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The Economic Impact of Increased Access to Commercial Banks in Ethiopia

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Abstract

Savings rates are strongly predictive of future economic growth and, for several reasons, it is difficult to save in areas where resources are scarce. Increasing access to financial services is crucial to efficiently allocate funds and can help even small savings be invested in countries that historically have had lower financial development. This paper examines to what level increased access to banks can help reduce poverty in Ethiopia. Even if scarcity of private financial resources on its own is an obstruction, several other barriers to access and save in financial institutions exists. To improve the requisites for economic development by enabling access to basic banking services to more people and implement development agendas, this paper will present the effect of a higher presence of commercial banks.

Using panel data uniquely identifying individuals in Ethiopia observed in two periods, we have studied the relationship between the higher presence of commercial banks and household expenditure. From this procedure it appears that gaining access to a commercial bank has a substantial impact on the household level consumption. The finding show that communities with physical access to a bank have significantly higher consumption levels than communities with no bank, suggesting considerable benefits for the overall economy.

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1 Introduction

In Sub-Saharan Africa less than 25% of adults have access to financial services. The lack of access to financial services is a key constraint to growth. Without access to financial services people miss opportunities to save money, transfer money in a smooth way and access to credit and insurance. Without savings and insurance people are more vulnerable to shocks. Access to finance is therefore important for reducing poverty and increasing growth (Stein, 2013).

This paper will investigate to what extent an increased presence of local commercial banks can help growth in the economy. We will measure this effect from observations in Ethiopia with data provided from the World Bank.

Ethiopia is located on the horn of Africa, is landlocked and has no port. It is the second most populated country in Africa and also one of the poorest. However, it is the fastest growing economy in the region (World Bank, 2019). The national bank of Ethiopia was established 1963 and began to operate in 1964 (National Bank of Ethiopia, 2020). Today there are 18 banks in Ethiopia and 17 of them are commercial banks (Asoko Insight, 2018). The presence of the commercial banks has increased rapidly, between 2011 and 2016, the population share of which had access to a commercial bank in their community went from 5.4% to 26.5%. In 2014, 22% of the low-income population in Ethiopia (over 15 years old) had a bank account, compared to 2017 when 35% of the same population had a bank account. The largest change was among males, where 23% of the males in the low income population (over 15 years old) had a bank account in 2014 compared to 2017 when 41% of the males in the same population had a bank account. Among females the numbers went from 21% in 2014 to 29% in 2017 (Global Findex Database, 2017).

In line with these changes of financial measures, the poverty level has decreased to a great extent. In the year 2000 Ethiopia had one of the highest rates of poverty in Africa but have since seen a rapid decrease in these means. Besides Uganda, Ethiopia now has the fastest reduction rate of poverty in Africa. During these last 20 years Ethiopia has also experienced a large reduction of child mortality, HIV/AIDS and malaria, having led to a higher life expectancy. In this paper, we hope to conclude that access to financial institutions will have a positive effect on economic growth by studying the change in household expenditure.

Although some studies have examined financial inclusion in Ethiopia (Bessir, 2018; Baza & Rao, 2017; Desalegn & Yemataw, 2017), there is more to discover about how financial inclusion affects economic growth and poverty. In the current state of knowledge, we have identified a gap in the research in one particular area: to investigate to what extent access to commercial banks will help reduce poverty. There are studies for Uganda (Kasirye, 2007) and Kenya (King, 2012) that examines the effect of distance to financial institutions but to our knowledge, there are none made for Ethiopia. We will also contribute with research on panel data of access to finance (in terms of distance to bank) which has not been examined before for the years 2011 - 2016. The hypothesis that this paper seeks to investigate is that whether increased presence of local physical bank offices will help poverty reduction.

To make this hypothesis statistically verifiable, we will use household expenditure as a proxy for measuring the level of poverty. An increase in expenditure would with increased tax revenues lead to increased income for the government, which could help reduce poverty. A greater level of consumption could also cause a better well-being for the household.

The economic gains from having access to a bank can be quantified in different aspects, there are several services that a bank office provide its clients that may impose positive effect to the overall economy. These services contain both the saving and storing of money as well as transactional management. In unbanked areas, a common way to manage and transfer money is to conduct this physically. Compared to more mobile solutions, this includes high transportations costs, excessive time consumption and risk of thievery. Roads are generally in poor condition in rural areas, where financial exclusion is highest, and transportation can be troublesome. A frictionless way to transfer money could therefore save time and contain less risk (Mbiti & Weil, 2011).

Other than the way of transferring money, the method of saving is a key factor in determining the economic growth rate. According to the Harrod Domar Model, increased savings leads to increased investments that generates a higher capital stock that results in higher economic growth. A bank account could work as a foundation for a more preferable type of saving, compared to less formal ways, as it is reduces the risk of theft and the incentives to use the money to inessential consumption (De Janvry & Sadoulet, 2016). Having a bank in the community would increase the incentives to open a bank account, as 20% of the people without

a bank account in Ethiopia cited the distance to the bank as the main reason why they didn't have an account (Bessir, 2018). In the survey providing this paper with data, respondents were asked why they did not have a bank account. The most cited answer for not opening a bank account was that they did not know where to open the account (World Bank, 2016). The lack in use of a formal bank account is creating financial exclusion.

Financial exclusion is a broad concept that refers to the lack and use of various financial services. This excludes people that are unbanked from using financial products to manage their money in order to save for the future or invest in businesses. There is no clear and easy way to measure the level of financial exclusion and the direct effect of financial inclusion. In this paper we will investigate the effect by examine the results from a regression constructed as a first difference model.

The purpose of this study is to see if access to banking services will cause higher household expenditure. We believe that a higher expenditure among households will lead to growth. By increasing growth, the country will develop, which may lead to several advantages such as decrease in poverty, increase in female empowerment and lower unemployment.

The rest of the paper is organized as follows: section 2 provides the literature review where we give a background to other studies within this field and section 3 describes our theoretical framework including models used for analysis. The data and statistical methods are found in section 4 and 5. The results are displayed in section 6 followed by discussion and conclusion in section 7 and 8.

2 Literature Review

The Global Findex is the world's most comprehensive data set on how people save, borrow, make payments and manage risk. From the Global Findex several researches have been conducted in the area of financial inclusion in Ethiopia. One research done by Bessir (2018), where 10 takeaways from the latest Findex is presented. Bessir writes that Ethiopians rely more on informal institutions for saving and borrowing money. The paper written by Bessir describes how the gender gap is widening which could also be found in the Global Findex Database.

The gender gap describes the difference in men and women reflected in different areas in society. It is reflected in social, cultural, intellectual, political or economic terms or attitudes. When mentioning the gender gap in this paper, we refer to this in economic terms.

When disclosing and commenting on the lack of technology based finance in Ethiopia, Bessir claims that the reason for the high usage of cash instead of mobile transfers is probably not due to low mobile phone prescription. This since there were 37 million mobile subscribers in 2017 but only 0.32 million of the population had a mobile bank account. He suggests that there must be another underlying reason for the low penetration of mobile financial institutions. Bessir states that “financial services are not meant for the poor” is a common belief among the poor adults in Ethiopia. Distance and lack of documentation seems to be other barriers for financial inclusion as 20% and 11% respectively stated this as a reason for not having a bank account. According to Bessir the cost of opening an account seems to be less of a problem as the fee is usually less than a dollar.

Bruhn and Love (2009) investigated the economic impact of banking the unbanked in Mexico. The result of the research was that providing the poor with financial access can have a positive effect on economic activity. They claim that access to finance has a positive correlation with growth, thus decreasing poverty.

Honohan (2004) examines in his report, together with The World Bank, whether financial development, growth and poverty are closely linked. He finds that financial growth is related to reduced poverty. Burgess, Pande and Wong (2005) find similar results when they examine banking for the poor in India. They realize that rural bank expansion lowered the poverty in rural areas in India. Another paper from Burgess and Pande (2004) states that rural bank expansion increases growth and that increased savings and access to credit are linked to reduced poverty.

Similar research has been conducted in Nepal by Prina (2013) who discovered that an access to a bank account without fees increased the savings by the poor and more investments were allocated in health and education. The increased savings could be used against unexpected shocks that otherwise would have been very burdensome for households to manage.

From the different papers from India, Mexico and Nepal we can conclude that access to saving accounts has increased growth and reduced poverty in some areas.

2.1 Literature on access to finance in Ethiopia

Other research about financial inclusion in Sub-Sahara have been carried out in vaguely different domains. Stein (2013) conducted a report about access to finance in the Sub-Saharan countries together with The World Bank. In his report he describes the importance of access to finance and says that “Access to finance is critical to unlocking Africa’s great growth potential, and to make sure economic growth is enjoyed by all” (Stein, 2013 p.1). He declares the different impact and outcomes that IFC’s, International Finance Corporations, projects had in these countries. IFC is a global development institution which targets the private sector exclusively and has conducted several projects in Ethiopia. Two of which are of particularly value in this context. One, where Ethiopian banks participated to help increase access to financial services to farmers and another one referred to as the Warehouse Recipient project. The ambition of the project with bank participation was to make the involved farmers financially included. The farmers were provided bank accounts where they easier could save money and keep track of their transactions. In addition to the bank accounts IFC compensated all banks that gave loans to the farmers and thereby enabled them to make larger investments in their business, a safety net and new techniques that causes higher outputs and incomes.

The Warehouse Recipient project objective was also to enable larger private agricultural investments by giving loans to farmers. In this project the farmers could deposit their produced good in a warehouse to get a receipt that could be used as a collateral in bank loans. The project gave the farmers more flexibility and access to financial services (IFC, 2020).

Desalegn and Yemataw (2017) wrote a report where they examined financial inclusion in Ethiopia. They used the same data set (Ethiopia Socioeconomic Survey) as we are using in this report. In their report they measured financial inclusion during 2015/16 by analyzing whether people have a bank account or use a formal financial account to save and use financial services. The analysis consists of a regression with explanatory variables and the financial inclusion variables as response variables. The result of the analysis is that the financial inclusion in Ethiopia is very low and being a married man with higher income and having a higher education will increase the chance of being financially included. Only 12 percent of the population own a bank account, and 10.7 percent of the account holders use the account to save. In the report

they also examine why financial inclusion is low in Ethiopia. Desalegn and Yemataw argue that the explanation can be found in the answers, to the question: “Why don’t you have bank account” included in the survey. The common answers to this question are both voluntary and involuntary barriers such as distance, lack of knowledge, lack of interest and costs.

Yet another report, written by Baza and Rao (2017), shows similar results after examining financial inclusion in Ethiopia. In their report they use data from both the demand and supply side. Baza and Rao conduct their own survey in which they ask about use of and access to financial services. From the supply side (those who provide financial services) they use information from the National Bank of Ethiopia where they collect data that explain the supply of financial services, such as ATM’s, number of banks and debit cards per adult. With this data they defined several barriers to financial inclusion. The three biggest barriers to be financially included (open a bank account) is perceiving their funds being too small to save, the distance to the nearest bank being too far and that it is too expensive to open an account. The result in terms of savings is compared to the 2014 Global Findex survey which we will also use in this report. They find that savings has increased over time and that Ethiopians save more than the average Sub-Saharan. However, most of the savings are done informally and not through an account. Other findings are that being poor, living in rural areas and being a woman are characteristics that are common among financially excluded people (Baza & Rao 2017).

Other reports, including Bessir (2018), have clarified and classified some of the barriers for the poor, unbanked population to enter the financial markets when resources are scarce. However, it cannot in detail interpreted what direct and causal effects increased savings in emerging markets will have on growth. With panel data over different regions over different periods in Ethiopia it could be anticipated that this paper can contribute to current research by presenting causal effects from increased access to commercial banks.

3 Theoretical Framework

3.1 Harrod Domar Model

Many theories suggest an important correlation between the aggregated level of saving and the rate of which the economy grows. Amongst the models that supports this theory is the Keynesian Harrod-Domar model of economic growth. This model states that even though growth sometimes seems to be a direct consequence of having a free economy, there is no natural reason for the economy to have balanced growth. Growth is the effect of saving and capital accumulation.

From the Harrod Domar Model it can be mathematically derived that growth is dependent on saving, in that savings is assumed to be the same as investments. Everything that is saved is then in one way or another, invested in capital which allows productivity to increase.

$$\text{Rate of Economic Growth } (g) = \text{Level of } \frac{\text{Savings}(s)}{\text{Capital Output Ratio}(k)}$$

It is important to mention the potential shortcomings of this model as it is based upon rigid and abstract assumptions that, in several aspects, are not realistic. For example, it assumes a constant propensity to save and a fixed production function. Those reasons alone should clarify that this is a model and not a strategy for growth. At best it could intuitively serve as help to explain relationships in the economy and not a strategy to base financial reforms upon.

However, with this in mind, the model can be of great importance to understanding some of the underlying forces of growth (and the absence of it) in developing countries. It is argued that in developing countries, low GDP growth is linked to lower saving rates than in more developed countries. With arguments based on the Harrod-Domar model it can be postulated that this causes a vicious circle:

Low savings → Low investments → Decreased capital stock → Lower economic growth → Lower savings →

In contrast, a higher rate of saving will yield the opposite:

High saving → Increased investments → Increased capital stock → Increased economic growth
→ Increased savings → ...

A higher rate of savings will, by this logic, boost the economy and could help create a self-sustaining economic growth. To maintain the mechanics of this cycle, it is important that the financial infrastructure is efficient enough to serve the whole economy so that savings really is creating higher investments, rather than piles of cash (Janvry & Sadoulet, 2016).

3.2 Solow Model

Another theory and model that can help explain the effect of saving on growth is the Solow model (Solow, 1956). In this model, Robert Solow (1987 Nobelist) sets up a mathematical model for economic growth within the framework of neoclassical economics. One of the key components of the Solow Model explaining growth, is saving and investment. An increased rate of savings will help raise the capital stock as no distinction is made between savings and investments. Compared to the long run, he claims that the effects on increased savings is greater seen in the short run, because as time passes and investments help increase the capital stock, the economy will reach a steady state in the means of capital stock. Beyond this point, more investments will not help the productivity and investments only need to meet the constant depreciation of capital stock.

A common assumption for both the Solow model and Harrod-Domar model is that they both derive that savings equals investments. For this assumption to hold, the financial system needs to be able to give access to its services and thereby give opportunity for savings to translate to investments. For that reason, this paper will investigate if access to financial services, that enables savings, will result in higher income in the economy.

4 Data

The data, used in the regression, is provided from the World Bank as a survey, The Ethiopia Socioeconomic Survey, which carried out over three periods, 2011, 2013 and 2016 (World

Bank, 2011-2016). In this paper, we will refer to these three periods as wave 1, wave 2 and wave 3. The Ethiopia Socioeconomic Survey (ESS) have been submitted by the Central Statistics Agency of Ethiopia and the World Bank. The objective of this survey is to collect household-level panel data on various topics with focus on improving agriculture statistics and link this to other sectors of the economy. The full survey contains several questionnaires, our data is collected from the “Household Questionnaire” which provides information on basic demographics. This includes education, health, labor and time use, savings and expenditure. We will look at the correlation between various financial variables in this data set. Our dependent variable is household expenditure for which we will control how well it correlates with financial inclusion. Our main independent variable is a dummy variable, that takes the value 1 if there is a commercial bank in the community of the respondent. We then want to compare how a difference, i.e an increase of the frequency in bank access, will affect the outcome in household expenditure.

4.1 Variable definition

The outcome variable is expenditure and not income. Expenditure is more permanent than income, because income fluctuates from year to year, especially in countries where the main source of income is agriculture. Some years the crop might be bad and others good.

Therefore, expenditure is a good measure of wealth and well-being. Expenditure reflects the typical income and people tend to spend approximately the same from year to year even though income might vary. If income is smaller one year and not enough for the desired expenditure people will use savings or borrow. If income is higher than desired expenditure they will save instead.

On the basis that the data is identified under individual level and is submitted during separated time periods, it is plausible that our statistical model will reduce a large portion of the omitted variable bias on this premise alone. Nevertheless, we need to control for other variables whose respective variations may affect the outcome. The variables with the most variations that could impose an impact on the result are household size, access to asphalt road, population growth, marital status and age.

To compare these different periods, the datasets have been merged and, since every respondent has a unique individual identifier, duplicate answers have been dropped.

While appending the panel data, only the first and third wave have been kept to gain more variation in the data, as the values of the variables differed the most between the first and last period. In effect, we compare is the variation between the year 2011 and 2016. The final sample size is 3102 individuals in the First Difference Model regression.

Table 1.

Descriptive Statistics					
Variable	Obs	Mean	Std.Dev.	Min	Max
Consumption	8522	22907.49	26391.69	520	1260000
Bank in Community	8522	.175	.38	0	1
Household Size	8522	4.764	2.372	1	16
Distance to Asphalt Road	8510	39.035	60.517	0	675
Population	8522	8207.758	10867.46	7	170000
Married	8494	.038	.191	0	1
Age	8435	38.111	9.749	20	75
Age*Age	8435	1547.512	797.63	400	5625

In Table 1 we learn about our variables. We use a sample size of 8522 individuals in the OLS regression. In the variables “Distance to Asphalt road”, “Married” and “Age” we have few missing values. Table 1 present all the variable means which tells us the average of the individuals. The variables “Bank in Community” and “Married” are dummy variables which means that the value is either 0 or 1. Therefore, the mean of these two variables are flawed. From the table we can see the minimum and maximum value of the 8522 observations. The annual individual consumption varies between 520 to 1 260 000 Birr in our sample and the average consumption is 22 908 Birr a year. From the standard deviation we learn how the observations varies, the larger standard deviation the more variation in the sample.

Table 2.

Descriptive Statistics for individuals with a bank in their community					
Variable	Obs	Mean	Std.Dev.	Min	Max
Consumption	1488	31782.97	29257.02	780	506000
Household Size	1488	4.06	2.217	1	12
Distance to Asphalt Road	1488	15.969	37.891	0	200
Population	1488	19912.74	20076.17	1500	170000
Married	1487	.017	.129	0	1
Age	1456	38.83	9.832	21	65
Age*Age	1456	1604.341	822.364	441	4225

Table 3.

Descriptive Statistics for individuals with no bank in their community					
Variable	Obs	Mean	Std.Dev.	Min	Max
Consumption	7034	21029.94	25351.82	520	1260000
Household size	7034	4.913	2.377	1	16
Distance to Asphalt Road	7022	43.923	63.228	0	675
Population	7034	5731.639	4769.862	7	70999
Married	7007	.042	.201	0	1
Age	6979	37.962	9.726	20	75
Age*Age	6979	1535.656	791.919	400	5625

When comparing Table 2 and Table 3 we learn about the difference between the households with and without a bank in their community. There are more people that do not have a bank in their community than people who have a bank in community. The individuals that have a bank in their community have a higher average annual expenditure while the person who spends the most money a year in the sample lives in a community without a bank. The distance to nearest asphalt road for those who live in a community without a bank is on average further and varies more than for those who have a bank in their community. The communities with no banks have less inhabitants. The community with the least population that has a bank have 1 500 inhabitants. The age of the inhabitants in the communities is similar while the household size differs between the communities with and without a bank. The families in the communities without a bank are larger on average. To summarize the differences between the communities with and without banks we conclude that people living in communities without a bank seems to be of the same age as the rest of the population but poorer, living in larger households, have a larger distance to asphalt road and the communities have less inhabitants.

5 Methodology

5.1 OLS regression

The panel data displays the outcomes of individuals at different points in time.

To investigate whether or not increased access to bank tend to increase the level of consumption, we conduct an Ordinary Least Square regression to observe if this correlation seems to exist. This OLS is run by pooling the observations over time, treating all observations as independent. Y is presented in a logged value and therefore changes will be shown in percentage.

$Y_{it} = \alpha + \beta_1 X_{it} + \dots + \beta_T X_{NT} + U$ Where y labels expenditure and x labels bank. Individuals are labeled "i", time by "t" (i=1,...,N t=1,...,T).

If the coefficient β_1 is positive it implies that there is a positive correlation between access to bank and household expenditure. Even though this implication may be true, it does not imply any causation in the relationship as several other factors may intervene and affect the result. From this point we will pursue the end result further by constructing a first difference model.

In this case we want to know if access to a bank causes higher expenditure. To make causal claims we need to estimate the counterfactual. There are several ways to take this into account and we have chosen a first difference model to measure the impact of having a bank in the community. The first difference model uses the first difference estimator which is a useful tool when addressing omitted variable bias. The estimator is derived from the time differences between the variables in the regression, making it more adequate when modeling change, compared with more conventional two-wave panel models (Liker, Augustyniak & Duncan, 1985).

5.2 First Difference Model

To construct the first difference model, we first need to take the respective differences in consumption and access to a bank; thereafter we let these two differences generate two new variables. It is then these two variables that will structure the first regression.

$$Y_{it} - Y_{it-1} = \beta_1 X_{it} + \theta_i + \varepsilon_{it} - \beta_1 X_{it-1} - \theta_i - \varepsilon_{it-1}$$

From this model, the fixed effect θ_i is removed, giving us the possibility to control implicitly for all factors that are specific for the individual. By doing so, a large portion of all potential bias is removed. This leaves us with

$$Y_{it} - Y_{it-1} = \beta_1 (X_{it} - X_{it-1}) + (\varepsilon_{it} - \varepsilon_{it-1}) = \Delta Y_{it} = \beta_1 \Delta X_{it} + \Delta \varepsilon_{it}$$

However, what still appears as the effect of X (access to bank) on Y (household consumption) may be influenced by another factor that has varied over time, potentially biasing our result. In this case we want to conclude whether access to bank causes higher expenditure. The inflation rate in Ethiopia during the time period that we are investigating were both high and fluctuating. To manage the risk of making false assumptions when comparing the consumption level between different points in time, we will present our findings in real numbers.

In the last phase of the analysis we will add several control variables to cover other potential impacts on consumption. This will also help us to remove potential omitted variable bias. When adding control variables to claim causality, we generate the control variables by deriving them with the same method.

5.3 Control Variables

During the time span between the waves, several other variables could have intervened and in their way influenced the level of consumption. To compensate for other factors that possibly could have increased consumption we have chosen to control for 6 different variables that by their respective variation could have biased our result.

The variable *married* indicates whether the person is married or unmarried. Unmarried refers to people who are divorced, widowed, single and not married. Being married increases financial responsibility which leads to higher expenditure. Research shows that a married person has a higher expenditure on average than an unmarried. This is because married persons must care for more than just their own leisure and needs. A married person strives to have more stability and spends more money to achieve that. Being married and having kids increases the expenditure additionally (Cherchye, De Rock & Vermeulen, 2012). We will therefore use *married* as a control variable. As we expect married people to have a higher expenditure that may not be due to having a bank in the community.

When measuring the impact of having a commercial bank within the community it is wise to investigate the different degrees of transportation and infrastructure in a community. It is empirically supported that an efficient infrastructure is lowering income inequalities in society. An asphalt road near the community will raise the society's income and thus be a good tool for poverty reduction (Calderón & Servén 2004). For this reason, we will control for variations in the *distance to the nearest asphalt road*, as that possibly could affect expenditure.

An additional factor that cannot be overlooked when including control variables is *age*. Age is largely a proxy for experience which presumably will increase ones' income and hence consumption. Empirically, when we gain experience by age our incomes tend to rise and peak as we approach retirement, after which it drops slightly, giving income an inverted-U-shape pattern. Between the two waves of which the observations have been made, six years have passed where a majority of the respondents can be presumed to have gained some kind of working experience. This could explain part of the increased consumption. To capture the non-linearity of this potential inverted-U-shaped relationship we use both *age* and *age*age* (Luong & Hérbert, 2009)

The findings from our regression displays a short-term view of the impacts on the economy and having begun this paper with a brief introduction to the Harrod Domar and Solow models it would be incautious not to control for *population growth*. The Harrod Domar model suggest a significant negative relationship between population growth and per capita income in the short run. The Solow model states that economic growth in the steady state is equal to the population growth. Whether or not one could find evidence for these assumptions, we could anticipate that changes in population will affect income and consumption. For this reason, a numeric control variable disclosing population size is added to the regression.

When examining the effects on income and consumption from *household size*, several patterns can be found. In general, consumption tend to rise when the household size increases (Espenshade, Kamenske & Turchi, 1983). Couples with children tend to spend more than childless couples when comparing parents with the same level of education and background. In addition to higher consumption, families with more children allocate expenditure differently, spending a higher share of their income on necessities and less on luxury items. For this reason, as a last control variable, we will add *household size* as a control variable since this variable contained variations between the waves.

6 Result

6.1 Result from OLS regression

Regression 1 is an OLS regression where we can see the parameters of the linear function. Table 4 informs us that there is a positive correlation between household consumption and increased presence of commercial banks. The coefficient for the variable labeled *Bank in Community* tells us that having a commercial bank in your community will increase your consumption approximately 23%. However, it is not possible at this stage to draw causal conclusions on the actual effect of having a higher presence of banks in the community.

Table 4.

VARIABLES	(1) Simple OLS	(2) First Difference	(3) First Difference w. controls
Bank in Community	0.230*** (0.0219)	0.0820 (0.0542)	0.0876* (0.0515)
Household size			0.114*** (0.00795)
Distance to Asphalt Road			0.000167 (0.000177)
Population Growth			-2.09e-05*** (2.93e-06)
Married			-0.0544 (0.0529)
Age			-0.00219*** (0.00706)
Age*Age			0.000315*** (8.76e-05)
Constant	5.318*** (0.00916)	-0.323*** (0.0139)	-0.328*** (0.0139)
Observations	8,522	3,102	3,080
R-squared	0.013	0.001	0.083

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6.2 Result from First Difference Model

To draw accurate conclusions about our findings we need to further refine our model.

In regression 2, the results from our First Difference model regression is presented. From table 4 we observe that the expenditure increased 8.2% for the individuals who got a commercial bank in their community between wave 1 and 3. The variable “Bank in Community” in this regression is not statistically significant and we cannot make any conclusions.

Without having further controlled for additional variables that may have had a direct effect on household consumption, we can assume that the accessibility and presence of banks is likely

to increase consumption but to be able to make any conclusions we need to further refine our model.

6.3 Result from First Difference Model with control variables

When adding control variables in the First Difference Model Regression we achieve a less biased result. From regression 3 we learn that individuals who had accessed to a bank in their community in wave 3 increased their expenditure by 8.76%, versus the 8.2% noted in regression 2. When adding control variables, we remove the effect these variables may have left on consumption. Some of the effects in regression 2 was due to omitted variable bias as changes occurred in some of the control variables.

For those individuals whose household size increased between the two waves, we can conclude that they will also increase their expenditure. Surprisingly the control *married* has a negative impact on the expenditure. This could follow from the fact that part of the cost for managing the household is being shared. One large apartment is usually cheaper than two small apartments. The effect of having a family is removed from the variable *married* and we can therefore conclude from the result that being married will decrease expenditure while having a large family will increase expenditure. This seems to be the case.

In the communities where the population increased between the two waves, expenditure among the inhabitants decreased. Obtaining closer access to an asphalt road in the community also decreased expenditure on average. The estimate “Distance to Asphalt Road” and “Married” are not statistically significant and we therefore do not conclude that the values of these variable are correct.

6.4 Gender

When running our regression, we did not consider the gender of any respondents participating in the survey as these are indicators that are assumed not to change over time. However, for purpose of analysis, we have conducted two separate regressions to examine potentially different effects that access to banks may have on men versus women.

For this reason, we constructed the same regression as when controlling for the whole population. We have also added the same control variables since these appeared to be notable and of credible value in the previous regressions. The result yielded from this procedure is presented in table 5 below.

Table 5.

VARIABLES	Male Consumption	Female Consumption
Bank in Community	-0.0120 (0.0535)	0.110 (0.0791)
Household Size	0.0979*** (0.00885)	0.174*** (0.0178)
Distance to Asphalt Road	7.40e-06 (0.000191)	0.000289 (0.000419)
Population Growth	-2.17e-05*** (3.29e-06)	-1.62e-05 (9.84e-06)
Married	-0.0364 (0.0582)	-0.118 (0.117)
Age	-0.0276*** (0.00827)	-0.00554 (0.0135)
Age * Age	0.000386*** (0.000103)	0.000104 (0.000166)
Constant	-0.331*** (0.0153)	-0.317*** (0.0293)
Observations	2,327	741
R-squared	0.081	0.137

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

By considering the findings from the regressions made on men and women respectively, it is found that having a commercial bank in the community seems to have a greater impact on women than men. It can be assumed that a bank in the community will increase the women's expenditure more than men's. However, as the variable "Bank in Community" is not statistically significant we cannot make any statistically significant conclusions.

7 Discussion

Although this paper examines what effect access to commercial banks has on consumption, in other words to what extent this increases financial inclusion, it is of great importance to understand what this leads to. With the absence of inclusion in financial systems, poverty traps are more likely to occur, and people cannot invest when times are good or access credit in times of financial scarcity. During the G20 summit in Seoul in 2010, it was determined that financial inclusion is to be considered one of the core elements of the global development agenda. (Zins & Weill, 2016). In the research of Zins & Weill, two concepts are of utmost importance to mention when breaking down financial inclusion in this context. The first is that Africa in general has low inclusion in financial terms, compared with the rest of the world. A second discovery worth mentioning is the different determinants to absence of financial inclusion. To know about and understand the different barriers to accessing formal financial institutions is of crucial value when designing policies to promote financial inclusion.

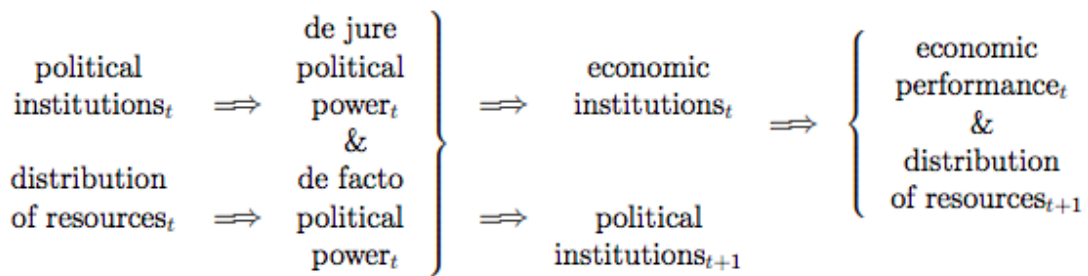
The result from the regressions in this paper present that a household residing in a community with access to a commercial bank will have a higher consumption level compared with households in communities without one. A household with higher expenditure will, per definition, demand more in terms of consumption which, according to Keynesian models, is the driving force of any economy. From this understanding, increased consumption will increase demand for goods and services from the firms, which will lower unemployment and increase tax revenues. This definition of economic growth can by the effect of decreased unemployment rate and higher tax revenues help reduce poverty (Pérez de la Fuente, 2016).

A critique that can be directed to our result is that there could be more control variables that affect the result. Adding more controls could change the value of the coefficient of “Bank in Community”. This is something that needs to be taken in account when viewing the result. Some of the variables in regression 3 in table 4 are not statistically significant, which means that we cannot conclude that they have the correct coefficient on a 0.1 level of significance.

7.1 Gender

From Table 5 we observe that there is a difference in the level of consumption of men and women when they obtain access to a bank. A potential reason for the current difference between

men and women in expenditure could be the structure of Ethiopia's institutions. Institutions influence people's behavior and determine how a society organizes itself: informal institutions versus the formal institutions. Both the formal power (de jure) and the informal power (de facto) affect the institutions. The norms and social rules will affect the economic and political institutions.



(Acemoglu, D, S Johnson, J Robinson, 2004)

In the case of Ethiopia, the difference in expenditure among gender is most likely not because of the formal institutions (government and laws). It is due to the informal institutions that exclude the women from society. Informal institutions are difficult to change as they are deeply rooted in population behavior. With a large gender gap we can conclude that the perception and exclusion of women in the society is large (Hausmann, Tyson & Zahidi 2011). Additionally, it lowers the bargaining power for the women within the households. With low bargaining power and exclusion in society being high, the income of women will be less than men, on average and leads to a lower expenditure among women. This may explain why women seem to gain relatively more when overall financial inclusion rises.

7.2 The importance of trust

When considering the strong relationship of access to bank and consumption, it is important to contemplate the high level of reliance and trust a physical bank offers the customer compared to financial solutions with no physical interaction. Trust is one of the main objectives for any participant seeking to manage someone else's money. Banks and other depository institutions need to earn trust amongst their clients, who need to feel confident that the institution will keep their money safe and easily accessible. The concept of trust can be explained as “the leap of faith needed to invest scarce resources (money, time, social capital) in a new technology” (Spencer, Nakhai & Weinstock, 2018).

The above perception of trust could partly explain why the physical access to commercial banks have had such an immense effect on consumption and why people in Ethiopia have seemed to adopted financial services so quickly. When comparing physical presence of banks to different mobile banking services, one potential reason for the commercial bank offices to have such large impact on consumption, could be gaining people's trust.

To have someone taking a leap of faith and start using mobile bank accounts and manage their bank errands online means that the client needs to trust the institution providing the mobile solution, but also needs to trust the technology to handle its business. Intuitively, it is fair to assume that trust is easier gained among clients when walking into a physical bank office with an actual person greeting them. This could help explain why the effects have been so large in this short time span: that the services that are being offered are adopted with less friction than online banking services.

8 Conclusion

The main contribution of this paper is to test whether or not the mere presence of commercial banks in Ethiopia have had a significant effect on the overall economy. In our first difference model we measured the effect with considerations taken to several additional variables.

When studying the observations from 2011 to 2016, it is shown that expanding access to physical bank offices will have a positive effect on economic activity measured in consumption on household level. Our result suggests that the individuals who gains access to a commercial bank will increase their consumption by 8.76%, taken to account 6 control variables we think may have affected the level of consumption.

Having access to a local commercial bank will significantly affect the household consumption and it can therefore be assumed that the presence and use of financial services are of great benefit for the society. Higher consumptions will create an overall increased demand in the economy. This will enable business to grow and enable families to reach a higher standard of living. In addition to this, more funds will be available for the government which, if allocated wisely, could further help boost the economy.

Women are less financially included in Ethiopia. When comparing men and women's expenditure as they gain access to a physical bank, it can be assumed that women change their consumption the most. The change in behavior could be due to women becoming more socially included in the society, thus being able to carry out bank errands without having to travel and forfeit household work.

From the premise that physical bank presence will more easily earn clients' trust than technology based finance, it can be assumed that the transition from being completely unbanked to start using formal financial institutions, will proceed easier if the unbanked become acquainted with the formal financial system via physical presence. From this point forward, the financial system can be further refined and made more efficient with technological solutions, after trust is earned.

Recommendations for further studies are to investigate if the result from this paper is comparable with similar studies in other countries. Additional recommendations are to use the same method as in this paper to examine the effect of other measures of financial inclusion. This could be to measure the effect on expenditure of mobile money account or other solutions that have increased the access to banking services.

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