.211	-0.206	-0.399
	(4.14)**	(3.20)**	(2.18)*	(2.02) *	(1.98) *	(3.73)**
Net ODA	0.092	-0.019	-0.020	0.005	0.054	-0.016
	(2.79)**	(0.52)	(0.69)	(0.14)	(1.51)	(0.31)
Economic Growth	0.004	0.016*	0.004	0.007	0.048	0.017
	(0.68)	(1.96)	(0.34)	(0.62)	(0.67)	(2.19)*
Inflation	0.016	-0.049	-0.022	-0.001	0.005	-0.061
	(0.86)	(1.70)	(1.08)	(0.05)	(0.27)	(1.77)
Political Stability		-0.091	-0.158	-0.215	-0.215	-0.060
		(1.84)	(2.88)**	(4.33)**	(4.52)**	(0.93)
Trade			-0.150	-0.183	-0.185	
			(1.37)	(2.16)*	(2.35)*	
Government Exp			0.253	0.246	0.242	
			(1.34)	(1.70)	(1.72)	
Remittances			0.014	0.009	0.018	
			(0.57)	(0.40)	(0.80)	
L.1. Schooling			-0.062	-0.074	-0.074	
			(2.38)*	(3.19)**	(3.22)**	
Population Growth				0.178	0.153	
				(2.53)*	(2.03) *	
Government Effectiv				-0.277	-0.284	
				(2.34)*	(2.23)*	
Control of Corruption				0.016	0.018	
				(3.88)**	(4.43)**	
Private Credit*Eco Gro					-0.003	
					(0.13)	
Net ODA*Eco Gro					-0.018	
					(1.68)	
_cons	4.033	4.307	4.528	3.969	3.922	
	(28.38)**	(25.72)**	(10.55)**	(9.18)**	(10.99)**	
R^2	0.15	0.13	0.46	0.55	0.56	0.04
N	319	183	108	108	108	179
OIR						0.7073

effects, with robust standard errors while (5) reports IV fixed effects with clustered standard errors.

* $p<0.05$; ** $p<0.01$

In the above regressions we use the bank assets ratio instead of private credit as a proxy for financial development. The results are quite similar as in Table 2 and 3, I find that financial development reduces the headcount ratio, and this is through the direct impacts of financial development on the poor. Financial development helps facilitate credit access and by offering the poor a formal institution to store their incomes not only do the poor benefit from the loans to buy productive assets, or investing in their children's education, the poor can also earn interest on their savings.

In the above regressions a 1% increase in the bank assets ratio will translate to a decrease in the headcount ratio by 0.180% to 0.399%. Political stability and government effectiveness continue to be on the fore front of fighting poverty in SSA, interestingly schooling also plays a pivotal role and contributes significantly to fighting poverty in SSA. On the other hand a 1 unit improvement in Political Stability will lead to a 0.158% to 0.221% reduction in the headcount ratio. For schooling, a 1% increase in schooling will lead to a 0.062% to 0.074% reduction in the headcount, while a 1 unit increase in government effectiveness leads to 0.277 to 0.284 decrease in the headcount and all the above results hold when holding all other factors constant.

Since the headcount measures or basically counts the number of poor people as a fraction of those who are relatively richer at the $1.25 poverty line, the poverty gap becomes a better measure of poverty line it not only measures the number of the poor, but also by what margin they fall from the poverty line. Hence the poverty gap gives government and policy makers a more defined idea as to how much is needed to push people out of poverty.

Nonetheless, the headcount, since it's easier to use, it might not tell us how poor is poor, yet still an significant reduction in the number of poor people is still welcome news in SSA, a region that continues to be the poorest in the world, and lagging behind many regions in the achievement of the Millennium Development Goals. After having controlled for heteroskedasticity and endogeneity, we still find that financial development reduces the number of the poor people in SSA.

Furthermore these results are consistent even when we're controlling for country specific time variant effects, namely political stability, inflation, economic growth and the interaction terms. Economic growth fails to reduce the number of poor people in SSA, presumable because of inequality as I earlier on alluded, and this is just one of the ways we can explain this disturbing result, but since the main variable of study is not economic growth, this could be a subject for another time, which has to be studied along with its own relevant explanatory variables and relevant econometric models and assumptions.

Trade enters significant in the reduction of the headcount, and this could be another important channel that government s can build upon to stimulate economic growth and poverty alleviation as the poor have access to goods of better quality and also benefit from market competition that comes with trade. Additionally, like in the case of South Africa, many citizens of the SADC travel to South Africa to buy goods in bulk and return to their home countries to sell these good in their local markets. Hence improved trade policies and a reduction of import taxes and tariffs for certain sectors may benefit these cross border traders, by making reducing the costs they incur in cross border trade.

4.5.Table 6: M2 and the poverty Gap

The dependent variable is Headcount ratio, which equals the log of the % of the population living in households with consumption or income per person below the poverty line of $1.25. Money and quasi money comprise the sum of currency outside the banks, demand deposits other than those of the central government, and the time savings, and foreign currency deposits of resident sectors other than the central government as a % of GDP. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects perceptions of the likelihood that the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions 1 - 5 = panel fixed effects (6) IV fixed effects, with robust standard errors.

	(1) Fixed Effects Poverty Gap	(2) Fixed Effects Poverty Gap	(3) Fixed Effects Poverty Gap	(4) Fixed Effects Poverty Gap	(5) Fixed Effects Poverty Gap	(6) IV Fixed Effects Poverty Gap
M2	-0.527	-0.626	-0.496	-0.519	-0.552	-0.690
	(6.62)**	(4.34)**	(2.41)*	(3.96)**	(4.01)**	(3.32)**
Net ODA	0.166	0.092	0.005	0.036	0.120	0.047
	(2.83)**	(1.62)	(0.08)	(0.52)	(2.25)*	(0.85)
Economic Growth	0.023	0.013	-0.000	0.008	0.103	0.023
	(1.77)	(2.74)**	(0.00)	(0.56)	(1.00)	(1.69)
Inflation	0.098	-0.041	-0.044	-0.013	-0.006	-0.017
	(3.18)**	(1.12)	(1.24)	(0.44)	(0.21)	(0.35)
Political Stability		-0.117	-0.243	-0.290	-0.271	-0.057
		(1.75)	(3.04)**	(4.13)**	(3.69)**	(0.54)
Trade			-0.245	-0.246	-0.249	
			(1.50)	(1.96)	(1.83)	
Government Expenditure			0.338	0.280	0.282	
			(1.27)	(1.29)	(1.21)	
Remittances			0.047	0.025	0.042	
			(1.00)	(0.61)	(1.09)	
L.1. School			-0.086	-0.100	-0.095	
			(2.05)*	(2.90)**	(2.62)*	
Population Growth				0.235	0.119	
				(2.69)*	(1.03)	
Government Effect				-0.536	-0.556	
				(3.17)**	(2.66)*	
Control of Corruption				0.018	0.020	
				(2.27)*	(2.54)*	
Private Credit*Eco Gro					-0.009	
					(0.28)	
Net ODA*Eco Gro					-0.033	
					(2.23)*	
_cons	3.916	4.575	4.718	3.928	4.103	
	(12.52)**	(9.61)**	(7.15)**	(6.94)**	(7.97)**	
R^2	0.25	0.24	0.43	0.55	0.55	0.18
N	367	194	113	113	108	148
OIR						0.1951

* $p<0.05$; ** $p<0.01$

In the above regressions all the results are similar to the regressions we run of M2 on the headcount the only difference of note is that, M2 seems to contribute more to poverty gap reduction than a reduction in the headcount. A 1% increase in M2 leads to a 0.496% to 0.69% decline in the poverty gap compared to a 0.364% to 0.558% decline in headcount, holding all other factors constant. On the other hand coefficients for net ODA are all positive, for the above regressions while for the regressions of M2 on headcount, the coefficients in regressions 3 and 4 were negative. M2 is negatively and significantly related to the poverty gap.

Intuitively, this means that financial development significantly reduces the poverty gap, and these results are consistent when compared to results in Tables 2-5. For the control variables, economic growth enters positively significant to the poverty gap implying that, the economic growth in this model doesn't translate to poverty reduction in SSA. Failure for economic growth to translate to poverty gap reduction might be due to high inequality in income distribution. Interesting results to note, are the impacts of schooling on poverty gap, the results show that gross ratio of tertiary education enrollment, leads to significant declines in the poverty gap as already realized through previous regressions using private credit and the bank assets ratio as proxies for financial development.

Similar political stability leads to a reduction of the poverty gap, most likely because of government policy to fight poverty and improved wealth distribution. When people have confidence in the continuity of their government, even foreign investors are most likely to be attracted to such stable political environments, for long run business projects which ultimately benefit everyone beyond the usual elite few. Interestingly, when we interact Net ODA with Economic growth the results yield a negative significant impact of the interaction term on the poverty gap as in Table (M2 on headcount).

4.6.Table 7: M2 and the Headcount

The dependent variable is Headcount ratio, which equals the log of the % of the population living in households with consumption or income per person below the poverty line of $1.25. Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time savings, and foreign currency deposits of resident sectors other than the central government as a % of gdp. Net ODA equals the logarithm of the net official development assistance (ODA) as a % of GNI. Economic growth equals the % growth rate of real GDP per capita. Inflation is the log growth rate of the consumer prices during the sample period. Schooling is lagged variable of the gross enrollment ratio. Population growth (annual %) is the exponential rate of growth of midyear population, expressed as a percentage. Trade equals the logarithm of the share of exports plus imports relative to GDP. Remittances comprise the log of net personal transfers and compensation of employees from non-resident households. Political Stability reflects perceptions of the likelihood that the government will be destabilized. Corruption Control reflects perceptions of the extent to which public power is exercised for private gain. Government effectiveness is an index which reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation. The net ODA*Eco growth cap is the interaction term between Economic Growth and the log of net ODA. Pvt Credit*Eco growth is the interaction term between Economic Growth and the log of private credit. Regressions 1 - 5 = panel fixed effects, while 6= IV fixed effects with robust standard errors.

	(1) Fixed Effects Headcount	(2) Fixed Effects Headcount	(3) Fixed Effects Headcount	(4) Fixed Effects Headcount	(5) Fixed Effects Headcount	(6) IV Fixed Effects Headcount
M2	-0.364	-0.405	-0.364	-0.376	-0.378	-0.558
	(5.22)**	(4.21)**	(2.50)*	(3.80)**	(3.94)**	(4.37)**
Net ODA	0.124	0.055	-0.029	-0.011	0.052	0.060
	(2.86)**	(1.51)	(0.78)	(0.27)	(1.42)	(1.53)
Economic Growth	0.014	0.006	-0.001	0.004	0.088	0.016
	(1.55)	(2.27)*	(0.06)	(0.40)	(1.17)	(1.76)
Inflation	0.043	-0.035	-0.020	-0.002	0.004	-0.047
	(2.38)*	(1.43)	(1.03)	(0.12)	(0.21)	(1.70)
Political Stability		-0.050	-0.145	-0.176	-0.194	-0.032
		(1.18)	(3.37)**	(4.36)**	(4.28)**	(0.62)
Trade			-0.090	-0.092	-0.095	
			(0.82)	(1.05)	(1.07)	
Government Expenditure			0.243	0.207	0.237	
			(1.33)	(1.47)	(1.69)	
Remittances			0.034	0.021	0.032	
			(1.28)	(0.93)	(1.43)	
L.1. School			-0.059	-0.068	-0.067	
			(2.14)*	(2.91)**	(2.72)*	
Population Growth				0.144	0.115	
				(3.06)**	(1.54)	
Government Effect				-0.311	-0.298	
				(2.87)**	(2.21)*	
Control of Corruption				0.012	0.016	
				(2.57)*	(3.20)**	
Private Credit*Eco Gro					-0.015	
					(0.71)	
Net ODA*Econ Gro					-0.022	
					(2.02)*	
_cons	4.559	4.966	4.897	4.430	4.307	
	(18.25)**	(15.76)**	(9.79)**	(10.01)**	(11.94)**	
R^2	0.25	0.20	0.46	0.56	0.58	0.21
N	367	194	113	113	108	179
OIR						0.2116

* $p<0.05$; ** $p<0.01$

These results are consistent with the previous results in which we ran regressions on bank assets and the headcount ratio. In these regressions we use M2 as a measure of financial development while we retain headcount as a proxy for poverty. In regressions 1-5, we find that M2 reduces the headcount significantly. This implies that a 1% increase in the M2 will lead to a reduction in the headcount ratio by 0.364% to 0.558%. These results are robust to heteroskedasticity as we use robust standard errors, and control for any serial correlation by using clustered standard errors for regression (6). In terms of significance these results imply a very strong relationship between M2 and headcount as they are valid at $p<0.01$ for all regressions with the exception of regression 3, in which the results are significant at a 5% level.

To note is the contribution of schooling, political stability, and government effectiveness to reducing poverty proxied by the headcount. The contribution of government expenditure, remittances, trade still retains insignificance to poverty alleviation, in addition to net ODA, economic growth and inflation. Interestingly the interaction term between net ODA and Economic growth in regression 5, enters significant at a 5% level to poverty alleviation by contribution a 0.02% decline in poverty for every 1 unit increase in the interaction term. The contribution of schooling to poverty reduction in the above regressions is more or less similar to regressions when financial development was proxied by the bank assets ratio and private credit, with a range of 0.059% – 0.068% decline in poverty for every 1% increase in gross tertiary enrollment. These results hold when assuming ceteris paribus to the other explanatory variables. Net ODA doesn't reduce headcount, but when interacted with economic growth it does lead to significant reductions in the headcount ratio. This means that if Net ODA inflows are channeled towards productive sectors of the economy to the benefit of everyone, the poor will most likely benefit from the economic growth that follows.

It is quite interesting that, both Net ODA and Economic growth enter positively related to the headcount in regression, raising concerns of inequality and corruption, but these 2 variables when interacted they significantly contribute to the reduction of the headcount. The last result involving the interaction term is of course in line with the results of Burnside and Dollar, who used a much more advanced regression model, including institutional quality and policies, to prove that countries with a certain degree of institutional quality and policies benefit more from net ODA (AID) than countries with poor institutions (Burnside et Dollar 1997).[23]

5. Conclusion.

[23]Burnside and Dollar 1997, AID, policies and growth, WPS 1777.

Hence, by using three different proxies for financial development, we find that financial development does have direct impacts on poverty reduction beyond the impacts of economic growth and the contributions of net ODA and different macro-economic and political variables. Through all the proxies of financial development we used we find that financial development can reduce the number of poor people (headcount) and also the intensity of the poverty (poverty gap). Furthermore, these results have a number of policy implications, in that governments can try and push for financial sector liberalization to attract more foreign banks with large capital bases to into domestic markets, not only to increase competition, but also to improve the quality of service delivery, while at the same time benefiting, both local investors and savers, through improved and affordable borrowing interest rates and reasonable interest for the savers.

Similarly, the central banks in using the money supply, interest rates, open market rates and the federal funds rate can help the financial sector by determining the supply of financial services. Further to this the governments have to engage the civil society in educating people on financial matters, financial literacy is a must to any society in this present, modern and fast changing world we live in. Other channels to fight poverty include reforms that seek to improve the quality of education, at secondary education to assure continuity to tertiary level and beyond. By giving young people, or the general populace, good quality education the government ensures that, individuals are smart, employable and also have the necessary life skills to be innovative and start their own business ventures.

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