Finance, Growth, and Poverty: The Role of Financial Inclusion

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Abstract

There is a consensus that financial development boosts economic performance. However, this literature relies on aggregate measures of financial development and rarely accounts for the distribution of access to finance across the population. How does financial inclusion, or the distribution of access to finance, affect growth? In order to capture the distribution of financial products, I include three financial inclusion variables. I explore the collective impact of the financial variables on three poverty measures. Controlling for time fixed effects and using an unbalanced panel dataset, I find that growth is less likely to increase in countries with already developed financial infrastructures. In the case of poverty as the dependent variable, the outcomes are not the same across all inclusion variables. Poverty is more likely to decrease in countries with fewer people having bank accounts and savings following an increase in financial development, but this effect does not occur when the measure of financial inclusion is borrowing. Borrowing only reduces poverty in countries that already have high access to financial products, but this is not true for developing countries that have lower access to basic financial services.

1. Introduction

A large empirical literature on the finance-growth nexus has examined the impact of financial systems on economic growth. Substantial empirical evidence suggests that there is a positive relationship between financial development and economic growth to the extent that Nobel Laureate Merton Miller (1998) stated that the contribution of financial development to growth is "too obvious for serious discussion". Yet another body of empirical literature led by Nobel Laureate Robert E. Lucas Jr (1988) finds the relationship to be inconclusive and overstated. Despite the arguments put forward by the latter line of thought, a large body of literature has identified the importance of financial sector development for flourishing economic performance. However, fewer papers have focused on how the distribution of financial development affects economic performance and welfare i.e. how an increase in the usage of basic financial products in an economy affects economic growth and overall well being, given a certain level of financial development.

According to the Global Findex 2017 database, close to one-third of adults (1.7 billion people) remain unbanked, meaning that they do not have access to financial services provided by banks or financial institutions. The World Bank promotes financial inclusion as a key component of reducing poverty and inequality and boosting economic performance. Initial data analysis shows strong correlations between measures of economic well-being and financial inclusion. Countries with higher levels of real GDP per capita like the US ($53129) and Austria ($49129) tend to have more people having bank accounts at 93% and 98% of the sample in 2017, respectively. In contrast, countries

with lower levels of real GDP per capita like Zambia ($1635) and Vietnam ($1835) tend to have fewer people having bank accounts at 46% and 31% of the sample in 2017, respectively. A middle-income country like China has a real GDP per capita of $7529 with 80% of the recorded sample having an account at a bank or financial institution in 2017.[1] Overall, the percentage of people with an account at a bank or a financial institution has a correlation of 0.725 with real GDP per capita. Since 2011, great accomplishments have been made by international organizations like the World Bank and the IMF towards financial inclusion by increasing access to 1.2 billion adults worldwide. One example would be efforts made by the World Bank to foster sustainable financial inclusion through successful completion of a program, *Jeevika* in Bihar, India. This project created commercial banks linkages in the poorest areas of Bihar by providing access to credit through commercial banks. The financial inclusion project has facilitated social mobilization of poor households into institutions managed by the community or self-help groups, fostered thrift and savings, and provided financial literacy and counseling services. This has caused several commercial banks to partner with the project, thus creating room for further sustainable developments in financial inclusion. Simultaneously, the project also worked with local financial institutions to make them for responsive to the needs of their clients. Another example is a World Bank project in Mexico between 2012 and 2017 managed through the International Bank for Reconstruction and Development and other partner agencies that provided large-scale loans to initiate financial inclusion efforts in Mexico. This project aimed to expand access to financial services in rural areas and install cheaper and easier

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[1]All data are in 2010 constant US$.

processes of making deposits and payments, and withdrawing money. These efforts improved its credit and savings institutions by expanding their financial services to target women and underprivileged and indigenous populations in rural areas. Specifically, these improvements included wider availability of banking agents, service points of access to financial services, deposit insurance, and financial education.

The progression of this field of work on development of the financial sector originally accelerated in the 1980s and 1990s with increased availability of data. As more data on financial inclusion has become available, understanding the impact of financial inclusion on economic growth and poverty alleviation, and how financial development impacts growth and poverty has become important. Financial inclusion represents the latest policy objective in the debate for the importance of finance towards economic development and poverty reduction. Financial inclusion provides an insight into the distribution of financial access across different countries and how the financial system has evolved to have a positive impact on economic growth and overall poverty alleviation.

A primary advantage of financial sector development is the reduction of credit constraints, since such constraints may slow aggregate economic growth by preventing finance from flowing to the most productive entrepreneurs. While the bulk of the discussion on financial development looks at its impact on growth, the potential impact on income distribution and poverty is also important. The relationship between financial development and poverty alleviation could be indirectly linked to economic growth because the distribution of income can influence savings decisions and the allocation of resources. On the one hand, this leads to some theories by Banerjee and Newman (1993), Galor and Zeira (1993), and Aghion and Bolton (1997) claiming that financial

development will have a disproportionately beneficial impact on the poor stemming from an elimination of credit constraints that restrict the poor from exploiting investment opportunities. In addition, the presence of these credit constraints allows higher income inequalities across and within different countries by keeping capital from flowing to entrepreneurs with a lack of wealth. On the other hand, Lamoreaux (1996) and Haber (1991, 2004, 2005) argue that the benefits of financial development and availability of external finance are primarily enjoyed by the rich and the connected, leading to capital being channeled towards a selected few.

However, some models such as that by Banerjee and Newman (1993) also assert a non-linear relationship between financial development and income inequality, giving rise to an inverted U-shaped relationship between the two. At low levels of financial development, as financial development increases, inequality increases, but there is a level of financial development beyond which further increases result in decreased inequality. Furthermore, some studies find a non-linear relationship between financial development and growth, where the impact of finance on growth depends on how developed the financial sector is. Bencivenga et al. (1995) discuss the possible nonlinearities associated with the relationship between financial development and economic growth by introducing transaction costs of financial activities into their model: economies with lower transaction costs in financial markets will eventually experience enhanced growth and economies that are unable to lower those transaction costs will experience slower growth. Minier (2003) finds that there is a threshold below which there is little effect of financial development on growth. Moreover, papers like Rioja and Valev (2004) seek to quantify the threshold level of financial development below which financial depth does not affect growth.

While non-linearities in the relationships between financial development and economic growth, and poverty have been discussed in literature, much of the work concentrated on how the relationships evolve based on the level of financial development. Little work has focused on how these relationships would be affected by the level of *financial inclusion.* "Financial inclusion is a measure of individuals' access to formal financial products and services that meet their needs sustainably and affordably in a well-regulated environment", as defined by Demirguc-Kunt et al. (2017). While financial inclusion theoretically ranges from having a bank account to access to more sophisticated financial instruments like insurance, most cross-country data simply measure the percentage of the population with access to a bank account, a savings account or a loan to operate or start a business or a farm.

This paper analyses how the impact of overall financial development in a country impacts economic growth and poverty at different levels of financial inclusion. To measure financial development, I use domestic credit to the private sector as a percentage of GDP, as it is the most widely used measure in empirical literature. For this paper, I consider three basic financial inclusion variables: the percentage of people with bank accounts, the percentage of people who saved at and the percentage of people who borrowed from formal financial institutions. Financial development and financial inclusion variables are both introduced into growth and poverty equations, along with an interaction term between financial development and financial inclusion variables in addition to a set of conditioning variables including an index of human capital, growth rate of population, and gross capital formation. The aforementioned interaction term allows the marginal effect of financial development to vary with financial inclusion.

This paper finds evidence of nonlinearities in the relationships between growth and finance variables, and poverty and the finance variables. Countries with less developed financial infrastructures are more likely to see growth rates rise following an increase in financial development while growth is less likely to increase in countries with already developed financial infrastructures. The results are consistent across all financial inclusion variables. In the case of poverty as the dependent variable, the outcomes are not the same across all inclusion variables. Poverty is more likely to decrease in countries with fewer people having bank accounts and savings following an increase in financial development, but this effect does not occur when the measure of financial inclusion is borrowing to start a business or farm.

Section 2 discusses the papers associated with financial development and financial inclusion, growth and poverty literature. Section 3 goes on to discuss the data sets and methodology utilized in this analysis. Section 4 presents the empirical results and Section 5 concludes.

1.1. Literature Review

It is widely acknowledged that finance plays a crucial role in the process of economic growth by facilitating the mobilization of capital as supported by Bagehot (1873); spurring technological progress by reallocating investment funds to those entrepreneurs with the best chances of successfully implementing new ideas as explained by Ang (2011) and Ilyina and Samaniego (2011); increasing productivity growth as described by King and Levine (1993), Levine and Zervos (1998), and Ilyina and Samaniego (2011); and increasing investment in physical and human capital as supported by King and

Levine (1993). However, studies like Zingales (2015) have urged against the rent-seeking activities associated with excessive financial advancement to the extent that Schularick and Taylor (2012) and Mian and Sufi (2015) mention such activities potentially creating the foundations for future financial crises with adverse implications for long-term growth and social welfare.

The theoretical literature provides conflicting predictions concerning the association between financial development and poverty alleviation. Some studies like Banerjee and Newman (1993), Galor and Zeira (1993), and Aghion and Bolton (1997) claim that credit constraints may slow aggregate growth by keeping capital from flowing to its most productive uses thus restricting the poor from exploiting investment opportunities. Therefore, financial intermediary development will have a disproportionately beneficial impact on the poor. However, Lamoreaux (1996) and Haber (1991, 2004, 2005) argue that it is primarily the rich and connected who benefit from improvements in the financial system, especially at early stages of development. Other models posit a non-linear relationship between financial development and inequality and poverty alleviation depending on the level of financial development. Greenwood and Jovanovic (1990) describe how rising income widens income inequality in the earlier stages of development, however, attains a more equalized distribution of income when the financial structure becomes more developed.

2. Data and Methodology

2.1. Data

The analysis in this paper aims to extract the impact of financial inclusion on economic growth and poverty, accounting for the level of financial development. The data for real GDP and population have been sourced from World Development Indicators, World Bank. The data on gross capital formation (previously known as gross domestic investment) as a percentage of GDP has been retrieved from the World Bank database which measures the additions to the fixed assets in an economy plus the changes to the level of capital inventories. The human capital index to measure the overall level of non-physical capital in an economy has been retrieved from the Penn World Tables 9.1 based on the average years of schooling from Barro and Lee (2013) and an assumed rate of return to education, based on Mincer equation estimates. For the impact on poverty, I use poverty headcount ratio at \$5.50 a day as a percentage of the population (*povhead550*)[2]. The percentage of the population living on less than \$5.50 a day, the most generous definition of poverty headcount ratio, is appropriate because a wider access to financial services is more likely to affect those living above the subsistence level. All poverty variables have been sourced from World Bank's Poverty and Equity data portal.

This paper primarily uses three financial inclusion variables, all from the Global Financial Inclusion Indicators database, World Bank: *Accounts*, the percentage of

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[2]Other measures of poverty like poverty gap have been used to do the same analysis for robustness checks, which appear in the appendix.

respondents over the age of 15 years who reported having an account (by themselves or together with someone else) at a bank or another type of financial institution or reported personally using a mobile money service in the past 12 months; *Savedfin*, the percentage of respondents over the age of 15 years who reported saving or setting aside any money at a bank or another type of financial institution in the past 12 months; and *Borrow*, the percentage of respondents over the age of 15 years who reported borrowing any money to start, operate, or expand a farm or business in the past 12 months. Owing to the unavailability of data for the financial inclusion variables, most of my analysis is restricted to years 2011, 2014, and 2017. Financial development across countries is measured by domestic credit to the private sector by banks as a percentage of GDP (also referred to as bank credit).

Tables 1 and 2 illustrate the summary statistics of the variables used in this paper for both the all-country and developing-country samples, respectively. The tables show the average differences in financial standing between the all-country and developing-country samples: while bank credit is 56.6% in the all-country sample, it is at 42.6% for the developing one; while the percentage of people with a bank account was 55.6% in the all-country sample, it was 42.6% in the developing one; while the percentage of people who reported saving at a financial institution was 22.7% in the all-country sample, it was 15.3% in the developing one. However, surprisingly, a higher percentage of people reported borrowing money in the developing sample at 8.3% than in the all-country sample at 6.7%. This points towards the variation in levels of financial inclusion across countries at different levels of economic development. It is also important to discuss the changes in average levels of financial inclusion over time, due to efforts made by

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international organizations and subsequent attainments in increasing access to financial products in several countries.

On average, the three financial inclusion variables have increasing trends at decreasing rates. Over time, the percentage of respondents reporting having an account increased from approximately 46.2% in 2011 to 61.4% in 2017, on average. The increasing trends in the other two financial inclusion variables are more modest. On average, the percentage of respondents reported saving or setting aside any money at a bank or another type of financial institution increased from approximately 18.7% in 2011 to 23.6% in 2017; while the percentage of respondents who reported borrowing increased from approximately 6.5% in 2014 to 6.8% in 2017, on average.

Figure 1 plots the percentage of respondents who reported having an account in 2017 to corresponding real GDP per capita. This figure indicates that higher incomes are positively correlated with the percentage of people in a country using basic financial products, but also points towards a possible non-linear relationship between the two variables.

In the following, all regressions include the log of the financial development variable. In addition, all regressions also include a human capital index (an index based on years of schooling and returns to education from the Penn World Tables 9.1), the growth of population, gross capital formation as a percentage of GDP, and initial GDP as control variables to capture cross country differences. The latter two variables are from World Development Indicators, World Bank.

This paper investigates whether financial development and financial inclusion act as substitutes for one in their relationship with economic growth and income. Table 2 shows

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Table 1: Summary Statistics

All Countries

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Bank Credit	345	56.65	44.15	2.37	249.89
Accounts	345	55.60	30.68	1.52	100
Savedfin	345	22.69	18.26	0.29	79.33
Borrow	226	6.69	4.95	0.61	24.26
Debit	345	39.90	31.06	0.49	98.81
Credit	345	18.41	19.68	0	79.66
growthrate	345	2.54	2.56	-9.43	14.16
povpop	106	25.35	14.28	1.7	64.9
povhead550	147	22.76	26.88	0	95.8
povgap550	147	9.82	14.60	0	59.6
Human Capital	345	2.62	0.68	1.17	3.97
Population Growth	345	0.01	0.01	-0.03	0.09
Gross Capital Formation	345	24.36	7.35	11.73	58.15

Developing Countries

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Bank Credit	250	42.63	34.79	2.37	233.21
Accounts	250	42.56	25.06	1.52	98.22
Savedfin	250	15.29	11.77	0.29	66.90
Borrow	162	8.31	4.92	1.07	24.26
Debit	250	25.93	22.19	0.49	91.85
Credit	250	10.71	14.03	0	79.66
growthrate	250	2.67	2.60	-5.75	14.16
povpop	88	26.79	15.18	1.7	64.9
povhead550	89	35.47	27.63	2.4	95.8
povgap550	89	15.38	16.46	0.5	59.6
Human Capital	250	2.37	0.60	1.17	3.97
Population Growth	250	0.02	0.01	-0.00	0.09
Gross Capital Formation	250	25.50	8.08	11.99	58.15

Note: All variables are pooled for the years 2011, 2014, and 2017.
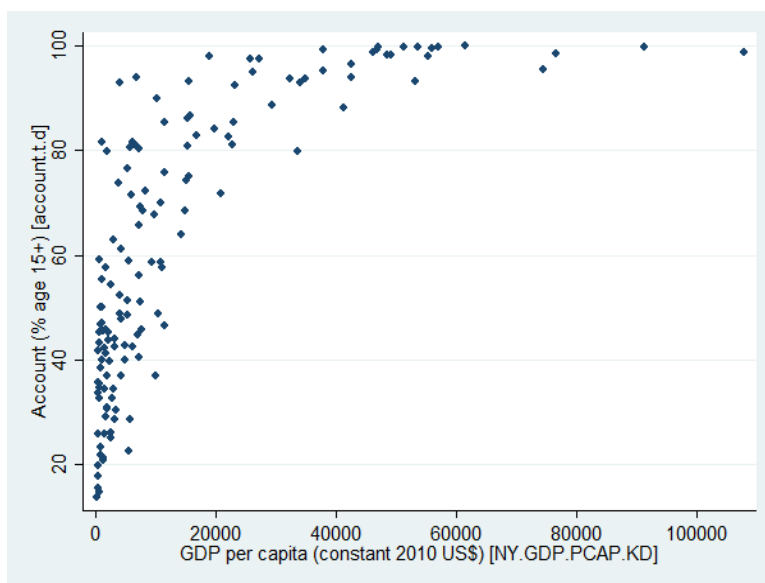
Figure 1: Scatter Plot of Accounts and Real GDP per Capita in 2017

the correlations between financial development and the financial inclusion measures: while financial development seems to have strong and somewhat strong relationships with *Accounts* and *Savedfin* respectively, financial development seems to have a negative correlation with *Borrow*. *Borrow* has a negative correlation with the other two financial inclusion variables as well. This indicates that we may expect the borrowing variable to affect economic growth and poverty differently than the other two financial inclusion variables. This is intuitive because an increase in deposit accounts and savings accounts means better facilitation of day-to-day life which helps families and businesses plan for everything from long-term planning to unexpected emergencies, leading to increase in overall economic growth and lower poverty. However, borrowing (especially by the ultra-poor) is associated with other risks of returning loanable funds and paying regular interest, which eventually may depend on the success of the business. Hence, borrowing is likely to affect the outcome variables differently than accounts or savings.

Table 2: Correlation Between Measures of Financial Development and Financial Inclusion

	Financial Development	Accounts	Savedfin	Borrow
Financial Development	1			
Accounts	0.7268	1		
Savedfin	0.653	0.83	1	
Borrow	-0.4772	-0.5235	-0.3709	1

2.2. Empirical Setting

The goal of this paper is to examine how financial inclusion affects the relationship between financial development and economic growth. Minier and Unel (2013) incorporated interaction terms into traditional growth regressions in their examination of nonlinearities between trade policy and economic growth. Following their idea, this paper introduces interaction terms between financial development and financial inclusion to allow the estimated implied marginal impact of financial development on the outcome variable to differ between countries with different levels of financial inclusion. I extend the traditional growth regression literature by estimating the following unbalanced panel specification for the three financial inclusion variables:

$$growth_{i,t} = \beta_0 + \beta_1 fin\_dev_{i,t} + \beta_2 fin\_inc_{i,t} + \beta_3 (fin\_dev * fin\_inc)_{i,t} + \beta_x X_{i,t} + \lambda_t + \epsilon_{i,t}$$

(1)

where $growth_{i,t}$ denotes the average annual growth rate in real GDP per capita in

country i from time t to $t+1$. $Fin\_Dev_{i,t}$ and $Fin\_Inc_{i,t}$ denote the level of financial development and financial inclusion in country i at time t, respectively. The variable $X_{i,t}$ denotes the set of conditioning variables that establish country characteristics in growth regressions. This set includes the human capital index to account for differences in human capital across countries that affect the growth rate, the population growth rate that accounts for the growth rate of the labor force that is correlated with the growth rate, and gross capital formation as a percentage of GDP to account for different levels of capital accumulation that affect the growth rate, and initial GDP. $\epsilon_{i,t}$ denotes the random error term.

In order to assess the impact of financial development and inclusion on poverty, I estimate the following unbalanced panel specification for the three financial inclusion variables:

$$poverty_{i,t} = \beta_0 + \beta_1 fin\_dev_{i,t} + \beta_2 fin\_inc_{i,t} + \beta_3 (fin\_dev * fin\_inc)_{i,t} + \beta_x X_{i,t} + \lambda_t + \epsilon_{i,t}$$

$$(2)$$

where $poverty_{i,t}$ denotes the poverty rate in country i at time t. $Fin\_Dev_{i,t}$ and $Fin\_Inc_{i,t}$ denote the level of financial development and financial inclusion in country i at time t, respectively. The variable $X_{i,t}$ denotes the set of conditioning variables that establish country characteristics. This set includes the human capital index, the population growth rate, gross capital formation as a percentage of GDP, and initial GDP. $\epsilon_{i,t}$ denotes the random error term.

The above regression does not completely resemble a typical poverty regression.

Although I utilized the same model to estimate effects of financial inclusion on economic growth and poverty, the explanatory variables in my regressions attempt to imitate traditional poverty regressions. The primary objective of the set of conditioning variables is to establish country characteristics, which is potentially accurate when estimating regressions for both growth and poverty. A typical poverty regression utilizes years of education and enrollment rates to account for human capital differences. However, the human capital index from Penn World Tables 9.1 is calculated based on the average years of schooling from Barro and Lee (2013) and an assumed rate of return to education. An advantage of using this human capital index that as a cross check during calculation, the trend in schooling years was also compared to enrollment data from UNESCO. Hence, the human capital index is potentially a better way of measuring education than the traditional measures. The population growth rate included in my regressions captures the effect of income inequality which is usually included in poverty regressions. Additionally, the level of inequality is unlikely to change over such a short period of time. The effects of inflation and some trade policies can be captured using time fixed effects, which are included in my regressions.

While financial development measures the overall advancement of the financial system, financial inclusion looks at the proportion of people who actually have access to basic financial products. I expect that at lower levels of financial inclusion where people are deprived from basic financial products, an increase in financial development should have a weak or no impact on growth. Countries with a majority of people lacking access to basic financial products are usually those with more subsistence workers who are unlikely to start high-return and high-capital projects as financial development occurs.

As more people have access to financial products at higher levels of financial inclusion in relatively richer countries, an increase in financial development is likely to have a stronger impact on growth as individuals in these countries are more likely to invest in high-yield high-capital projects.

In the case of poverty, it seems that at lower levels of financial inclusion, an increase in financial development will have a weaker impact on poverty alleviation owing to the theory that most of the benefits of increased access may be reaped by the rich and connected. However, as more people start having access to financial products at higher levels of financial inclusion, financial development should have a stronger impact on poverty alleviation as the reduction of credit constraints mobilizes more funds towards those who are most productive.

3. Empirical Results

The results for the empirical specification have been divided into two parts: the first presents the impact of financial inclusion and financial development on economic growth, and the second presents the impact on poverty. Each table presents results for three different financial inclusion variables along with an interaction variable between financial development and the corresponding financial inclusion variable in a cross-country setting. All tables are segregated between all-country samples and developing-country samples. The lower panel of all tables depict the implied marginal effect of bank credit on the corresponding dependent variable at different percentiles of the financial inclusion variable i.e. how financial development in a cross-country setting impacts the dependent

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variable, depending on how intensively people are using financial products.

3.1. Impact on Growth

Using the growth rate as the dependent variable, Table 3 presents results with all three financial inclusion variables *accounts*, *savedfin*, and *borrow* and the corresponding interaction terms between the log of financial development and each inclusion variable. Column 1 of Table 3 shows that the growth rate of per capita income is increasing in both bank credit and accounts and statistically significant at least at the 90% level, however, the interaction term is negative and statistically significant at the 95% level. Regression 2 shows that the growth rate of per capita income is increasing in both bank credit and savings and statistically significant at least at the 90% level, however, the interaction term is negative and statistically significant at the 99% level. The marginal effect of bank credit, when evaluated at the 25th percentile and median level of savings, is positive but statistically insignificant. However, with a high percentage of people saving at a financial institution, the implied marginal effect of private credit becomes negative and statistically significant at the 90% significance level. For Regression 2, marginal effects are positive and statistically significant for the lowest 13% of the sample and negative and statistically significant for the highest 73% of the sample at 90% level of significance. The negative interaction terms indicate a possible substitutability between financial development and inclusion variables. Therefore, for countries with low access to saving at a financial institution, increases in *bank credit* have little impact in reducing the growth rate; for countries at higher levels of savings, the negative impact on growth is greater.

In column 3 of Table 3, the implied marginal effects of private credit at the 25th, 50th, and 75th percentiles of borrowing are all positive and statistically significant at least at the 95% significance level; this could imply that an increase in borrowing may potentially act as a positive reinforcement towards the increasing effect of financial development on growth.[3] However, the marginal effect in this case, although increasing, does not seem to vary much as borrowing increases.

It is interesting to look at the effect of financial development and financial inclusion for developing countries only, because initiatives to improve financial inclusion have concentrated mostly within developing countries. In addition, developed countries already have very high levels of financial inclusion while the level tends to vary greatly within developing countries. Finally, one of the primary objectives of increasing financial inclusion was to improve the lives of millions of people living in poverty, which is more relevant in the developing-country sample.

Table 4 repeats the analysis of Table 3 restricting the sample to only developing countries. In Regression 2, the implied marginal effect of private credit on growth at the 25th percentile is positive and statistically significant at the 95% significance level which decreases at the median, still remaining positive and statistically significant at the 90% level. The implied marginal effects of private credit at the 25th, 50th, and 75th percentiles of borrowing in Regression 3 are all statistically significant at the 99% significance level. Again, the marginal effect in case of the borrowing variable, although

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[3]The regressions in Columns 1 and 2 were repeated to incorporate only observations included in the Column 3 to explore if the difference in regression outcomes is due to difference in sample size. Referring to Column 1, with limited observations *Accounts* and its corresponding interaction term loses significance unlike *Savedfin* in Column 2. The lack of significance for *Borrow* could potentially be due to limitation of number of observations.

Table 3: Impact on Growth: All Countries

	(1)	(2)	(3)	(4)
lnitial GDP Per Capita	-0.896***	-0.935***	-0.778***	-1.098***
	(0.205)	(0.189)	(0.204)	(0.229)
Financial Development	0.567*	0.609**	0.647*	0.45
	(0.337)	(0.301)	(0.359)	(0.634)
Accounts	0.058**			-0.032
	(0.024)			(0.046)
Interaction - Accounts	-0.011**			0.009
	(0.006)			(0.011)
Savedfin		0.171***		0.181*
		(0.051)		(0.094)
Interaction - Savedfin		-0.034***		-0.034
		(0.011)		(0.021)
Borrow			0.079	-0.031
			(0.112)	(0.141)
Interaction - Borrow			0.002	0.022
			(0.033)	(0.043)
Human Capital	0.785**	0.832**	0.357	0.237
	(0.350)	(0.349)	(0.334)	(0.349)
Population Growth	-38.537**	-41.798**	-84.598***	-81.092***
Gross Capital Formation	0.084***	0.083***	0.066***	0.058***
	(0.022)	(0.022)	(0.016)	(0.016)

Implied Marginal Effect of Financial Development:

	(1)	(2)	(3)	(4)
At Q25	0.240	0.312	0.653**	
	(0.252)	(0.252)	(0.290)	
At Median	-0.035	0.056	0.658***	
	(0.244)	(0.233)	(0.240)	
At Q75	-0.409	-0.492*	0.665***	
	(0.334)	(0.279)	(0.218)	
Observations	345	345	226	226
R-squared	0.229	0.241	0.288	0.323

Note: Standard errors in parentheses are adjusted for heteroscedasticity. All regressions include time fixed effects. Dependent variable is the growth rate of real GDP per capita. Marginal effects are estimated at Q25, Median, and Q75 of the included financial variable (i.e., Accounts in Regression 1, Savedfin in Regression 2, and Borrow in Regression 3).
* $p<0.1$ ** $p<0.05$ *** $p<0.01$

increasing, does not seem to vary much as borrowing increases within the developing country sample. From Table 5, it is not clear if financial inclusion affects the growth rate for developing countries since regression coefficients lack significance. This follows the conclusion by Greenwood and Jovanovic (1990) who emphasize that at early stages of financial development when the financial structure is largely unorganized, growth rates will be slow despite increases in financial development. Bencivenga et al. (1995) and Minier (2003) had similar conclusions as well.

Overall, the positive impact of financial development on growth tends to be amplified as the level of borrowing increases from the 25th to the 75th percentile while savings as a financial inclusion variable seems to have the opposite effect. As the percentage of people saving at a financial institution increases, the implied marginal effect of financial development on economic growth tends to decrease; this could because savings acts as a substitute for the level of domestic private credit in an economy.

Table 4: Impact on Growth: Developing Countries

	(1)	(2)	(3)	(4)
lnitial GDP Per Capita	-0.934***	-0.913***	-1.044***	-1.148***
	(0.214)	(0.200)	(0.215)	(0.239)
Financial Development	0.670*	0.719**	0.833**	0.448
	(0.355)	(0.317)	(0.394)	(0.731)
Accounts	0.037			0.003
	(0.030)			(0.065)
Interaction - Accounts	-0.006			-0.001
	(0.007)			(0.017)
Savedfin		0.122*		0.007
		(0.067)		(0.138)
Interaction - Savedfin		-0.023		0.006
		(0.014)		(0.033)
Borrow			0.058	-0.032
			(0.121)	(0.157)
Interaction - Borrow			0.012	0.034
			(0.037)	(0.050)
Human Capital	0.623	0.699*	0.105	0.054
	(0.388)	(0.395)	(0.378)	(0.389)
Population Growth	-37.391*	-39.720*	-82.517***	-83.553***
	(20.526)	(20.605)	(19.294)	(18.566)
Gross Capital Formation	0.078***	0.077***	0.073***	0.067***
	(0.022)	(0.022)	(0.016)	(0.016)

Implied Marginal Effect of Financial Development:

	(1)	(2)	(3)	(4)
At Q25	0.542*	0.556**	0.887***	
	(0.280)	(0.271)	(0.272)	
At Median	0.433	0.438*	0.921***	
	(0.267)	(0.259)	(0.225)	
At Q75	0.310	0.269	0.963***	
	(0.315)	(0.277)	(0.229)	
Observations	250	250	162	162
R-squared	0.267	0.273	0.398	0.409

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects. Dependent variable is the growth
rate of real GDP per capita. Marginal effects are estimated at Q25, Median,
and Q75 of the included financial variable (i.e., Accounts in Regression 1,
Savedfin in Regression 2, and Borrow in Regression 3).
* $p<0.1$ ** $p<0.05$ *** $p<0.01$

3.2. Impact on Poverty

Using the poverty headcount ratio at $5.50 a day as a percentage of the population as the dependent variable, Table 5 presents results with all three financial inclusion variables *accounts*, *savedfin*, and *borrow* interacted with bank credit for all countries in the sample. Regression 1 shows that the poverty rate is decreasing in both accounts and bank credit and statistically significant at the 99% significance level; however, the interaction term is positive and statistically significant at the 99% level indicating that financial development reduces the headcount poverty rate when the percentage of people with bank accounts is low and financial development would have a counteracting effect on the headcount poverty rate when the percentage of people with bank accounts is high. This is evident from the implied marginal effect at the 75th percentile of accounts which is positive and statistically significant at the 99% level. For Regression 1, marginal effects are negative and statistically significant for the lowest 20% of the sample and positive and statistically significant for the highest 55% of the sample at 90% level of significance. For the savings variable *savedfin*, regression coefficients have the same sign. However, for *borrow*, the results are opposite.

Regression 3 shows that the poverty rate is increasing in both private credit and *borrow* and the interaction term is positive, both statistically significant at the 99% level. This indicates that borrowing only reduces poverty in countries that already have high access to financial products, but this is not true for developing countries that have lower access to basic financial products. Using poverty gap at the $5.50 a day level as the dependent variable, results are similar. This could indicate a possible substitutability

between financial inclusion and financial development.

Table 6 repeats the analysis of Table 5 restricting the sample to only developing countries. There is not much evidence that financial inclusion affects poverty for developing countries since all primary regression coefficients lack statistical significance. Restricting the sample to developing countries also lowers the number of observations by more than half which may have an important bearing on the results as well. It is important to stress how *Borrow*, as one of the variables measuring financial inclusion, is different from the other two financial inclusion variables. This is initially evident from its negative correlation with *Accounts* and *Savedfin* in Table 2. This difference between borrowing and the other modes of financial inclusion is further reaffirmed looking at the regression results of how borrowing effects poverty. The results from Table 5 demonstrate that while *Accounts* is negatively correlated with poverty, *Borrow* is positively correlated with poverty. It is important to note that microfinance, one of the initial modes of introducing financial inclusion, focused more on borrowing than on savings or deposit. The results, if taken literally, may have important consequences on the importance of increasing borrowing in developing countries as opposed to encouraging more savings and deposits.

Additional robustness checks with different poverty measures are attached in an appendix at the end. Most of the poverty regressions support the results in the main paper. The three poverty variables include the national poverty rate and poverty gap at \$5.50 a day, in addition to the poverty headcount ratio at \$5.50 a day used in the main paper. In most regressions, it is evident that *Account* and *Borrow* affect poverty in opposite directions. While having more bank accounts help in reducing poverty,

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Table 5: Impact on Poverty: All Countries

	(1)	(2)	(3)	(4)
lnitial GDP Per Capita	-11.109***	-14.292***	-10.610***	-9.516***
	(2.018)	(1.881)	(2.372)	(3.286)
Financial Development	-12.304***	-7.607**	6.267**	4.141
	(4.302)	(3.018)	(2.765)	(7.311)
Accounts	-1.007***			-0.394
	(0.255)			(0.453)
Interaction - Accounts	0.226***			0.037
	(0.055)			(0.106)
Savedfin		-0.656		0.283
		(0.505)		(0.744)
Interaction - Savedfin		0.213**		-0.014
		(0.105)		(0.158)
Borrow			6.322***	5.504**
			(1.944)	(2.217)
Interaction - Borrow			-1.322***	-1.190**
			(0.476)	(0.546)
Human Capital	-7.942***	-11.029***	-1.969	-2.577
	(3.031)	(3.151)	(4.788)	(5.063)
Population Growth	315.614**	293.122**	408.276**	267.576
	(129.737)	(119.923)	(202.953)	(212.704)
Gross Capital Formation	0.106	-0.061	-0.027	-0.04
	(0.183)	(0.160)	(0.197)	(0.203)

Implied Marginal Effect of Financial Development:

	(1)	(2)	(3)	(4)
At Q25	-4.015	-5.533**	3.517*	
	(2.739)	(2.340)	(2.088)	
At Median	1.429	-4.306**	0.088	
	(2.180)	(2.074)	(1.736)	
At Q75	8.000***	-0.053	-4.609*	
	(2.481)	(2.416)	(2.472)	
Observations	147	147	83	83
R-squared	0.820	0.815	0.788	0.803

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects. Dependent variable is the growth
rate of real GDP per capita. Marginal effects are estimated at Q25, Median,
and Q75 of the included financial variable (i.e., Accounts in Regression 1,
Savedfin in Regression 2, and Borrow in Regression 3).
* $p<0.1$ ** $p<0.05$ *** $p<0.01$

increased borrowing increases poverty at least in countries with lower levels of overall

financial development.

Table 6: Impact on Poverty: Developing Countries

	(1)	(2)	(3)	(4)
lnitial GDP Per Capita	-13.272***	-17.068***	-13.144***	-9.630**
	(2.481)	(2.079)	(2.820)	(3.738)
Financial Development	-3.953	-1.533	0.998	1.778
	(5.087)	(3.936)	(5.559)	(8.772)
Accounts	-0.685			-0.371
	(0.436)			(0.645)
Interaction - Accounts	0.114			0.012
	(0.107)			(0.173)
Savedfin		0.417		0.304
		(1.059)		(1.790)
Interaction - Savedfin		-0.09		-0.025
		(0.241)		(0.428)
Borrow			3.122	2.416
			(3.084)	(3.139)
Interaction - Borrow			-0.456	-0.304
			(0.835)	(0.867)
Human Capital	-9.422**	-10.452***	-2.935	-2.238
	(3.763)	(3.930)	(5.348)	(5.600)
Population Growth	602.416**	554.336**	699.340*	762.563**
	(270.374)	(267.750)	(359.243)	(370.659)
Gross Capital Formation	0.083	-0.032	-0.12	-0.06
	(0.206)	(0.195)	(0.236)	(0.273)

Implied Marginal Effect of Financial Development:

	(1)	(2)	(3)	(4)
At Q25	-1.476	-2.184	-1.204	
	(3.275)	(2.938)	(2.617)	
At Median	0.813	-2.642	-2.391	
	(2.505)	(2.723)	(2.714)	
At Q75	2.416	-2.978	-3.334	
	(2.938)	(2.902)	(3.810)	
Observations	89	89	53	53
R-squared	0.782	0.769	0.730	0.752

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects. Dependent variable is the growth
rate of real GDP per capita. Marginal effects are estimated at Q25, Median,
and Q75 of the included financial variable (i.e., Accounts in Regression 1,
Savedfin in Regression 2, and Borrow in Regression 3).
* $p<0.1$ ** $p<0.05$ *** $p<0.01$

4. Conclusion

This paper seeks to identify how financial development and financial inclusion affect economic growth and poverty in a panel data setting. I include three financial inclusion variables: the percentage of people with bank accounts, the percentage of people saving at a financial institution, and the percentage of people borrowing to start or operate a farm or a business. The goal of these three financial inclusion variables is to capture individual access to basic financial products in each country.

By introducing interaction terms between financial development and each financial inclusion variable into traditional growth regressions, I find evidence of nonlinearities in the relationships between growth and finance variables. Countries with less developed financial infrastructures experience an increase in economic growth rates following an increase in financial development for all countries in the sample for all three financial inclusion variables. However, growth is less likely to increase in countries with already developed financial infrastructures. In case of poverty as the dependent variable, the outcomes are not the same across all inclusion variables. Poverty is more likely to decrease in countries with fewer people having bank accounts and savings following an increase in financial development, but this effect does not occur when the measure of financial inclusion is borrowing. Moreover, borrowing only reduces poverty in countries that already have high access to financial products, but this is not true for developing countries that have lower access to basic financial services. This may potentially have important implications for the initiation and ongoing processes of microfinance policies that encourage small-scale borrowing in rural areas to improve financial conditions.

Given the scope of the dataset, this paper finds that increase in borrowing is correlated with an increase in poverty for a full sample of countries.

5. Appendix: Tables

Table 7: Impact of "Accounts" on Poverty: All Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
lnitial GDP Per Capita	-4.498**	-11.109***	-6.027***
	(1.983)	(2.018)	(1.260)
Financial Development	-0.573	-12.304***	-7.970**
	(3.712)	(4.302)	(3.365)
Accounts	0.313	-1.007***	-0.513***
	(0.340)	(0.255)	(0.182)
Interaction - Accounts	-0.067	0.226***	0.138***
	(0.080)	(0.055)	(0.042)
Human Capital	-6.569**	-7.942***	-7.283***
	(2.538)	(3.031)	(1.678)
Population Growth	247.602	315.614**	249.203***
	(159.130)	(129.737)	(83.849)
Gross Capital Formation	-0.495***	0.106	-0.096
	(0.163)	(0.183)	(0.121)

Implied Marginal Effect:

At Q25	-2.142	-4.015	-2.918
	(2.443)	(2.739)	(2.043)
At Median	-3.637	1.429	0.401
	(2.255)	(2.180)	(1.438)
At Q75	-5.092	8.000***	4.407***
	(3.222)	(2.481)	(1.503)
Observations	106	147	147
R-squared	0.489	0.820	0.780

Note: Standard errors in parentheses are adjusted for heteroscedasticity. All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

Table 8: Impact of "Saved at a Financial Institution" on Poverty: All Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
lnitial GDP Per Capita	-5.220***	-14.292***	-6.913***
	(1.684)	(1.881)	(1.164)
Financial Development	4.156	-7.607**	-3.649*
	(3.804)	(3.018)	(2.008)
Savedfin	2.286***	-0.656	-0.125
	(0.775)	(0.505)	(0.293)
Interaction - Savedfin	-0.529***	0.213**	0.08
	(0.185)	(0.105)	(0.061)
Human Capital	-6.015**	-11.029***	-9.064***
	(2.437)	(3.151)	(1.654)
Population Growth	249.114*	293.122**	203.143**
	(143.972)	(119.923)	(78.090)
Gross Capital Formation	-0.460***	-0.061	-0.167
	(0.150)	(0.160)	(0.111)

Implied Marginal Effect:

At Q25	0.006	-5.533**	-2.871*
	(2.676)	(2.340)	(1.618)
At Median	-2.558	-4.306**	-2.410*
	(2.181)	(2.074)	(1.454)
At Q75	-6.617***	-0.053	-0.815
	(2.063)	(2.416)	(1.512)
Observations	106	147	147
R-squared	0.529	0.815	0.778

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

Table 9: Impact of "Borrow" on Poverty: All Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
lnitial GDP Per Capita	-2.079	-10.610***	-4.524***
	(1.898)	(2.372)	(1.036)
Financial Development	0.254	6.267**	4.972***
	(5.334)	(2.765)	(1.568)
Borrow	1.318	6.322***	3.548***
	(2.394)	(1.944)	(1.115)
Interaction - Borrow	-0.189	-1.322***	-0.837***
	(0.658)	(0.476)	(0.264)
Human Capital	-3.022	-1.969	-3.965
	(2.972)	(4.788)	(2.437)
Population Growth	580.771**	408.276**	267.536**
	(233.822)	(202.953)	(114.373)
Gross Capital Formation	-0.807***	-0.027	-0.097
	(0.153)	(0.197)	(0.107)

Implied Marginal Effect:

At Q25	-0.324	3.517*	3.229**
	(3.671)	(2.088)	(1.268)
At Median	-0.955	0.088	1.057
	(2.529)	(1.736)	(1.177)
At Q75	-1.391	-4.609*	-1.918
	(2.676)	(2.472)	(1.613)
Observations	61	83	83
R-squared	0.547	0.788	0.747

Note: Standard errors in parentheses are adjusted for heteroscedasticity. All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

Table 10: Impact of "Accounts" on Poverty: Developing Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
lnitial GDP Per Capita	-3.940**	-13.272***	-6.584***
	(1.904)	(2.481)	(1.299)
Financial Development	2.914	-3.953	-2.439
	(4.328)	(5.087)	(3.540)
Accounts	0.356	-0.685	-0.449*
	(0.376)	(0.436)	(0.256)
Interaction - Accounts	-0.098	0.114	0.093
	(0.092)	(0.107)	(0.064)
Human Capital	-4.376	-9.422**	-8.618***
	(3.066)	(3.763)	(1.931)
Population Growth	602.463***	602.416**	557.087***
	(228.128)	(270.374)	(144.040)
Gross Capital Formation	-0.480***	0.083	-0.124
	(0.175)	(0.206)	(0.119)

Implied Marginal Effect:

At Q25	0.954	-1.476	-0.427
	(3.033)	(3.275)	(2.404)
At Median	-1.208	0.813	1.434
	(2.533)	(2.505)	(1.736)
At Q75	-2.717	2.416	2.737
	(3.046)	(2.938)	(1.751)
Observations	88	89	89
R-squared	0.502	0.782	0.818

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

Table 11: Impact of "Saved at a Financial Institution" on Poverty: Developing Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
Initial GDP Per Capita	-5.426***	-17.068***	-8.384***
	(1.591)	(2.079)	(1.111)
Financial Development	5.185	-1.533	0.711
	(3.800)	(3.936)	(2.469)
Savedfin	2.413***	0.417	0.342
	(0.808)	(1.059)	(0.566)
Interaction - Savedfin	-0.545***	-0.09	-0.072
	(0.193)	(0.241)	(0.128)
Human Capital	-3.287	-10.452***	-9.156***
	(2.832)	(3.930)	(1.946)
Population Growth	600.298***	554.336**	541.436***
	(215.917)	(267.750)	(141.534)
Gross Capital Formation	-0.523***	-0.032	-0.159
	(0.158)	(0.195)	(0.122)

Implied Marginal Effect:

At Q25	1.409	-2.184	0.190
	(2.835)	(2.938)	(2.012)
At Median	-1.397	-2.642	-0.176
	(2.364)	(2.723)	(1.905)
At Q75	-3.386	-2.978	-0.445
	(2.246)	(2.902)	(1.965)
Observations	88	89	89
R-squared	0.543	0.769	0.811

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

Table 12: Impact of "Borrow" on Poverty: Developing Countries

Dependent Variable	POVPOP	POVHEAD550	POVGAP550
lnitial GDP Per Capita	-2.124	-13.144***	-5.723***
	(1.841)	(2.820)	(1.209)
Financial Development	-0.422	0.998	4.470*
	(5.630)	(5.559)	(2.284)
Borrow	0.379	3.122	2.314*
	(2.633)	(3.084)	(1.358)
Interaction - Borrow	0.113	-0.456	-0.52
	(0.725)	(0.835)	(0.342)
Human Capital	-1.832	-2.935	-5.520**
	(2.941)	(5.348)	(2.649)
Population Growth	906.758***	699.340*	558.008***
	(244.101)	(359.243)	(177.010)
Gross Capital Formation	-0.846***	-0.12	-0.209*
	(0.161)	(0.236)	(0.122)
Implied Marginal Effect:			
At Q25	0.013	-1.204	1.960
	(3.432)	(2.617)	(1.404)
At Median	0.359	-2.391	0.607
	(2.669)	(2.714)	(1.576)
At Q75	0.579	-3.334	-0.467
	(3.055)	(3.810)	(2.006)
Observations	53	53	53
R-squared	0.599	0.730	0.766

Note: Standard errors in parentheses are adjusted for heteroscedasticity.
All regressions include time fixed effects.
* p<0.1 ** p<0.05 *** p<0.01

6. List of Countries

Table 13: List of All Countries

Albania	Benin	Chile	Denmark
Algeria	Bolivia	China	Dominican Republic
Angola	Botswana	Colombia	Ecuador
Argentina	Brazil	Congo, Dem. Rep.	Egypt, Arab Rep.
Armenia	Bulgaria	Congo, Rep.	El Salvador
Australia	Burkina Faso	Costa Rica	Estonia
Austria	Burundi	Cote d'Ivoire	Finland
Bahrain	Cambodia	Croatia	France
Bangladesh	Cameroon	Cyprus	Gabon
Belgium	Central African Republic	Czech Republic	Germany
Ghana	Iraq	Kuwait	Mauritania
Greece	Ireland	Kyrgyz Republic	Mauritius
Guatemala	Israel	Latvia	Mexico
Haiti	Italy	Lithuania	Moldova
Honduras	Jamaica	Luxembourg	Mongolia
Hong Kong SAR, China	Japan	Madagascar	Namibia
Hungary	Jordan	Malawi	Nepal
India	Kazakhstan	Malaysia	Netherlands
Indonesia	Kenya	Mali	Nicaragua
Iran, Islamic Rep.	Korea, Rep.	Malta	Niger
Nigeria	Russian Federation	Spain	Uganda
Norway	Rwanda	Sri Lanka	Ukraine
Pakistan	Saudi Arabia	Sudan	United Arab Emirates
Panama	Senegal	Sweden	United Kingdom
Paraguay	Serbia	Tajikistan	United States
Peru	Sierra Leone	Tanzania	Uruguay
Philippines	Singapore	Thailand	Venezuela, RB
Poland	Slovak Republic	Togo	Vietnam
Portugal	Slovenia	Tunisia	Zambia
Romania	South Africa	Turkey	

Table 14: List of Developing Countries - Accounts and Savings

Albania	Benin	Central African Republic	Dominican Republic
Algeria	Bolivia	Chile	Ecuador
Angola	Botswana	China	Egypt, Arab Rep.
Argentina	Brazil	Colombia	El Salvador
Armenia	Burkina Faso	Congo, Dem. Rep.	Gabon
Bahrain	Burundi	Congo, Rep.	Ghana
Bangladesh	Cambodia	Costa Rica	Guatemala
	Cameroon	Cote d'Ivoire	Zambia
Haiti	Jamaica	Malawi	Namibia
Honduras	Jordan	Malaysia	Nepal
Hong Kong SAR, China	Kazakhstan	Mali	Nicaragua
India	Kenya	Mauritania	Niger
Indonesia	Korea, Rep.	Mauritius	Nigeria
Iran, Islamic Rep.	Kuwait	Mexico	Pakistan
Iraq	Kyrgyz Republic	Moldova	Panama
Israel	Madagascar	Mongolia	Paraguay
Peru	Singapore	Tunisia	
Philippines	South Africa	Turkey	
Russian Federation	Sri Lanka	Uganda	
Rwanda	Sudan	Ukraine	
Saudi Arabia	Tajikistan	United Arab Emirates	
Senegal	Tanzania	Uruguay	
Serbia	Thailand	Venezuela, RB	
Sierra Leone	Togo	Vietnam	

Table 15: List of Developing Countries - Borrow

Albania	Botswana	Colombia	Egypt, Arab Rep.
Algeria	Brazil	Congo, Dem. Rep.	El Salvador
Argentina	Burkina Faso	Congo, Rep.	Gabon
Armenia	Cambodia	Costa Rica	Ghana
Bangladesh	Cameroon	Cote d'Ivoire	Guatemala
Benin	Chile	Dominican Republic	Haiti
Bolivia	China	Ecuador	Honduras
India	Kyrgyz Republic	Mongolia	Panama
Indonesia	Madagascar	Namibia	Peru
Iraq	Malaysia	Nepal	Philippines
Kazakhstan	Mali	Nicaragua	Russian Federation
Kenya	Mauritania	Niger	Rwanda
Korea, Rep.	Mauritius	Nigeria	Saudi Arabia
Kuwait	Mexico	Pakistan	Senegal
Serbia	Togo	Vietnam	
Sierra Leone	Tunisia		
Singapore	Turkey		
South Africa	Uganda		
Sri Lanka	Ukraine		
Tanzania	United Arab Emirates		
Thailand	Uruguay		

7. Data Sources

Table 16: List of Variables and Sources

Indicator Name	Source
Account (% age 15+)	Global Findex database
Saved at a financial institution (% age 15+)	Global Findex database
Borrowed to start, operate, or expand a farm or business (% age 15+)	Global Findex database
Debit card ownership (% age 15+)	Global Findex database
Credit card ownership (% age 15+)	Global Findex database
Domestic credit to private sector by banks (% of GDP)	International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.
GDP per capita (constant 2010 US$)	World Bank national accounts data, and OECD National Accounts data files.
Poverty headcount ratio at national poverty lines (% of population)	World Bank, Global Poverty Working Group. Data are compiled from official government sources or are computed by World Bank staff using national (i.e. country–specific) poverty lines.
Poverty headcount ratio at $5.50 a day (2011 PPP) (% of population)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).

Indicator Name	Source
Poverty headcount ratio at $3.20 a day (2011 PPP) (% of population)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).
Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).
Poverty gap at $1.90 a day (2011 PPP) (%)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).
Poverty gap at $3.20 a day (2011 PPP) (%)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).
Poverty gap at $5.50 a day (2011 PPP) (%)	World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/index.htm).

Indicator Name	Source
Population, total	(1) United Nations Population Division. World Population Prospects: 2017 Revision. (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics, (4) United Nations Statistical Division. Population and Vital Statistics Reprot (various years), (5) U.S. Census Bureau: International Database, and (6) Secretariat of the Pacific Community: Statistics and Demography Programme.
Gross capital formation (% of GDP)	World Bank national accounts data, and OECD National Accounts data files.
Human capital index	Penn World Tables 9.1

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