

A Quantitative Assessment of the Effect of Financial Development on Poverty in African Countries

By

Babajide Fowowe¹² and Babatunde Abidoye³

Abstract

Understanding the factors that are important in determining the rate of growth of poverty is one of the steps in the fight to eradicate poverty in the world. However, due to heterogeneity between regions and countries, these factors might vary between regions. This article examines the effect of financial development as measured by private credit on the growth of poverty and inequality in Sub-Saharan African countries. The empirical results indicate that this measure of financial development does not significantly influence poverty in these countries. However, macroeconomic variables such as low inflation and trade openness can help reduce the level of poverty.

1. Introduction

Research into the role that the financial sector plays in promoting economic growth has proliferated in the past quarter of a century⁴. The conclusion from most of these studies is that financial development enhances economic growth and consequently, policies that lead to a deepening of the financial sector have been advocated. Financial systems perform a number of functions through which they can lead to faster economic growth and Levine (2005) identifies five of such ways in which the financial sector enhances growth. These are: (i) the mobilization and pooling of savings; (ii) helping to trade, hedge, and pool risk; (iii) monitoring firms and exerting corporate governance; (iv) producing information and allocating capital; and (v) easing the exchange of goods and services. Through these functions the financial systems are able to attract deposits and ensure a better and more efficient allocation of resources which lead to growth of the economy.

Despite the numerous empirical investigations into the impact of financial development on growth, there is still a dearth of empirical research into how a more developed financial sector

¹ Department of Economics, University of Ibadan, Nigeria. Email: babafowowe@hotmail.com

² Corresponding author

³ Department of Economics, Iowa State University, USA. Email: babidoye@iastate.edu

⁴ Levine (2005) provides a comprehensive survey of both theoretical and empirical studies of the finance-growth nexus.

contributes to poverty reduction. There seems to be an implicit assumption in existing research that if financial development improves growth, then this automatically translates into a reduction in poverty. However, this is not necessarily true because among other things, faster economic growth does not always lead to a reduction of poverty because income distribution could be worsened and result in a disproportionate percentage of the gains from growth being transferred to the non-poor⁵. Also, as has been well documented, financial liberalizations have been identified as causes of financial crisis and an unstable macroeconomic environment (Kaminsky and Reinhart, 1999), and these have been identified as detrimental to the poor (Easterly and Fischer, 2001). World Bank (2001b) identifies three crucial areas for assessing the impact of finance on economic performance which are: its contribution to economic growth; its contribution to poverty reduction; and its ability to lead to economic stability. Besley and Burgess (2003) also posit that economic growth is not a sufficient condition for achieving the Millennium Development Goal (MDG) of halving global poverty, and that poverty can still be reduced in the absence of faster growth. They therefore advocate the development of other policy and institutional changes (financial development included) that can directly reduce poverty. In light of these therefore, it is important to examine separately the effects of financial development on poverty reduction.

The empirical literature on financial development and poverty is quite small when compared with that on financial development and economic growth. The few studies include Honohan (2004), Jeanneney and Kpodar (2005), Beck, Demirguc-Kunt and Levine (2007), Jalilian and Kirkpatrick (2005), Clarke, Xu and Zou (2003), and Quartey (2005). The main conclusions from these studies are that the deepening of the financial sector leads to a reduction in poverty. Of all these studies, however, only one (Quartey, 2005) examines an African country separately. All others lump both developing and developed countries together. A study that examines how financial development has affected poverty for a broad group of countries in Africa would be particularly insightful.

One of the justifications for this is high level of disparity in terms of ratio of population living below the \$1-a-day line between Sub-Saharan African (SSA) countries and other regions of the world (Besley and Burgess, 2003). In addition to this, Ram (1999), Andersen and Tarp (2003), and Jalilian and Kirkpatrick (2005) criticized the assumption of structural homogeneity made by cross-country studies and assert that running regressions using data for countries with different levels of development, that are also from different regions could lead to misleading results. Ram

⁵ Notwithstanding this fact, the bulk of existing empirical studies find that economic growth is pro-poor (Dollar and Kraay, 2001; Kraay, 2004; Besley and Burgess, 2003). World Bank (2001b:36) concludes that the empirical evidence is against a trade-off between faster economic growth and a worsening of income distribution.

(1999) tests the validity of such assumptions by re-estimating the King and Levine (1993) equations and splitting the samples into low-growth, mid-growth and high-growth samples, while also running regressions for the full sample. Their results for the full sample and high-growth sample show a positive and significant coefficient for financial development but it is negative and insignificant for the low- and mid-growth samples. Andersen and Tarp (2003) also re-estimate the Levine, Loayza and Beck (2000) equations by splitting the sample according to regions⁶. The results agree with Ram (1999) because for the full sample, financial development is positive and significant but its coefficient loses significance and eventually becomes negative as successive regions are excluded. Based on this evidence, it would be possible to get a better understanding of economic relationships by using countries with similar characteristics.

What we have done in this paper is to conduct an econometric analysis of the effect of financial sector development on poverty reduction in Africa. By using data for only countries in the African region, we hope to present a model that satisfies the structural homogeneity assumption. This is the first study we are aware of that has used data for a group of African countries to examine the relationship between poverty and financial development.

The rest of this paper is organized as follows: the next section provides an overview of the channels through which a developed financial sector is expected to affect the poor. Section 3 gives a brief background of financial development in SSA countries. The model is presented in section 4 and section 5 presents the estimation method and data description. The results of our empirical tests are presented in section 6. The final section concludes.

2. The Links between Financial Development and Poverty

The relationship between financial development and poverty could either be direct or indirect. The direct link refers to how the benefits of financial sector development are transferred to reducing poverty and income inequality while the indirect link shows how financial deepening exerts a positive effect on economic growth, and how the gains from growth are channeled to the poor.

There are a number of ways through which finance can directly affect poverty. Firstly, the development of the financial sector can ease the credit constraints hitherto faced by poor households and which limited their abilities to undertake productive investment. Increased access

⁶ The authors note that splitting the sample according to growth experience as done by Ram could present a selectivity problem.

to credit has the implication that poor households can now spend more on consumption and improve their welfare. Also, because now they do not need to rely on self-finance they can raise capital from financial intermediaries to engage in productive activities. On the down-side however, finance can have a debilitating impact on the poor if access to credit is limited to wealthy households thereby resulting in their incomes rising while those of the poor fall. In such a case, income inequality will increase. A related argument involves the work of Greenwood and Jovanovic (1990) who show that the relationship between income inequality and financial development takes on an inverted-U-shaped curve. According to them, in the early stages of development the poor will not be able to afford the initial set-up costs associated with accessing financial intermediaries and thus the benefits of enhanced financial intermediation will be felt only by the rich. This would result in a widening of income inequality and it is only over time that the poor will be able to afford such costs and access intermediaries. A similar scenario would happen if lending rates are high as this would restrict the numbers of the poor obtaining credit. For the few poor people that take out credit at high rates, there is the danger of moral hazard and adverse selection problems which would increase financial fragility.

Secondly, the broadening of the financial sector and subsequent entrance of new players enhances competition between financial intermediaries (Beck, Demirguc-Kunt and Levine, 2007). The banking systems in many developing countries are oligopolistic where a few banks virtually control all assets and face little or no competition. The increased competition in the financial sector as a result of financial development leads to a provision of better services and financial products which will improve the quality of lives of poor households.

Furthermore, because financial intermediaries help to pool and limit risk, the problems of asymmetric information peculiar to financial markets are reduced and this results in a more stable macroeconomic environment which is beneficial to the poor. Also, the special skills that financial intermediaries have of collecting information and monitoring borrowers will ensure that small-scale businesses who obtain loans are advised on best accounting practices and realistic business plans⁷. A developed financial system would also lead to better loan recovery rates because of an advanced supervisory and monitoring capacity.

Another way by which financial development can directly affect poverty relates to the abilities of bigger and more powerful financial intermediaries to bear the high costs of small credits (Rajan

⁷ This becomes very important in light of the fact that many small and medium scale enterprises do not have comprehensive business plans which leads to misapplication of loans in many cases (Amonoo et al., 2003, p.22). Amonoo et al. (2003) reports that about 26% of small business respondents do not keep records of any kind and only a similar percentage have business plans. Also, almost half (42%) of respondents had not undergone any form of training by attending workshops or seminars.

and Zingales, 2001). Chigumira and Masiyandima (2003) note that lending to the poor is more costly than to the rich and consequently, the marginal cost of lending to the poor is higher than that of lending to the rich (p.28). The financial intermediaries could bear such costs with the long-run in view assuming small and medium scale enterprises will graduate into large scale businesses in the future.

The indirect link between financial development and poverty reduction is through the effect of finance on economic growth. The expected positive effects of a developed financial sector on economic growth have long been outlined (Schumpeter, 1912; Keynes, 1930; Gurley and Shaw, 1955; McKinnon, 1973; Shaw, 1973; Galbis, 1977; World Bank, 1989; Pagano, 1993; Gibson and Tsakalatos, 1994; Levine, 2005). One of the ways in which financial development enhances growth is through the mobilization of funds from inefficient to efficient uses. Financial intermediaries that increase and operate under better conditions are able to channel funds efficiently from savers to investors in a cheap and efficient way. Also, better functioning financial intermediaries are able to attract more savings and the increase in savings makes it possible for more funds to be channeled into investment. A developed financial sector also facilitates trading, hedging, pooling and the diversification of risk, which allows the establishment of large projects that may have been impossible in its absence. Another way by which developed financial systems lead to faster growth is through the creation of liquidity by their actions of borrowing from savers on a short-term basis and lending to investors on a long-term basis. By bringing savers and investors together, financial intermediaries are able to reduce transactions and information costs. Such a positive relationship between economic growth and financial development is supported by a lot of empirical studies (King and Levine, 1993; Arestis and Demetriades, 1997; De Gregorio and Guidotti, 1995; Levine, Loayza and Beck, 2000; Beck, Levine, and Loayza, 2000; Ghirmay, 2004). These studies report a positive and significant coefficient for various indicators of financial development⁸.

If financial development improves economic growth, then it follows that if growth reduces poverty, financial development indirectly results in a reduction in poverty. Economic growth has been identified as a powerful force for poverty reduction and it has been observed that richer countries experience a fall in poverty (World Bank, 2001a). Economic growth can reduce poverty

⁸ However, there is an increasing number of empirical studies that find that finance does not exert such a strong and positive effect on economic growth (Rousseau and Wachtel, 2005; Ram, 1999; Andersen and Tarp, 2003; Favara, 2003). Other studies show that the development of the financial sector through financial liberalisation leads to financial fragility and banking crises (Demirguc-Kunt and Detragiache, 1999; Kaminsky and Reinhart, 1999); while still some studies claim that such crises only last in the short-run and financial development is growth-enhancing in the long-run (Kaminsky and Schmukler, 2002; Loayza and Ranciere, 2004; Tornell and Westermann, 2004).

either directly or indirectly (Arestis and Caner, 2004). Growth can impact directly on the poor by increasing the factors of production that they own and improving conditions in the sectors and regions where they live. The indirect benefits help in redistributing the higher incomes from growth and come from increased government revenues which are used for transfer payments and improving the resources of the poor. The empirical studies show that growth is beneficial to the poor (Dollar and Kraay, 2001; Besley and Burgess, 2003; Kraay, 2004).

Despite the benefits to be gained from a developed financial system, there are a number of criticisms of financial development as an instrument for poverty reduction⁹. One of such criticisms centers on the fact that financial development is synonymous with developing and attracting savings into formal financial institutions to the detriment of informal financial markets. But such measures could have adverse consequences for the poor due to the fact that informal markets are better placed to serve the needs of the poor (Chigumira and Masiyandima, 2003) and they traditionally finance all investment projects (Lensink, 1996). If financial reforms lead to a disproportionate development of formal financial markets, this could cause a substantial decline in credit available to the poor. Another point to note is that lending interest rates have been observed to increase when financial reforms are implemented. Increasing cost of funds discourages the poor from borrowing and crowds them out of the market for loanable funds. Formal financial intermediaries are also known for demanding stringent lending criteria such as collateral and information on past business records. Most poor households cannot fulfill such criteria and are consequently discriminated against and refused credit by banks. Furthermore, even in cases where financial intermediaries relax their lending criteria and are prepared to lend to the poor, in most cases the poor do not have enough information pertaining to the availability of loans and how to access them, thereby limiting the ability of financial development in reducing poverty.

3. The African Story

Sub-Saharan African countries like many countries of the world have gone through series of policies geared towards higher sustainable economic growth and improved welfare for its citizenry. However, some of these policies took them far away from these goals. The history of financial development in these countries captures aptly these failed policy thrusts.

⁹ See Gibson and Tsakalatos (1994) for an overview of the criticisms of financial liberalisation.

Following the end of the colonial era in the 1960s, the financial sectors in these countries were heavily regulated. This became necessary given that the formal financial sector were inefficient in providing credit to all sectors and areas of the country. In particular, the few banks at that period were mainly located in the urban areas and other sectors that were deemed unpromising were largely not extended credits by the banks. This led to high level of disparity in the growth of the sectors and also widened the disparity in the rural-urban areas. Government regulation and nationalization of the financial industry including direct government intervention in credit allocation by the financial sectors were some of the tools used to alleviate these problems. However, these policies led to financial repression and curtailed the growth of the sector (Gelbard and Leite, 1999).

Following the seminal papers by McKinnon (1973) and Shaw (1973) and similar research in the area of financial repression, many Sub-Saharan African countries adopted some form of financial liberalization. These reforms include interest rates liberalization and cutting back on directed credit. In many of these countries, adoption of financial liberalization was part of a larger program proposed by the World Bank and International Monetary Fund (IMF) to help improve these economies. The gain from the adoption of the liberalization policy in SSA countries since its adoption has been mixed.

Figure 1 presents a graph of the level of financial development for five regions¹⁰ including SSA countries as measured by private credit as a ratio of GDP using data from Beck, Demirguc-Kunt and Levine (2000). The figure shows no significant change in the level of financial development for SSA countries despite the adoption of financial liberalization. SSA countries have the lowest level of financial development relative to other regions. The countries in the Middle East and North Africa have also grown higher in terms of financial depth than the SSA countries since 1993.

Despite the high regulation and subsequent financial liberalization, banks and other formal financial institutions in SSA impose stringent regulation on credit to individuals and small scale firms. High collateral values are required for loans to individuals which results in a very slim likelihood of access to credit by the poor. This led to the development of the informal institutions and cooperative societies including *esusu* collectors (Soyibo, 1995 and Soyibo, 1996). These institutions primarily extend credit to individuals for consumption purposes and small scale businesses. Given this peculiarity of the SSA economy, we will expect that the direct effect of

¹⁰ High income countries were excluded from the groups used in the data.

financial development on the income of the poor will depend largely on the development of these informal financial institutions.

Similar story can be told of the level of poverty in the SSA countries. The percentage of the population living in households below poverty line has been relatively stagnant and high (Figure 2). This is in contrast to East Asia and the Pacific where the level of poverty has been falling since 1981. SSA countries also have the largest mean distance below the poverty line as a proportion of the poverty line as shown in figure 3.

The experience and pattern of development of SSA countries over the years can be said to be unique to the region and policies geared towards other developing countries might not necessarily be applicable to them. What we seek to achieve in this paper is to examine what factors are important in alleviating poverty and inequality in these countries.

4. Model

As described in section 2, the link between financial sector development and poverty can be either direct or indirect. In this section, we propose a poverty growth model that captures the dynamic behavior of poverty conditional on the level of financial development and other control variables. In light of this, we follow the papers of Beck, Demirguc-Kunt and Levine (2007) and Dollar and Kray (2001) by measuring poverty as the growth of the population living on less than \$1 a day, and the growth of the share of the lowest income quintile and also measure inequality as the growth of the Gini coefficient.

Formally, we assume that the outcome of interest for country i at a given period t depends on the initial value of the outcome plus some control variables and an error term. This results in a poverty growth equation of the form:

$$\dot{y}^p_{it} = \delta y^p_{i,t-1} + f_{it}\gamma + x'_{it}\beta + c_i + \varepsilon_{it}$$

For $i = 1, \dots, N$ and $t = 2, \dots, T$. Where \dot{y}^p_{it} is the log difference in the poverty measure, $y^p_{i,t-1}$ is the log of initial level of poverty measure, f_{it} is the measure of financial development, our primary variable of interest, and x_{it} is a vector of control variables. The sum of the unobserved country-specific effects (c_i) and the idiosyncratic shocks (ε_{it}) represents the decomposition of the error term.

In line with the economic growth literature and literature on poverty, the variables that are included in the vector x_{it} are used to control for other factors that can affect poverty growth. These control variables include the level of trade openness as measured by the sum of exports and imports as share of GDP, the growth rate of the GDP deflator over the sample period as an indicator of the rate of inflation and performance of the economy, level of initial life expectancy as a measure of initial human capital and socio-economic characteristics of the country and population growth. We expect *a priori* that openness should benefit the poor by giving them better access to goods and services, inflation and bad macroeconomic environment should be detrimental to the poor.

5. Estimation Method and Data Description

5.1 Model Estimation

There has been immense development in the methods used in analyzing panel data that are dynamic in nature over the last two decades. The study of growth patterns of countries has largely benefited from this advancement. The application of ordinary least squares methods and fixed effects models have been criticized given that the nature of the data can result in violation of the underlying assumptions of these methods which can lead to biased inference. The most prominent of these issues include the introduction of lagged dependent variable into the model that captures the full history of the variables in the model and small sample size issues which can lead to inconsistent estimates.

Generalized Method of Moment (GMM) estimation of dynamic panel data models proposed by Holtz-Eakin, Newey, and Rosen (1988) and developed by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) has been the toolbox used immensely in analyzing growth data recently. The model is developed to consistently analyze and estimate data with small time periods, models with independent variables that are not strictly exogenous and also data that are possibly plagued with measurement errors. This feature makes it highly attractive to practitioners estimating models for developing countries where the data might be error prone. In this paper, we apply the *Systems GMM* estimator of Arellano and Bover (1995) and Blundell and Bond (1998) that assumes that first differences of the instruments are uncorrelated with the fixed effects parameters which increases the number of possible instruments that can be used in estimating the parameters of the model. The GMM estimator is such that the estimates of the parameters in our model satisfy a set of moment conditions by minimizing the

quadratic distance given a weighting matrix. The optimal weighting matrix for the estimator has been shown to result in the *two-step* GMM estimator and is asymptotically efficient (see Hansen, 1982 and Chamberlain, 1987). Following Monte Carlo studies that indicate a downward bias in estimated asymptotic standard errors of the efficient two-step GMM estimator in finite sample, Windmeijer (2000) proposed a finite sample correction of the standard errors of the parameters by estimating the additional variation that leads to the bias and accounting for it in the standard error estimation. This was shown to lead to better inference of the parameter estimates. We will make use of these estimation procedures to estimate our model.

5.2 Variables and Data Description

In this study, our outcome of interest (poverty) is evaluated by measuring poverty as the proportion of the population living on less than \$1.25 a day, the income share of the lowest (20%) quintile and also measure inequality as the growth of the Gini coefficient. In this section, we will describe these variables and the source of the data.

Growth of the Proportion of the Population living below 1.25 dollar per day: These headcount data are derived from household surveys provided by the World Bank using a default poverty line of \$38.00 ("\$1.25 a day" line) per month at 2005 *purchasing power parity* (PPP). The online version of the data obtained through *povcalnet*, an interactive computational tool used to replicate estimates published by the World Bank's researchers was used. For SSA countries, this data is available for limited number of years which dictated the size of our panel data.¹¹ There has been wide variation in the level of poverty alleviation over the years. Countries in the region of East Asia and Pacific has been a experiencing a greater reduction in the proportion of the population that are poor since 1981. This is in contrast to SSA countries where the percentage of the population living below the poverty line has been relatively stable (Figure 2).

Growth of the Income Share of the Lowest (20%) Quintile: Here we define the poor as households with income level less than the income of the poorest 20% of the population. Given that this data is not readily available for our sample period for many of the SSA countries, we follow the procedure in Dollar and Kray (2002) by assuming a lognormal distribution for the log of per capita income with a mean as the average per capita income from household survey in 2005 PPP

¹¹ The data is available in three years interval from 1981 to 2005. Countries in our sample include Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo Rep, Cote d'Ivoire, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Niger, Nigeria, Rwanda, Senegal, South Africa, Swaziland, and Togo. Other SSA countries were excluded due to data availability.

and variance estimated using the properties of the lognormal distribution and the Gini coefficient.¹² This assumption results in the income share of the lowest (20%) quintile to be defined as $\Phi(\Phi^{-1}(0.2) - \sigma)$ (Dollar and Kray, 2002).

Growth of Gini: The data for the Gini index is also obtained from the World Bank through *povcalnet*. The calculation makes use of household surveys covering 116 countries between 1981 and 2005 with the 2005 PPP data derived from the results of the International Comparison Program (ICP). The procedure makes use of two alternative specifications of the Lorenz curve (general quadratic and beta Lorenz curve) in order to arrive at a better representation of the level of inequality.

Financial Development: To measure financial development, for SSA countries, a data that captures the development of the formal and informal financial system would have been appropriate for measuring the impact on poverty. The common proxy used in the literature (see Beck, Demirguc-Kunt and Levine, 2007 and Jalilian and Kirkpatrick, 2007) is the private credit defined as the value of credit by financial intermediaries to the private sector as a ratio of the GDP. This variable has been found to have a more robust and positive effect on economic growth than other measures of financial development (Levine et al., 2000). It has also been shown to be a more reliable proxy for financial development because it shows clearly the link between financial development and economic growth, as opposed to banking depth measures (Honohan, 2004).

The other variables such as trade openness as measured by ratio of exports and imports in total GDP, the rate of inflation, and life expectancy rate used in our estimation are from the World Development Indicators CD-ROM 2007.

6. Empirical Results

The results are presented in Table 2-4. Table 2 presents the results for the headcount equation, Table 3 presents the result for growth of income share equation and the result for the Gini index equation is presented in Table 4. In all the system GMM estimation models, the Hansen test of over-identifying restrictions is used to test the validity of the instruments used. Also, the

¹² The standard deviation of the distribution is defined as $\sigma = \sqrt{2} \cdot \Phi^{-1}\left(\frac{1+G/100}{2}\right)$ with G defined as the Gini index between 0 (equality) and 100 (richest person has all the income) and $\Phi(\bullet)$ the cumulative normal distribution function.

assumption of no second-order serial correlation for the system GMM estimator is tested and reported in the tables. These assumptions hold in all the models presented.

6.1 Growth of the Proportion of the Population Living Below \$1.25 Dollar per Day:

In Table 2, the first column shows the results of OLS estimates and the 3 subsequent columns are results of two-step System GMM estimates. The results show that the level of private credit in the economy, though negatively signed as expected, is not a significant determinant of poverty reduction in SSA countries. The result is also robust to different model specification. This result further supports the result in Jeanneney and Kpodar (2005) that the channel through which financial development affect poverty in developing countries is probably not through private credit. As in Beck, Demirguc-Kunt and Levine (2007), we also control for the growth in mean income in order to separate the effect of financial development on poverty and growth. The results suggest that growth in mean income and subsequent economic growth is an important determinant of poverty reduction in SSA countries.

In columns (2) and (3), the coefficients on the initial level of headcount and level of trade openness are as expected, with trade benefitting the poor and increased proportion of people living below the poverty rate leading to a reduction in the poverty headcount. In unreported regression, controlling for population growth does not significantly alter our results.

6.2 Growth of the Lowest Income Share:

The results presented in Table 3 further supports the fact that private credit as a measure of financial development does not significantly affect the poor in SSA. This result is robust to all the different controls used. In column (2) where we control for initial income share, trade openness, rate of inflation, and initial life expectancy, the effect of private credit on the share of income of the lowest quintile is not significantly different from zero. However, countries with low initial income share are more likely to gain more than average with international trade and openness of the economy being beneficial to the poor. Inflation affects the poor as we expect. This result is consistent with Beck, Demirguc-Kunt and Levine (2007) except for the measure of financial development that is not significant. The result further holds when we control for per capita GDP growth and allow interaction between initial income share and per capita GDP growth. Trade

openness consistently favors the poor and inflation reduces the growth of income of the lowest share.

6.3 Growth of Gini Index:

Finally, we look at the effect of financial development on inequality in SSA countries. The results in Table 4 also indicate that private credit does not significantly influence inequality. Initial Gini enters negatively and significant indicating that countries with a high level of initial inequality will tend to experience speedy shrinkage in the level of income inequality. This result is also robust when we control for macroeconomic variables and human capital development. International Trade is also good for reducing the inequality gap while inflation benefits the rich more. The result on the effect of growth of per capita GDP and its interaction with initial income are also consistent with Beck, Demirguc-Kunt and Levine (2007) where they do not significantly affect inequality level in SSA countries.

7. Conclusion

One of the primary purposes of this paper was to empirically examine the impact of financial development on poverty in SSA countries. This is in contrast to other studies in the literature that lumps countries in different regions with different level of development and background in their analysis. This assumption of structural homogeneity across countries in different regions and background can lead to misleading inference.

In addressing this, we measured financial development as the ratio of private credit to GDP. Our results show that this measure of financial development does not significantly influence poverty in SSA countries. However, macroeconomic variables such as low level of inflation and international openness seem to favor the poor in these countries. This study provides an initial pass at the study of financial development and poverty which can be improved upon. One of these areas is the development of a financial development index that will capture the development of both the informal and formal financial sectors in the SSA countries.

References

- Amonoo, E., Acquah, P.K. and Asmah, E.E. (2003) The Impact of Interest Rates on Demand for Credit and Loan Repayment by the Poor and SMEs in Ghana, *IFLIP Research Paper 03-10*, International Labor Organization.
- Andersen, T.B. and Tarp, F. (2003) Financial Liberalization, Financial Development and Economic Growth in LDCs, *Journal of International Development*, vol.15, issue2, pp.189-209.
- Arellano, M., and S. Bond. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Econometric Studies* 58: 277–297.
- Arellano, M. and Bover, O., (1995). Another look at the instrumental-variable estimation of error-components models. *Journal of Econometrics* 68, pp. 29–52.
- Arestis, P. and Demetriades, P. (1997) Financial Development and Economic Growth: Assessing the Evidence, *Economic Journal*, 107, pp.783-799.
- Arestis, P. and Caner, A. (2004) Financial Liberalization and Poverty: Channels of Influence, *Levy Economics Institute Working Paper no. 411*.
- Beck, T., Levine, R. and Loayza, N. (2000) Finance and the Sources of Growth, *Journal of Financial Economics*, 58, pp.261-300.
- Beck, T., Demirguc-Kunt, A. and Levine, R. (2007), Finance, Inequality and the Poor, *Journal of Economic Growth*, 12, pp.27-49.
- Besley, T. and Burgess, R. (2003) Halving Global Poverty, *Journal of Economic Perspectives*, vol.17, no.3, pp.3-22.
- Blundell, R. and Bond, S. (1998) Initial conditions and moment restrictions in dynamic panel data models, *Journal of Econometrics*, Volume 87, Issue 1, 24 August, Pages 115-143.
- Chigumira, G. and Masiyandima, N. (2003) Did Financial Sector Reform Result in Increased Savings and Lending for the SMEs and the Poor?, *IFLIP Research Paper 03-7*, International Labor Organization.
- Clarke, G., Xu, L.C. and Zou, H. (2003) Finance and Income Inequality: Test of Alternative Theories, *World Bank Policy Research Working Paper 2984*, Washington D.C.: World Bank.
- De Gregorio, J. and Guidotti, P.E. (1995) Financial Development and Economic Growth, *World Development*, vol.23, no.3, pp.433-448.
- Demirguc-Kunt, A. and Detragiache, E. (1999) Financial Liberalization and Financial Fragility, in *Annual World Bank Conference on Development Economics 1998*, B. Pleskovic and J.E. Stiglitz (eds.), Washington D.C.: World Bank.
- Dollar, D. and Kraay, A. (2001) Growth is Good for the Poor, *World Bank Policy Research Working Paper 2587*, Washington D.C.: World Bank.
- Easterly, W. and Fischer, S. (2001) Inflation and the Poor, *Journal of Money, Credit and Banking*, vol.33, no.2, part 1, pp.160-178.
- Favara, G. (2003) An Empirical Reassessment of the Relationship Between Finance and Growth, *IMF Working Paper WP/03/123*, Washington D.C.: International Monetary Fund.
- Galbis, V. (1977). Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach. *Journal of Development Studies*, vol. 13, pp.58-72.

- Gelbard, E. and Leite, P. (1999) Measuring Financial Development in Sub-Saharan Africa, IMF Working Paper, Washington D.C.: International Monetary Fund
- Ghirmay, T. (2004) Financial Development and Economic Growth in Sub-Saharan African Countries: Evidence from Time Series Analysis, *African Development Review*, vol.16, issue3, pp.415-432.
- Gibson, H.D. and Tsakalatos, E. (1994) The Scope and Limits of Financial Liberalization in Developing Countries: A Critical Survey, *Journal of Development Studies*, vol.30, no.3, April, pp.578-628.
- Greenwood, J. and Jovanovic, B. (1990) Financial Development, Growth, and the Distribution of Income, *Journal of Political Economy*, vol.98, issue5, part1, pp.1076-1107.
- Gurley, J.G. and Shaw, E.S. (1955). Financial Aspects of Economic Development. *American Economic Review*, vol. 45, September, pp.515-538.
- Holtz-Eakin, D., Newey, W. and Rosen, H.S., (1988). Estimating vector autoregressions with panel data. *Econometrica* **56**, pp. 1371–1396
- Honohan, P. (2004) Financial Development, Growth and Poverty: How Close are the Links?, *World Bank Policy Research Working Paper 3203*, Washington D.C.: World Bank.
- Jalilian, H. and Kirkpatrick, C. (2005) Does Financial Development Contribute to Poverty Reduction? *Journal of Development Studies*, vol.41, no.4., pp.636-656.
- Jeanneney, S.G. and Kpodar, K. (2005) Financial Development, Financial Instability and Poverty, *CSAE Working Paper WPS/2005-09*, Oxford: Centre for the Study of African Economies.
- Kaminsky, G.L. and Reinhart, C.M. (1999) The Twin Crises: The Causes of Banking and Balance-Of-Payments Problems, *The American Economic Review*, vol.89, no.3, pp.473-500.
- Kaminsky, G.L. and Schmukler, S.L. (2002) Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization, *World Bank Policy Research Working Paper no.WPS2912*, Washington D.C.: World Bank.
- Keynes, J.M. (1930) *Treatise on Money*, London: Macmillan.
- King, R.G. and Levine, R. (1993) Finance and Growth: Schumpeter Might be Right, *Quarterly Journal of Economics*, vol.108, no.3, pp.717-737
- Kraay, A. (2004) When is Growth Pro-Poor? Cross-Country Evidence, *IMF Working Paper WP/04/47*, Washington D.C.: International Monetary Fund.
- Lensink, R. (1996) The Allocative Efficiency of the Formal versus the Informal Financial Sector, *Applied Economics Letters*, vol.3, no.3, pp.163-165.
- Levine, R. (2005) Finance and Growth: Theory and Evidence, in *Handbook of Economic Growth*, P. Aghion and S. Durlauf (eds.), vol.1, Part A, pp.865-934, The Netherlands: Elsevier Science.
- Levine, R., Loayza, N. and Beck, T. (2000) Financial Intermediation and Growth: Causality and Causes, *Journal of Monetary Economics*, 46, pp.31-77
- Loayza, N. and Ranciere, R. (2004) Financial Development, Financial Fragility, and Growth, *Working Paper no WPS3431*, Washington D.C.: World Bank.
- McKinnon, R.I. (1973). *Money and Capital in Economic Development*. Washington D.C.: The Brookings Institution
- Pagano, M (1993), Financial Markets and Growth: An Overview, *European Economic Review*, vol.37, pp.613-622.

Povcal Net (<http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp>).

Quartey, P. (2005) Financial Sector Development, Savings Mobilization and Poverty Reduction in Ghana, *UNU-WIDER Research Paper No.2005/71*, Helsinki: UNU World Institute for Development Economics Research.

Ram, R. (1999). Financial Development and Economic Growth: Additional Evidence. *The Journal of Development Studies*, vol.35, no.4, pp.164-174.

Rajan, R.G. and Zingales, L. (2001) The Great Reversals: The Politics of Financial Development in the 20th Century, *NBER Working Paper 8178*, Cambridge: National Bureau of Economic Research.

Rousseau, P.L. and Wachtel, P. (2005) Economic Growth and Financial Depth: Is the Relationship Extinct Already?, *Discussion Paper No. 2005/10*, Helsinki: UNU World Institute for Development Economics Research.

Schumpeter, J.A. (1912). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge: Harvard University Press.

Shaw, E.S. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.

Soyibo, A. (1996). *Financial Linkage and Development in Sub-Saharan African: The Role of Formal Financial Institutions in Nigeria*. Working Paper 88, Overseas Development Institute, London.

Soyibo, A. (1995). *Financial Linkage and Development in Sub-Saharan African: A study of the Informal Financial Sector in Nigeria*. Working Paper 88, Overseas Development Institute, London.

Tornell, A. and Westermann, F. (2004) The Positive Link Between Financial Liberalization, Growth and Crises, *CESifo Working Paper no.1164*.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics* 126: 25-51.

World Bank (1989) *World Development Report*, New York: Oxford University Press.

World Bank (2001a) *World Development Report 2000/2001: Attacking Poverty*, New York: Oxford University Press.

World Bank (2001b) *Finance for Growth: Policy Choices in a Volatile World*, New York: Oxford University Press.

Table 1 Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Growth in Gini	216	-0.00295	0.059518	-0.26262	0.32576
GDP per capita growth	239	0.009425	0.119944	-0.45585	0.296157
Growth of lowest income share	216	0.013641	0.122494	-0.47755	0.7407
Growth of headcount	216	-0.02723	0.224022	-1.30281	0.999695
Private Credit	217	0.15653	0.113817	0.01689	0.653924
Growth of mean income	216	0.031188	0.177763	-0.51213	1.168869

Table 2: Finance (Private Credit) and Poverty (Growth of Headcount)

	(1)	(2)	(3)	(4)
	OLS	System GMM	System GMM	System GMM
Private Credit	-0.011 (0.015)	-0.030 (0.094)	-0.057 (0.087)	-0.056 (0.046)
Initial Headcount	0.0002 (0.0003)	-0.004 (0.001)	-0.003 (0.001)	-0.001 (0.001)
Trade openness	0.018 (0.017)	-0.105 (0.057)	-0.139 (0.054)	-0.019 (0.09)
Inflation	-0.0001 (0.001)	-0.002 (0.005)	-0.0002 (0.005)	-0.003 (0.004)
Initial Life Expectancy	0.0002 (0.002)		0.013 (0.008)	0.002 (0.005)
Growth in Mean Income	-1.152 (0.206)			-1.489 (.398)
Constant	-0.110 (0.106)	0.589 (0.271)	-0.084 (0.597)	-0.084 (0.522)
R-squared	0.68			
AR(2) test (P)			0.616	0.223
Hansen Test (P)			0.937	0.939

Note: The dependent variable is growth of headcount. Bold values are significant at 10% level. Standard errors reported are Windmeijer corrected Standard errors.

Table 3: Finance (Private Credit) and Poverty (Growth of Lowest Income share)

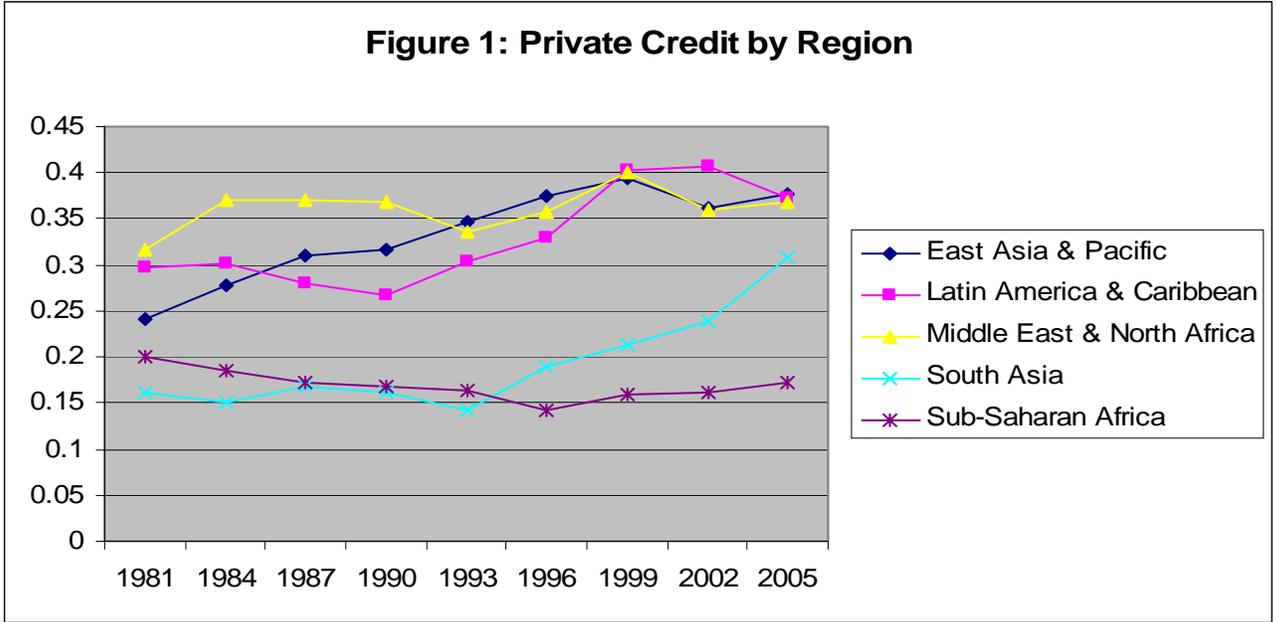
	(1)	(2)	(3)	(4)
	OLS	System GMM	System GMM	System GMM
Private Credit	-0.008 (0.016)	-0.068 (0.058)	-0.097 (0.068)	-0.094 (0.106)
Initial Income Share	-0.091 (0.018)	-0.133 (0.068)	-0.108 (0.075)	-0.133 (0.068)
Trade openness	0.001 (0.018)	0.156 (0.067)	0.224 (0.099)	0.205 (0.082)
Inflation	-0.001 (0.001)	-0.006 (0.002)	-0.007 (0.002)	-0.005 (0.002)
Initial Life Expectancy	-0.003 (0.001)	-0.006 0.009	-0.008 (0.014)	-0.007 (0.014)
Growth of Per Capita GDP	-0.254 (0.218)		-0.153 (0.072)	0.386 (0.971)
Growth of Per Capita GDP * Initial income				0.168 (0.296)
Constant	-0.120 (0.109)	-0.811 (0.524)	-1.01 (0.773)	-1.022 (1.028)
R-squared	0.66			
AR(2) test (P)		0.110	0.232	0.276
Hansen Test (P)		0.858	0.977	0.971

Note: The dependent variable is growth of share of income of the lowest quintile. Bold values are significant at 10% level. Standard errors reported are Windmeijer corrected Standard errors.

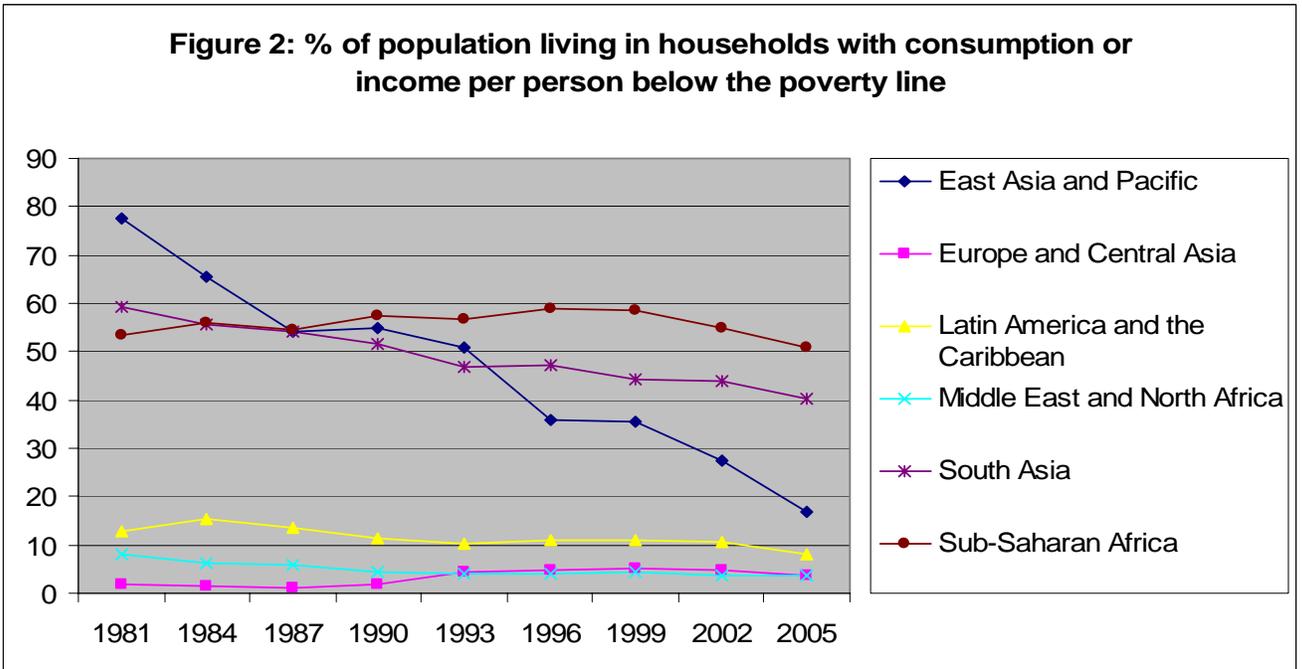
Table 4: Financial Development (Private Credit) and Inequality (Gini Index)

	(1)	(2)	(3)	(4)
	OLS	System GMM	System GMM	System GMM
Private Credit	0.003 (0.009)	0.024 (0.039)	0.010 (0.033)	0.038 (0.054)
Initial Gini	-0.086 (0.021)	-0.061 (0.069)	-0.075 (0.092)	-0.088 (0.098)
Trade openness	-0.001 (0.010)	-0.086 (0.049)	-0.128 (0.058)	-0.152 (0.064)
Inflation	0.001 (0.001)	0.003 (0.002)	0.003 (0.001)	0.004 (0.002)
Initial Life Expectancy	0.066 (0.041)		0.387 (0.307)	0.009 (0.007)
Growth of Per capita GDP	0.138 (0.123)			0.119 (1.121)
Growth of Per Capita GDP * Initial Gini				-0.009 (0.292)
Constant	0.065 (0.169)	0.605 (0.319)	-0.714 (1.147)	-0.673 (1.441)
R-square	0.54			
AR(2) test (P)		0.422	0.537	0.516
Hansen Test (P)		0.914	0.926	0.946

Note: The dependent variable is growth of Gini index. Bold values are significant at 10% level. Standard errors reported are Windmeijer corrected Standard errors.

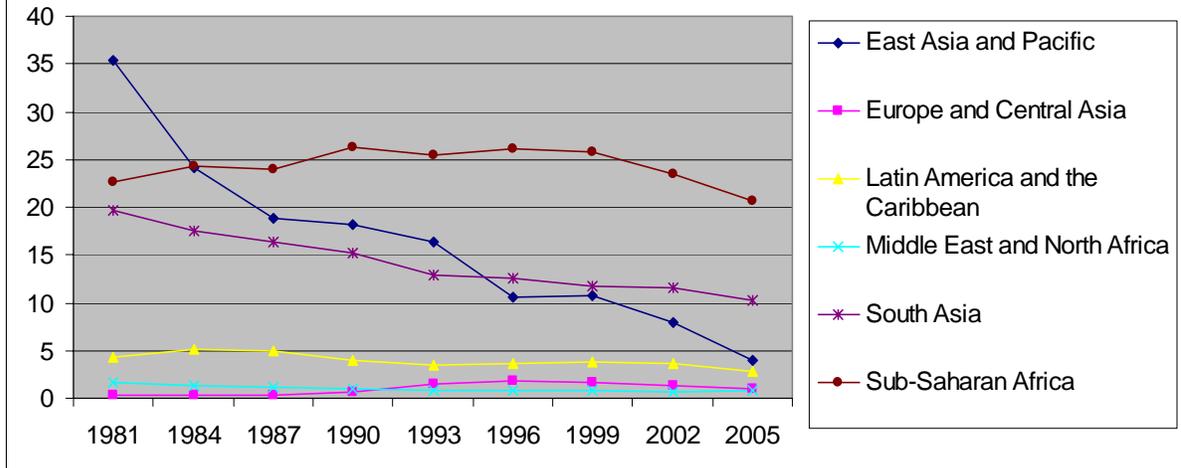


Source: Beck, Demirguc-Kunt and Levine (2007)



Source: World Bank website using *polvcalnet*.

Figure 3: Mean distance below the poverty line as a proportion of the poverty line (PG)



Source: World Bank website using polvcalnet.