

Finance, Growth and Shared Prosperity: *Beyond Credit Deepening*

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Abstract

Finance might help mobilize greater resources for investment, improve allocation efficiency, and boost economic growth, but since the global economic crisis this relationship has come under increased skepticism. Particularly, the often used indicator of financial depth—private credit to GDP—has been questioned as a robust and reliable contributor to economic growth. Moreover, little research has been undertaken on the broader income distribution effects of finance and economic growth. This paper builds on the literature examining the relationship between finance and growth, inequality, and poverty. It investigates how financial development, broadly defined to include depth, efficiency, stability, and inclusion, influence the growth of aggregate income and the income of people in the bottom 40 percent of the income distribution (B40). It also examines how these relationships vary through banking crises. A key contribution of this study is to empirically unpack the multiple effects of financial development on growth across different income groups and finds, interestingly, that firm inclusion is perhaps the most important contributor to B40 long-run income growth through the allocative efficiency channel.

Introduction

Does financial development support economic growth including the income growth of people in the bottom part of the income distribution? The seminal work of Levine and King (1990) and subsequent studies by Levine et al. (2000), Beck et al. (2000), and others showed that deepening of the financial sector as measured by credit to GDP coincides with greater long-run growth. The positive effect of financial deepening on growth was estimated to work through both greater investment and total factor productivity. Moreover, further studies showed that financial development can help reduce poverty (Beck et al., 2007) and inequality (Beck et al. 2007, Demirguc-Kunt and Levine, 2009). However, these results have recently been subject to much skepticism. Not least because the 2008 global financial crisis had its epicenter in the United States, but the crisis also quickly spilled over to other countries with the deepest financial systems, and depressed economic growth around the globe. Questions arose about the economic benefits of financial depth and development.

However, these concerns are perhaps due to the fact that bank credit to GDP—the measure of financial depth most often used in the literature—is an *ambiguous* and *imprecise* measure of overall financial

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development. First, credit to GDP could be an *ambiguous* measure because the influence of finance on growth could be non-monotonic. For instance, Aghion et al. (2005) and Masten et al. (2008) suggest that financial depth can help accelerate income convergence, but may have no effect on long-run growth. Rossau and Wachtel (2011), Arcand et al. (2012), and Pagano (2013) argue that excessive financial deepening can turn finance from *economic lifeblood* for less developed countries with smaller financial systems to *economic toxin* for advanced countries with large and complex financial systems. Loayza and Ranciere (2006) and Ranciere et al. (2008) suggest that the effect of financial deepening could be negative in the short-run due to its pro-cyclicality, at times resulting in crises, but remains positive in the long run. Moreover, Kaminsky and Reinhart (1993) and Demirguc-Kunt and Detragiache (2005) find credit to GDP and lagged credit growth to be a good predictor of banking crises, in addition to measuring financial depth.

Second, credit to GDP could be *an imprecise* a measure of financial development because it cannot adequately summarize all potential aspects of a healthy financial system—in general, financial depth, stability, efficiency, and inclusion. But there are also possible tradeoffs between achieving the four financial sector goals. For instance, policies that promote financial inclusion of consumers that rank low on creditworthiness may lead to a buildup of systemic risk (recall the US subprime crisis, foreign exchange mortgages in Hungary, or the microfinance crisis in Andhra Pradesh). Analogously, an excessive focus on financial stability can restrain inclusion of more people and enterprises from the use of financial services and lead to continued financial exclusion and limited savings and investment opportunities (BIS, 2015). Moreover, finance is not only about credit. Savings, insurance, payment services and the use of capital market instruments are potentially equally important for economic agents to seize development opportunities and manage risks (WDR, 2014). The literature has focused less on studying the effect of non-bank financial sector development (non-bank credit, insurance, and capital market instruments) and the effects of a greater use of financial services beyond credit (payment services, savings) on growth (Allen et al. 2014; Bernstein et al. 2015; GFDR, 2014; WDR, 2014). Taking a broader view of financial sector development may allow a better assessment of the attributes that correlate with growth and naturally raise the question of how to address trade-offs between financial stability and inclusion/efficiency.

In addition, recent moves toward greater globalization, the deployment of new technology, cross-border banking, and free capital flow make the observed size of credit originated locally less of a binding constraint to growth. In fact, a lack of foreign credit could indicate the same fundamental problems underlying the lack of domestic credit such as poor governance, weak institutions, and low absorption of technology. Overall, domestic bank credit to private sector over GDP is likely to be much less relevant measure of financial development and a contributor to income growth than it used to be some decades ago.

The positive association of private credit to GDP and growth may be dependent on the specific time periods of the data. Table 1 presents the results of several growth regression that were run for different time periods. Credit to GDP enters with a positive and significant sign only in the decades between 1980 and 2000. The size and significance of the coefficient appears to be decreasing with time. Furthermore we find that private credit to GDP has no explanatory power when it comes to the growth of the income of the poorest 40 percent of the income distribution.

Table 1. Growth Regressions with Private Credit/GDP by decade

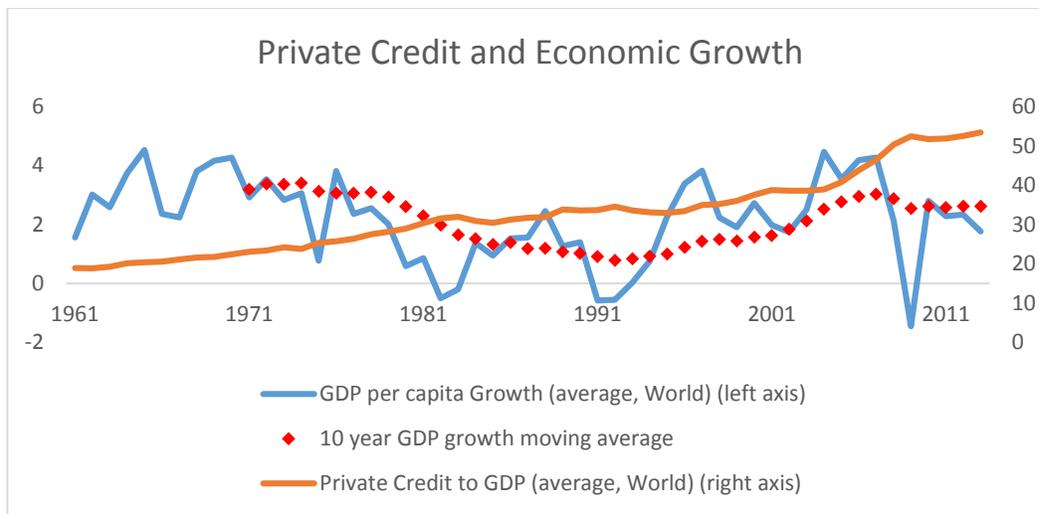
Each row represents a multivariate growth regression with either overall GDP per capita growth or bottom 40 income per capita growth as a dependent variable. The independent variables include initial GDP per capita, the average year of schooling, government consumption as a share of GDP and private credit to GDP. Each regression is run for a different period. Coefficients displayed are those on private credit to GDP.

Period	Effect of Private Credit/GDP on Overall GDP per capita growth	Effect of Private Credit/GDP on Bottom 40 income per capita growth
1970-1980	-0.011 (0.63)	..
1980-1990	0.030 (2.64)***	0.052 (1.02)
1990-2000	0.018 (2.18)**	0.033 (0.94)
2000-2014	0.000 (0.07)	-0.007 (1.10)

T-statistics in parenthesis. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

In Figure 1 we plot the average annual GDP per capita growth rates and average annual private credit to GDP levels for the whole world. Since the 1960s private credit almost tripled as a share of GDP, yet there is no discernible trend in the average GDP growth rates which hover between two and three percent.

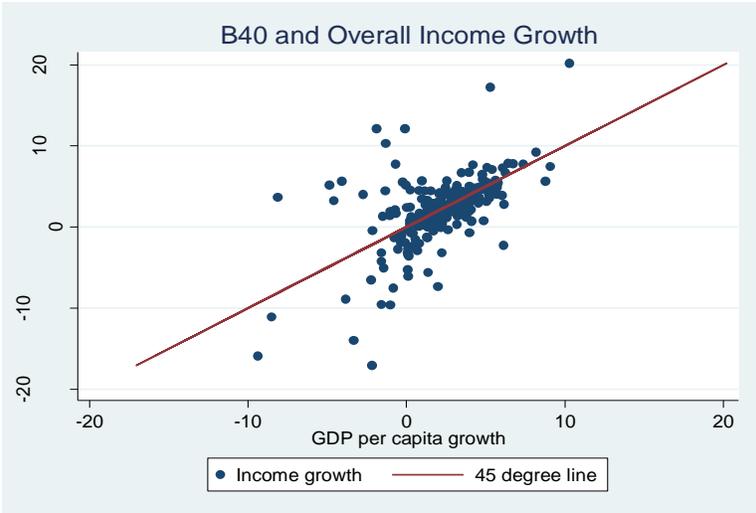
Figure 1: Private Credit and Economic Growth



This paper studies the effects of financial development on aggregate income growth and its distributional impact by examining the income growth of the bottom forty percent of income earners. Aggregate income growth and B40 growth are not always the same and can vary significantly between countries (see Figure 2). The paper studies this relationship along four dimensions of financial development: depth and

integration, stability, efficiency, and inclusion in the use of various financial services. Financial deepening (broadly defined) and integration in global financial markets are new dimensions of financial development characteristics becoming more prominent in the literature (Cihak, Demirguc-Kunt *et al*, 2012). We control for other determinants of income growth using well-established control variables from the literature on finance and economic growth, poverty, and inequality: the initial income level, education, macroeconomic stability and size of the government.

Figure 2. GDP per capita growth and Bottom 40 income per capita growth.



Each dot represents the average annual growth of each country in the sample over a 10 year period (except for the latest period which covers 2000-2014)

Summarizing our findings, we provide new evidence on how finance may affect income growth at its mean and the lower end of the income distribution. Overall, fewer financial development indicators are significantly correlated with the income growth of the bottom 40 percent than with the aggregate growth, which could be a result of less data availability, quality, or simply lack of participation in the financial sector of lower income groups. Our new evidence, using disaggregated measures of financial development, suggests that financial depth, stability, efficiency and inclusion could have distinct effects on aggregate income growth. It appears that financial efficiency and inclusion have the most economically significant association with aggregate income growth compared to depth and other financial development indicators, possibly due to their positive impact on economic competitiveness. Financial stability and firm inclusion show a smaller, but still economically significant impact. But financial depth does not have economically significant explanatory power for aggregate or B40 income growth. For B40 income growth, firm inclusion and household inclusion have the highest economically important effects. Interestingly, financial inclusion of firms rather than people appears to be more important in increasing inclusive growth.

On the channels through which finance could affect growth, we also find that finance is associated with growth through allocative efficiency more than through the savings-investment channel. Financial inclusion, in particular, appears to advance allocative efficiency more when compared with other aspects

of financial development, because it may create more equal access to opportunities for micro and small enterprises as well as boosting the capacity of people and firms to manage risks.

When evaluating whether the positive effects of financial inclusion, efficiency, and deepening could sustain growth during crises we find evidence of possible policy tradeoffs. During banking crises, countries with deeper and more efficient financial systems seem to lose more output than countries with shallower and less efficient systems. In contrast, financial inclusion seems to be always associated with better performance regardless of whether there is a banking crisis. During banking crises, countries with higher financial inclusion of firms and households lose relatively less output, perhaps because of their ability to cope more effectively.

The findings for the income growth of the bottom 40 are similar. The income growth of the B40 living in countries with higher financial inclusion of firms and households is faster than the analogous income growth in less financially inclusive economies, irrespective of banking crises. Although financial efficiency benefits the bottom 40 in the absence of shocks, it can also be associated with greater losses if a crisis emerges. Counter-intuitively, for the bottom 40, high financial depth is associated with higher income growth in crisis periods compared to non-crisis periods. This result is perhaps due to an interaction between inclusion and financial depth. If the bottom 40 have less financial sector exposure in high depth countries, than during crisis periods they may be comparatively better-off.

Empirical Methodology and Data

We use ten-year averages of data for more than 100 countries over 1960-2014 to estimate the impact of financial market development on growth. In the robustness analysis, we check whether our results could be affected by reverse causality—that is, whether financial sector development stimulates growth or vice-versa. We also study whether finance affects income growth mainly through resource mobilization and greater investment or through allocative efficiency. In addition, we investigate whether the effects of financial deepening, efficiency and inclusion are present across periods of banking crises or if policy tradeoffs exist.

Empirical Methodology

We organize the data into repeated cross-sections consisting of 5 ten-year growth periods starting from 1960 and ending in 2014. For each period we calculate the average overall annual growth of the GDP per capita and the bottom 40 percent growth per capita. We adopt a two-stage regression methodology. In the first stage we estimate the following long term growth equation:

$$y_{i,T} = \beta x_{i,T} + e_{i,T}$$

Building on the literature estimating the effect of finance on aggregate growth, inequality, and poverty, we include in the conditioning set of variables $x_{i,T}$: the log of initial GDP per capita, average years of schooling, average inflation and average government size for each growth period for each country.

In the second stage we take the estimated growth residuals $e_{i,T}$ and use them as the dependent variable in the following bivariate regression:

$$e_{i,T} = \gamma f_{i,T} + u_{i,T}$$

where $f_{i,T}$ is the average value of the financial development indicator for the country-period pair. To identify the effects of the various measures of financial development on income growth, we use four sets of indicator variables based on the relevance for gauging financial depth, stability, efficiency, and inclusion.

This two-stage regression approach has several desirable features but also a few drawbacks. By omitting the relatively sparse financial indicators from the first stage of the regression, we are able to estimate β using the greatest number of observations (the core conditioning set of variables $x_{i,T}$ doesn't have many missing observations). One can interpret the coefficient from second stage regression (γ) as the effect of the individual financial indicator (e.g. private credit to GDP) on the unexplained portion of growth.

At first glance, a drawback of this methodology is that the model is misspecified and the estimation of the coefficients on the conditioning set of variables β is biased due to the omitted financial variables. This is indeed likely to be true since the financial indicators are expected to be correlated with $x_{i,T}$ (if they are not correlated then $COV(e_{i,T}, x_{i,T}) = 0$, financial development variables have no effect on growth, but the estimator is consistent). However, by introducing this bias in the first stage we actually make the second stage estimates more conservative – it is more difficult for γ to cross the significance threshold. The model misspecification makes our second stage results more robust to reducing type I errors (less likely to find false positives), but it also distorts the size of the coefficients – it is likely that β is upward biased and γ is downward biased.

Due to the sparsity of the financial indicator series, we are unable to jointly control for all the financial development indicators at the same time in the second stage. Therefore the significance of some financial indicators may be due to their correlation with other indicators.

We discuss the technical aspects of the methodology and its merits in the Appendix A.

Data

Growth data and other macroeconomic variables such as inflation, government consumption, level of GDP per capita and investment rates are extracted from the World Development Indicators dataset maintained by the World Bank. The overall growth numbers are calculated from the national accounts data; the growth of the bottom 40 is calculated from the GINI surveys in the same database. We use the Barro-Lee data for average years of schooling indicator as a proxy for education levels and human capital. This variable is downloaded from the World Bank EdStats Query. The base period of study is from 1960-2013 and the sample includes 141 countries for which we have overall growth data and macroeconomic variables.

As mentioned above, we classify financial market development into four broad categories (depth, stability, efficiency, and inclusion). Financial indicators for depth, stability and efficiency and firm inclusion are extracted from the Global Financial Development Data. We expanded the stability indicators to include several crisis indicators calculated by Laven and Valencia 2008. The data on household inclusion is from the Global Findex and Financial Access Survey.

To measure *financial depth*, we use volume indicators—that is how much resources the financial sector can mobilize: bank deposits to GDP, external bank funding to GDP, insurance premiums to GDP, and stock market capitalization to GDP and others (see Appendix B); The ability to mobilize greater financial resources through bank deposits, insurance companies, and the capital markets makes more resources

available for funding viable projects and boost income growth. Mobilizing external funding, as opposed to just domestic ones, could generate positive externalities for efficiency from improved corporate governance and transfer of technologies. Among the former transition economies, the Czech Republic, Hungary, Slovenia and Bulgaria are the most successful in financial resource mobilization

To measure *financial stability*, we use ex-ante indicators of systemic risk: the aggregate z-score for banks, the aggregate bank loan to deposit ratio, and the aggregate non-performing loans ratio (NPLR); and ex-post indicators of systemic risk: occurrence of bank crises, cumulative output costs of bank crises, and fiscal costs of bank crises. A higher z-score indicates greater resilience of banks and financial intermediation to bad credit shocks, while a high loan to deposit ratio and NPLR indicate increasing refinancing and credit risks in the banking sector that can produce disintermediation shocks to the real economy and dampen income growth. Occurrence of systemic banking crises and their high cost in terms of GDP or taxpayers money are expected to negatively impact growth. Over the past three decades, for example, Hungary and Sweden have spent more than one third of the time in banking crises. However, Ireland, Iceland, and Latvia paid the highest price for crises in terms of output loss and fiscal cost. Note that among the ex-ante systemic risk indicators, the loan to deposit ratio (and indicator of reliance on wholesale funding) has played particularly strong role in the transitional European economies before and during the recent global financial crisis.

To measure *financial efficiency*, we use indicators of price efficiency and bank competition: the Lerner index of bank competition, and stock market turnover. The ability to price financial services competitively is expected to boost also the competitiveness of the real sector and income growth, including through exports. More intensive trading in the secondary capital markets can reveal greater and more precise information about viable projects, build investor confidence, and stimulate investment and economic growth. Lithuania and Hungary are examples in pricing efficiency on credit and capital market instruments, respectively.

We divide *financial inclusion* into *firm Inclusion* and *household Inclusion*. To measure household inclusion we use indicators of financial inclusion for individuals: percentage of people that save at formal financial institution, borrow formally, use electronic payments, and have agricultural insurance while working in the agricultural sector; To measure firm inclusion we use indicators from the Enterprise Survey: percentage of firms with a checking or deposit account, and small firms with a credit line or loan. A greater use of formal payment, saving, borrowing, and insurance products helps increasingly more individuals and firms pursue new opportunities and build resilience to bad shocks, and is expected to enhance income growth at the micro and aggregate levels, including for the B40. Advanced economies typically outperform developing countries on financial inclusion, but exceptions exist. For example, Italy underperforms most Central European countries. For example, the Slovak Republic is the overall leader in financial inclusion in variety of financial services among European countries. Slovenia leads on financial inclusion of firms, in particular SMEs

Empirical Results

The basic growth regression results are summarized in Table 2. Not surprisingly, we find that income growth (overall and for the poorest 40%) is slower in countries with higher initial income levels. Education, as measured by the average number of years of schooling, also has a positive and economically significant effects on income growth. Macroeconomic stability, proxied by the average inflation rate, also appears to be an important factor for both dependent variables.

Government size, measured by the share of government consumption on GDP, appears to affect negatively overall growth, but the effects on bottom 40 income growth are not significant. This result may reflect the fact that an important part of government spending is on welfare and social support, the primary beneficiary of which are the poorer member of society. This income redistribution may cause sub-optimal resource allocation which could be the reason for the lower overall growth rates associated with it.

Table 2. Growth Regressions

The basic growth regression results. The dependent variable is the average annual growth (bottom 40 and overall) per period. The independent variables include the logarithm of initial GDP per capita, the average years of schooling, the share of government consumption in GDP (government size), the growth in the GDP deflator (inflation).

	Overall GDP per capita growth	Bottom 40 income per capita growth
Initial GDP per capita	-0.148 (1.38)	-0.943 (3.58)***
Years of schooling	0.154 (2.97)***	0.423 (3.35)***
Government size	-0.071 (3.32)***	-0.028 (0.50)
Inflation	-0.004 (6.96)***	-0.005 (2.84)***
Intercept	3.842 (4.18)***	7.012 (4.50)***
R2	0.13	0.1
N	468	196

T-statistics in parenthesis. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The residuals from this growth regression are then used as dependent variables in a series of bivariate regressions with various financial indicators as independent variables.

Table 3 summarizes the results from the second stage estimation with the financial indicators. We only report indicators that have crossed the significance level of 10%. We don't find significant relationship between the overall per capita growth and the various financial depth indicators. The only statistically significant variable is the ratio of external loans and deposits of reporting bank assets vis-à-vis the banking sector. However, the size of the coefficient is not economically important and is negative. The negative effect is likely driven by countries receiving large foreign capital inflows into the banking sector and the asymmetry between the positive growth impact during boom periods, but larger negative growth impact during crisis periods when lending drops, as was seen during the aftermath of the 2008 global financial crisis in Central and Eastern Europe after large foreign bank inflows from Western Europe collapsed. Indeed, in separate regressions not reported here, we find that if we interact the external loans and deposit indicators with the occurrence of a binary indicator for the severity of a banking crisis, the coefficient remains negative only for the crisis group. Other traditional measures of financial depth, such as private credit to GDP, do not seem to impact overall growth.

Table 3. Finance and Overall Growth

Each row represents a bivariate regression with the overall growth residual as the dependent variable. The growth residual is obtained from regressing GDP per capita growth on the core set of conditioning variables outlined in the methodology section. All finance indicators are in levels. See the data Appendix B for a brief description of each indicator. We only report indicators that cross a level of significance of 10%.

		Overall growth residual	Number of observations
Financial Depth and Integration	External loans and deposits of reporting banks vis-à-vis the banking sector	-0.003 (1.88)*	259
Financial Stability	Average output loss during banking crisis	-0.216 (3.36)***	468
	Credit volatility	-0.8 (1.96)*	420
	Change in NPLs	-0.018 (2.61)***	468
Financial Efficiency	Bank lending-deposit spread (%)	-0.053 (4.35)***	304
	H-statistic	0.625 (2.30)**	97
Financial Access (Firms)	Investments financed by banks (%)	0.024 (2.51)**	105
	Working capital financed by banks (%)	0.037 (2.91)***	105
	Firms with a checking or savings account (%)	0.006 (2.87)***	97
	Firms using banks to finance investments (%)	0.016 (2.54)**	105
	Investments financed by equity or stock sales (%)	0.122 (3.10)***	96
	Firms using banks to finance working capital (%)	0.015 (2.92)***	105
	Firms not needing a loan (%)	0.015 (3.39)***	87
	Firms with a bank loan or line of credit (%)	0.015 (3.20)***	98
	Small firms with a bank loan or line of credit (%)	0.015 (2.86)***	98
Financial Access (People)	Bank accounts per 1,000 adults	0.001 (2.56)**	75
	Mobile phones used to pay bills (% age 15+)	0.083 (1.95)*	99
	Purchased agriculture insurance (% working in agriculture, age 15+)	0.373 (2.20)**	129

T-statistics in parenthesis. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

There are several financial stability outcomes that are correlated with economic growth. We find that countries with higher volatility of credit (boom and bust credit cycles) tend to have lower growth rates. The presence and severity of a banking crisis is also negatively associated with long term growth as one would expect.

Oddly, we find only two financial efficiency indicators to be significantly associated with economic growth. Countries with more competition in the banking sector, as measured by the H-statistic, grow faster. More competition can cause more efficient pricing of financial services such as lending. We find that long term growth is higher in countries with smaller lending-deposit spreads.

Many of the financial firm inclusion variables seem to be important in explaining long term growth rates. We not only find a significant number of indicators to be significantly correlated with the growth residual, but also many of the indicators have large coefficients. The regression results suggest that the greatest effect on growth may be due to the share of firms opening to equity investment. Raising investment through the sale of equity may also improve firm corporate governance and accountability, which are also likely to improve growth.

In general, we find that the greater the number of firms that interact with the financial sector (e.g. firms applying for credit lines or borrowing in order to invest or raise working capital) the higher the long term growth rates. Readily available credit may allow entrepreneurs to take advantage of business opportunities as well as to weather economic downturns. Another desirable outcome of greater firm inclusion may be that firms move out of the informal sector in order to use financial and banking services.

Financial inclusion of households is also positively associated with economic growth. We find that the greatest effect may come from e-payments, insurance, accounts and loans. This is in contrast to other studies, whose primary focus is on credit. The use of e-payments may allow for the secure and efficient transfer of remittances. Households could borrow in order to invest in human capital.

However, many of the financial services used by households, may have non-pecuniary benefits. For example, households may borrow primarily to smooth consumption. This may explain why the size of the coefficients is smaller.

The importance of the firm inclusion indicators in explaining GDP per capita growth remains even if we control for private credit in the second stage of the regression. That is firm inclusion remains correlated with growth even if we account for depth (credit). The varying availability of data on the financial indicators implies that each second stage coefficient is estimated on a different sample of growth residuals. Since the inclusion data is available only for more recent periods (2002 +), our results may be biased by the estimation sample. As a robustness check, we restricted the sample of growth residuals in the second stage regression to the period of 2000-2014, and found no change in the number of significant depth and efficiency indicators (but some of the stability variables change sign)

But we find again a positive and economically significant relationship between bottom 40 growth and firm inclusion. This result suggest that indeed, finance affects the bottom 40 through the labor wage growth and employment channel. If firms' access to finance contributes to job creation, then the employment effects on the bottom 40 could be significant.

We also find that the higher the number of people in the bottom 40, who have loans from a financial institution, the greater the income growth of the bottom 40. This could be due to the reduction of informality necessitated by the interaction with the financial system. Because the bottom 40 are more likely to be in the informal sector than the top 60, increased household access to finance can have significant impact on their (reported) income.

Aggregating-up: Which broad dimensions of financial sector development matter the most?

In this subsection we illustrate the joint effects of each dimension of financial development on GDP per capita growth and bottom 40 per capita growth. Instead of focusing on each individual indicator in each of the groups of financial development indicators, we construct a composite index of each indicator type: financial depth, stability, efficiency, firm and household inclusion comprising the significant variables in the overall GDP per capita growth regressions. We divide each variable into deciles and calculate the index by aggregating with equal weights all variables in the respective financial development type. Therefore each value of the index represents the average of the decile ranking (1-10) of the component financial development indicators.

As the Table 5 shows, financial depth index doesn't contribute explanatory power to either overall or bottom 40 growth. Financial efficiency and stability seem to be positively associated with overall GDP per capita growth but not with bottom 40 growth per capita. Greater firm inclusion is associated with higher overall GDP growth as well as higher bottom 40 growth. Interestingly, firm inclusion is more important for the bottom 40 growth than that of the overall growth. Household inclusion significantly impacts bottom 40 growth and the overall GDP growth.

Table.5 Financial Development Indices and Growth

Each row represents a bivariate regression with a dependent variable either the overall growth residual or the bottom 40 growth residual. The independent variables are composite indices consisting of variables which have been divided into deciles. The choice of variables in each index was made based on the significance level of the overall growth regression. Each index represents a simple average of the values of its elements with the weights properly adjusted for missing observations. Therefore the indices for each of the two dependent variables are identical.

	Overall Growth	Bottom 40 Growth
Depth	-0.035 (1.53)	-0.035 (0.71)
Efficiency	0.12 (5.15)***	0.022 (0.46)
Stability	0.06 (2.29)**	-0.009 (0.19)
Firm Inclusion	0.058 (2.16)**	0.089 (2.42)**
Household Inclusion	0.119 (2.15)**	0.056 (1.83)*

T-statistics in parenthesis. * p<0.1; ** p<0.05; *** p<0.01

The channels of transmission from financial market development to growth

We documented a strong relationship between overall growth and bottom 40 growth and the level of firm inclusion in a country. In this section we investigate two of the most likely mechanisms through which financial sector development may affect economic growth – stimulating the investment rate (investment/savings channel) and improving resource allocation. We call the second channel of transmission “Allocative Efficiency Channel.”

Financial development, if associated with the introduction of new or the improvement of existing savings instruments, can be expected to increase the amount of savings. An efficient and stable financial sector can then transform those savings into investments which, in turn, should stimulate growth. If this mechanism is in place we should see a positive association between the financial sector development indicators and investment rates. In order to investigate this we adopt our existing 2 stage regression methodology.

To investigate the savings-investment channel, we use the residuals from a regression of the investment rate on the same core growth determinants described earlier in the growth regression. In order to investigate the allocative efficiency channel, we calculate the residuals from the growth regression but we extend the set of right-hand-side variables to include the investment rate (to ensure that the residual is orthogonal to investment).

The two residuals (investment and efficiency) are then used as dependent variables in a series of bivariate regressions where the independent variables are the composite indices for depth, efficiency, stability and inclusion (firm and people). The indices are constructed in the same manner described in the results section and contain only the set of significant variables from the overall growth regressions.

Table.6 Channels of transmission for financial development

The table reports the effects of the financial development on investment rates and allocative efficiency. Each row represents a different bivariate regression with a dependent variable either the investment rate residual or the "allocative efficiency" residual. The independent variables are the financial development indices which were used in the previous analysis. The investment rate residual is calculated by regressing the investment rate on initial GDP per capita, log of years of schooling, government size, inflation and period fixed effects. The allocative efficiency residual is calculated by adding the investment rate to the set of core growth determinants.

	Investment residual	Allocative Efficiency Residual
Depth	-0.385 (1.76)*	-0.013 (0.61)
Efficiency	0.396 (3.21)***	0.018 (0.65)
Stability	0.295 (3.03)***	0.038 (1.62)
Firm Inclusion	-0.229 (0.97)	0.061 (2.73)***
Household Inclusion	0.256 (0.76)	0.088 (1.94)*

T-statistics in parenthesis. * p<0.1; ** p<0.05; *** p<0.01

The results are summarized in Table 6. Interestingly, we find that firm and people inclusion doesn't affect the investment rate. It appears that the positive effects on growth are due to the improvement of the allocative efficiency (and possibly the productivity of the factors of production). We also find that financial efficiency in pricing (lending deposit spreads) and improved competitive banking environment (H-statistic and bank concentration) is associated with higher investment rates. This result is not unexpected as competitively priced financial services can be expected to increase the pool of depositors and more efficient financial instruments can increase investment opportunities. Finally, we find evidence that financial stability seems to affect growth mainly through the savings-investment channel as evidenced by the positive and significant sign of the stability index in the regression.

Robustness Tests

The causal link from finance to growth is notoriously difficult to prove. Causation may flow in the other direction: economic growth may increase the demand for financial services. This is just one simple example from the many econometric pitfalls one has to be wary when estimating growth equations. A completely satisfactory treatment of the issue of the endogenous link between finance and growth is beyond the scope of this study. We refer the reader to the rich literature on the subject.²

However, we do attempt to at least partially correct for one source of endogeneity—the contemporaneous link between finance and growth: if growth contemporaneously determines finance, then we can use the values of the financial indicators at the start of the period. Given our data constraints we choose the first non-missing observation in each growth period for our right-hand side variable.

Incorporating initial values for the right-hand-side variables, instead of contemporaneous averages, does not change the main results described earlier. Namely, the number of significant firm inclusion indicators remains the same in both the overall and the bottom 40 growth regressions. We do not observe any important differences in the results for the other groups of financial development indicators (depth, efficiency and stability).

But this correction procedure is far from ideal. For some indicators, the first non-missing observation may be in the middle of the sample period. Therefore the contemporaneous causality problem is only partially addressed by this data transformation. Some alternative approaches that may be more successful in addressing the endogeneity issues include data interpolation and using consensus growth forecasts to estimate the unexplained portion of growth and financial development. However, we leave this research for future work.

Financial development and its effects in times of banking crisis

The role of financial development and its importance to economic growth has been questioned in the aftermath of the 2008 global financial crisis. The common perception that the crisis was caused by the misbehavior of the financial sector and its use of esoteric financial instruments, has caused many to worry about “too much” financial development. We take this view as a legitimate ground for concern. Having well integrated financial markets in the global economy could potentially expose an economy to outside shocks that it wouldn't have been affected by otherwise. Free capital flows can be a boon for a growing

² An important issue described in all the finance and growth literature is the problem of identifying causality. Namely, the literature recognizes that exogenous instruments are imperfect and may imprecisely isolate the causal effect of financial development on economic growth from the endogenous effect of growth on finance. The same issue is true in the present study. See Beck (2008) and Panizza (2013) for detailed discussions of these issues.

economy, especially if the domestic savings cannot satisfy rapidly enough the investment needs. However, these are the capital flows that are often also the first to leave a country during a crisis. Finally many have raised the issue of the role of finance in the formation of asset bubbles which have overall deleterious effects on the economy.

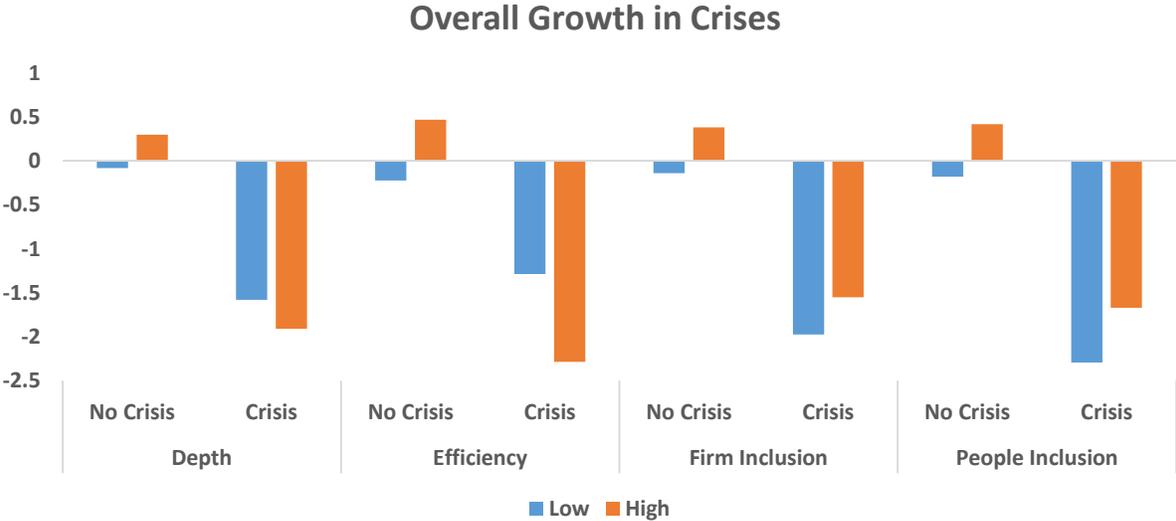
On the other hand some have speculated that financial development can provide a “buffer” and ameliorate shocks in crisis. This could be done through various insurance and hedging instruments that could potentially increase the efficiency of risk management.

We have argued so far that over the long-run financial development does appear to have positive effects on overall and bottom 40 growth. In this section we briefly explore the effects of financial development during banking crises. Do better developed financial markets alleviate or exacerbate adverse financial shocks?

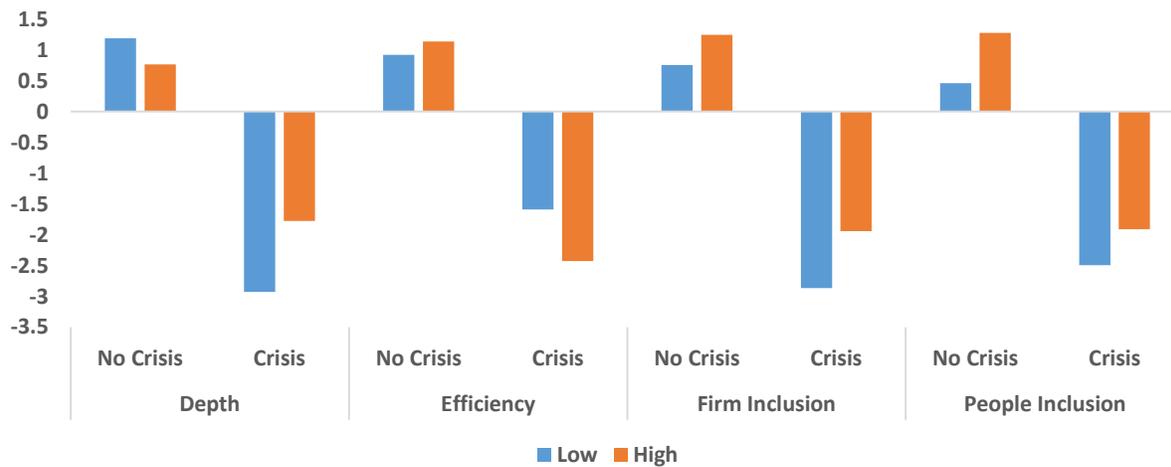
In order to examine this question we adopt the following descriptive approach. We divide all countries into high and low developed for each of the following financial development indices: depth, efficiency, inclusion (firms) and inclusion (households). We use the same indices that were proposed in the earlier sections of the paper. We then look at the growth performance of each group during banking crises. In order to better estimate the growth effects we need to account for other growth determinants and not just finance. Therefore we look at the growth residual when accounted for the typical long-term growth determinants (initial level of income, education, inflation, government size and investment). The results are displayed in Figure 3.

Figure 3. Impact of financial development on growth during banking crises.

The height of each bar represents the average value of the growth residual (overall and bottom 40) during a banking crisis. The definition of a crisis was taken from Laeven and Valencia. The growth residuals are calculated from the basic growth regressions described. Finally each country is classified as having high (above median) or low (below median) financial development according to its score for each financial development index.



Bottom 40 Growth in Crises



Overall growth appears to be faster in countries with better developed financial markets than those with less developed ones in the absence of banking crisis. However, in times of banking crises, countries with deeper and more efficient financial market seem to lose more output than the less developed ones. This suggests that despite the overall positive effects of developing deeper and more efficient financial sectors, there might be a cost associated with it which is realized as lost output during banking crises. The inclusion indicators, on the other hand, seem to always be associated with better performance regardless of the presence of a crisis. During banking crises, countries with higher firm and household financial inclusion, lose less output growth than those with lower levels of inclusion.

The results for the bottom 40 are similar. The income of the poorest 40 percent of the income distribution, living in countries with higher levels of firm and household inclusion, grows faster than their counterparts in less financially included economies, irrespective of the presence of a banking crisis or not. Financial efficiency seems to benefit the bottom 40 during the absence of financial crisis but may also cause greater losses during one. Financial depth is the only indicator that is associated with lower rates of growth for the bottom 40 in both crisis and non-crisis periods.

Conclusion

Financial market development is a natural accompaniment to overall economic development and can assist countries in making the most of limited resources through, mobilizing savings, improving economic efficiency and allocative decisions, managing risks, as well as facilitating transactions. Nonetheless, as was observed most recently in the aftermath of the 2008 Global Financial Crisis, there is also potential for finance to turn from being an economic “life blood” to an “economic toxin” if countries become overleveraged, financial sector participants’ incentives are misaligned with broader social economic benefits and risks, and governance and institutional frameworks are too weak to adequately monitor and supervise the growing complexity of markets and align social returns and incentives with private returns and incentives.

The contribution of this study is to empirically unpack the multiple effects of financial development on growth and go beyond the traditional definition of financial development as depth, particularly private

credit to GDP, and broaden it to include other measures (particularly cross-border funding, non-bank instruments such as equity and insurance), as well as indicators of stability, efficiency, and inclusion (firm and individual). We also examine how the various components of financial market development influence growth across the income distribution and whether banking crises have differential effects on growth depending on the strength of various components of finance. While there is a rich literature that has examined many questions addressed within this study, our unique contribution is to bring to the table a comprehensive and up-to-date set of financial market development indicators and systematically evaluate how these multiple components of financial market development are associated with growth across the income distribution in single consistent framework.

Our key findings are that private credit to GDP, the most used indicator of financial depth, has no explanatory power in describing growth in lower to middle income segment of the distribution (bottom 40 percent) or aggregate income growth. Other measures of financial sector depth—more broadly defined to include non-credit instruments, such as equity and insurance products and cross-border loans and deposits, have only modest explanatory power. Importantly, bottom 40 growth is much more sensitive to inclusion of firms in financial services rather than inclusion of individuals, which is probably due to the importance firms in supporting income growth of the bottom 40 percent. Moreover, broadly defined financial sector development is associated with higher long-term growth, but during periods of crisis growth falls the most for those countries with the highest level of financial development. Nonetheless, the decline in growth during these crisis periods does not offset the benefits of financial sector development to long-term growth. Interestingly, the bottom 40 percent of the income distribution in financially developed economies do better during crises, which is perhaps due to the bottom 40 percent's lower direct exposure to financial markets.

Among several policy implications that may be drawn from the study, perhaps a few can be highlighted. First, focusing on financial sector depth at the expense of efficacy, stability, and inclusion (firm and individual) is unlikely to unlock higher overall long-run growth potential for a country.

Secondly, if a country's objective is to improve the income growth potential of the lower-end of the income distribution, focusing on inclusiveness (particularly for firms) is critical. Inclusiveness for individuals matters too, but the benefits are slightly less economically important. For the lower end of the income distribution, stability, efficiency, and depth seem not to be associated with higher growth. However, one would imagine that there are policy tradeoffs (that have not been explicitly examined in this study) that are relevant and should be taken into account. It would be extremely difficult to imagine a policy maker expecting to improve growth prospects of the lower income classes by simply focusing on inclusiveness of firms, particularly if the country were to lack a minimal amount of depth, stability, and efficiency in the financial system. Consequently, balancing trade-offs to various policies is critical.

Finally, financial market development—particularly high depth and efficiency—implies deeper growth slowdowns should a crisis occur, but the long-term higher growth benefits more than offset the short term lower-growth costs. Moreover, countries with high inclusion indicators (firm and people) tend to mitigate the adverse near-term consequences from financial shocks. Consequently, policymakers would do best to focus on overall financial market development to improve long-run growth, rather than focusing policies on limiting depth or competitiveness to mitigate the risks of short-term output losses should a crisis occur. Perhaps a more efficient way of offsetting these risks to individuals would be through social protection programs and not limiting the overall development of financial markets.

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Appendix A. Econometrics

The econometric model outlined in this paper was used in order to address the missing observations with many financial indicators. Some of the most interesting variables from the point of view of the policy makers (e.g. the various inclusion indicators) lack long data series that will allow us to study their effects on long term growth. In fact, including these indicators in a traditional growth regression will cause such a significant loss of degrees of freedom that the estimates and confident intervals for the traditional growth determinants were meaningless. This is why we propose the following two-stage estimation:

We assume that the underlying model is

$$y = X\beta + f\gamma + \epsilon$$

where y is economic growth, X is a N-by-K matrix of growth determinants (initial GDP, schooling etc.) and f is an indicator for financial development. We only have M non-missing observations for the financial variables where $M \ll N$. Estimating the full growth model above will yield consistent estimates but their precision will be low. The variance of the OLS estimator for β is:

$$VAR(\hat{\beta}) = \frac{\sigma_{\epsilon}^2}{M - K - 1} (X_f' X_f)^{-1}$$

where X_f is the matrix of growth determinants and the financial development indicator (K+1 columns). Notice that, depending on the size of M, the loss degrees of freedom can cause a substantial increase in the precision of the OLS estimator. In fact this is the case that economists face when working with macro data on financial development and growth. We have relatively good series and cross-sectional coverage for many of the traditional growth indicators such as: initial GDP, schooling, inflation etc. but very sparse data for some of the financial indicators. In fact we believe that this has been one of the reasons for researchers to focus on the size of the private credit as a measurement of financial development in the finance and growth literature.

To address this problem we propose the following two-stage estimation procedure. We first estimate the following model:

$$y = Xb + e$$

and then use the residuals from this estimation in the second stage:

$$e = fg + u$$

If finance is correlated with the other growth determinants X, then b and g are biased estimators for β and γ . In fact if we expect a positive correlation between finance and the other growth determinants then b will be biased upward and g downward. It is not hard to derive that bias in each stage is:

$$\begin{aligned} bias(b) &= (X'X)^{-1}(X'f)\gamma \\ bias(g) &= -(f'f)^{-1}(f'X)bias(b) \end{aligned}$$

As can be seen, in the case of a positive covariance between X and f, the bias in the first stage is positive and negative in the second. Also, the bias is larger, the greater the covariance between finance and the

other growth determinants and the greater the importance of finance in the growth equation (γ). However, introducing this estimation bias also gave us increased precision in the estimation of b (and β):

The variance of our estimator b will be

$$VAR(b) = \frac{\sigma_e^2}{N - K} (X'X)^{-1}$$

where σ_e^2 depends positively γ . Therefore the bias-precision tradeoff between the two econometric procedures (full model vs. two-stage estimation) depends mostly on the:

- loss of degrees of freedom ($N - M$)
- overall weight of finance in the underlying growth model (γ)
- variance covariance structure of the data

This breakdown allows us to quantify the tradeoff between the two approaches. The particular choice between either of these will depend on the cost function of the researcher where she adequately weighs how “costly” bias is and how beneficial precision is. However it is not difficult to come up with a simple rule of thumb:

If our prior for the size of γ is low, and the loss of degrees of freedom incurred by the inclusion of the f in the estimation is significant then the researcher should consider the two-stage estimation.

Working with the financial data in this paper the choice was simple. While the repeated cross section data on growth and the basic growth determinants has more than 460 observations, the inclusion of some of the financial indicators on the right hand side would cause a loss of degrees of freedom of the magnitude of 80% (some of the financial indicators only have about 100 non-missing observations). This problem is exacerbated when dealing with the bottom 40 data where the missing data problem is twice as acute.

In addition to the degrees of freedom argument, we firmly believe that most of long term growth is determined by other economic factors such as capital accumulation and education with finance having smaller marginal effects. If this is indeed the case, then the estimation bias will be small and the gain in precision significant. Furthermore, it is very likely, that the second stage estimation will not only have a downward bias for the value of the coefficient, but also a wider confidence interval. We view this as a welcome outcome as it makes the results more conservative – it reduces the likelihood for false positive results.

Appendix B. Financial Development Data

Financial Depth Indicators

Table B1. Financial Depth Indicators

Indicator Name	Description	Coverage
Bank Assets to GDP	Total assets held by deposit money banks as a share of GDP.	1960-2011
Loans from nonresident banks	Ratio of net offshore bank loans to GDP. An offshore bank is a bank located outside the country of residence of the depositor, typically in a low tax jurisdiction (or tax haven) that provides financial and legal advantages.	1993-2011
External loans and deposits vis-à-vis the non-banking sector	Percentage of loans and deposits of reporting banks vis-à-vis the nonbanking sectors to the domestic bank deposits.	1995-2011
Private credit by deposit money banks to GDP (%)	The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.	1960-2011
Deposit money banks' assets to GDP (%)	Total assets held by deposit money banks as a share of GDP. Assets include claims on domestic real nonfinancial sector which includes central, state and local governments, nonfinancial public enterprises and private sector. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.	1960-2011
Nonbank financial institutions' assets to GDP (%)	Total assets held by financial institutions that do not accept transferable deposits but that perform financial intermediation by accepting other types of deposits or by issuing securities or other liabilities that are close substitutes for deposits as a share of GDP. It covers institutions such as saving and mortgage loan institutions, post-office savings institution, building and loan associations, finance companies that accept deposits or deposit substitutes, development banks, and offshore banking institutions. Assets include claims on domestic real nonfinancial sector such as central-, state- and local government, nonfinancial public enterprises and private sector.	1961-2011
Life insurance premium volume to GDP (%)	Ratio of life insurance premium volume to GDP. Premium volume is the insurer's direct premiums earned (if Property/Casualty) or received (if Life/Health) during the previous calendar year.	1990-2011
Central bank assets to GDP (%)	Ratio of central bank assets to GDP. Central bank assets are claims on domestic real nonfinancial sector by the Central Bank.	1961-2011
Mutual fund assets to GDP (%)	Ratio of assets of mutual funds to GDP. A mutual fund is a type of managed collective investment scheme that pools money from many investors to purchase securities.	1980-2011
Stock market capitalization to GDP (%)	Total value of all listed shares in a stock market as a percentage of GDP.	1989-2011
Bank deposits to GDP (%)	The total value of demand, time and saving deposits at domestic deposit money banks as a share of GDP. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.	1961-2011
Loans from nonresident banks (net) to GDP (%)	Ratio of net offshore bank loans to GDP. An offshore bank is a bank located outside the country of residence of the depositor, typically in a low tax jurisdiction (or tax haven) that provides financial and legal advantages.	1993-2011
Consolidated foreign claims of BIS reporting banks to GDP (%)	The ratio of consolidated foreign claims to GDP of the banks that are reporting to BIS. Foreign claims are defined as the sum of cross-border claims plus foreign offices' local claims in all currencies. In the consolidated banking statistics claims that are granted or extended to nonresidents are referred to as either cross-border claims. In the context of the consolidated banking statistics, local claims refer to claims of domestic banks' foreign affiliates (branches/subsidiaries) on the residents of the host country (i.e. country of residence of affiliates).	1983-2011

Financial Efficiency Indicators

Table B2. Financial Efficiency Indicators

Indicator Name	Description	Coverage
Lending Deposit Spread (%)	Difference between lending rate and deposit rate. Lending rate is the rate charged by banks on loans to the private sector and deposit interest rate is the rate offered by commercial banks on three-month deposits.	1980-2012
Bank overhead costs to total assets (%)	Operating expenses of a bank as a share of the value of all assets held. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets.	1998-2011
Bank cost to income ratio (%)	Operating expenses of a bank as a share of sum of net-interest revenue and other operating income.	1997-2011
Stock market turnover ratio (%)	Total value of shares traded during the period divided by the average market capitalization for the period.	1989-2011
Bank concentration (%)	Assets of three largest commercial banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets.	1997-2011
Boone indicator	A measure of degree of competition based on profit-efficiency in the banking market. It is calculated as the elasticity of profits to marginal costs. An increase in the Boone indicator implies a deterioration of the competitive conduct of financial intermediaries.	1997-2010
Bank net interest margin (%)	Accounting value of bank's net interest revenue as a share of its average interest-bearing (total earning) assets.	1998-2011
Bank return on assets (% , before and after tax)	Commercial banks' after-tax net income to yearly averaged total assets.	1998-2011
Bank return on equity (% , before and after tax)	Commercial banks' pre-tax income to yearly averaged equity.	1999-2011
Lerner index	A measure of market power in the banking market. It compares output pricing and marginal costs (that is, markup). An increase in the Lerner index indicates a deterioration of the competitive conduct of financial intermediaries.	1996-2010

Financial Stability Indicators

Table B3. Financial Stability Indicators

Indicator Name	Description	Coverage
Volatility of Private Credit	Private credit by deposit money banks and other financial institutions to GDP.	1980-2012
Number of years spent in banking crisis	Average number of years spent in a systemic banking crisis	1960-2013
Fiscal cost of crisis	Estimation of the fiscal cost of a banking or financial crisis	1960-2013
Output loss due to banking crisis as a share of GDP	Average number of years spent in a systemic banking crisis	1960-2013
Bank Z-score	It captures the probability of default of a country's commercial banking system. Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns.	1998-2011
Bank nonperforming loans to gross loans (%)	Ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of loan portfolio). The loan amount recorded as nonperforming includes the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue.	1998-2011
Bank capital to total assets (%)	Ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments.	1998-2011
Provisions to nonperforming loans (%)	Provisions to nonperforming loans. Nonperforming loans are loans for which the contractual payments are delinquent, usually defined as and NPL ratio being overdue for more than a certain number of days (e.g., usually more than 90 days).	1998-2011
Stock price volatility	Stock price volatility is the average of the 360-day volatility of the national stock market index.	1960-2011
Bank credit to bank deposits (%)	The financial resources provided to the private sector by domestic money banks as a share of total deposits.	1960-2011

Financial Inclusion Indicators

Firms

Table B4. Financial Inclusion Indicators for Firms

Indicator Name	Description	Coverage
Investments financed by equity or stock sales (%)	Estimated proportion of purchases of fixed assets that was financed by owners' contribution or issue of new equity shares.	2002-2011
Working capital financed by banks (%)	Proportion of the working capital that was financed by bank loans.	2002-2011
Investments financed by banks (%)	Estimated proportion of purchases of fixed assets that was financed from bank loans.	2002-2011
Small firms with line of credit (%)	Percentage of small firms (5-19 workers) in the formal sector with a line of credit or a loan from a financial institution.	2006-2011
Firms using banks to finance investment (%)	Percentage of firms using banks to finance purchases of fixed assets.	2002-2011
Percent of firms with line of credit (%)	Percentage of firms with a line of credit from a financial institution	
Firms using banks to finance working capital (%)	Percentage of firms using bank loans to finance working capital.	2002-2011
Firms not needing a loan (%)	Percent of firms that did not apply for a loan in the last fiscal year because they did not need a loan. The denominator is the sum of all firms who applied and did not apply for a loan. The numerator is the number of firms who did not apply for a loan and also stated that they did not need a loan.	2006-2011
Firms with a checking or savings account (%)	Percentage of firms with a checking or savings account.	2006-2011
Firms with a bank loan or line of credit (%)	Percentage of firms in the formal sector with a line of credit or a loan from a financial institution.	2006-2011

Households

Table B5. Financial Inclusion Indicators for Households

Indicator Name	Description	Coverage
Mobile phones used to pay bills (% age 15+)	The percentage of respondents who report using a mobile phone to pay bills in the past 12 months (% age 15+).	2011
Borrowed from a financial institution in the past year (% age 15+) (and % of poorest 40%)	The percentage of respondents who report borrowing any money from a bank, credit union, microfinance institution, or another financial institution such as a cooperative in the past 12 months (% age 15+).	2011 and 2014
Purchased agricultural insurance (% age 15+)	The percentage of respondents who purchased agricultural insurance	2011
Loan in the past year (% age 15+)(and % of poorest 40%)	The percentage of respondents who borrowed any money in the past 12 months from any of the following sources: a formal financial institution, a store by using installment credit, family or friends, employer, or another private lender (% age 15+). (Note that getting a loan does not necessarily require having an account.)	2011
Saved at a financial institution in the past year (% age 15+) (and % of poorest 40%)	The percentage of respondents who saved at a financial institution in the past year	2011 and 2014
Loan from a private lender in the past year (% age 15+)	The percentage of respondents who had a loan from a private lender in the past year	2011
Bank accounts per 1,000 adults	Number of depositors with commercial banks per 1,000 adults.	2001-2011
Bank branches per 100,000 adults	Number of commercial bank branches per 100,000 adults.	2001-2011
Depositors with commercial banks per 1000 adults	Depositors with commercial banks per 1000 adults	2001-2011
Accounts used to receive government payments	The percentage of respondents who had an account in which they received government payments	2011
ATMs per 100,000 adults	Number of ATMs per 100,000 adults.	2001-2011
Credit card (% age 15+)	The percentage of respondents with a credit card (% age 15+).	2011 and 2014
Debit card (% age 15+)	The percentage of respondents with a debit card (% age 15+).	2011 and 2014
Electronic payments used to make payments (% age 15+)	The percentage of respondents who used electronic payments (payments that one makes or that are made automatically including wire transfers or payments made online) in the past 12 months to make payments on bills or to buy things using money from their accounts (% age 15+).	2011