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Insight 010

The Impact of Investing in Financial Systems:

Reviewing the Evidence

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About this report

This report was commissioned to FAI, NYU-Wagner to support CDC in reviewing the evidence base for investing in financial services. The report and its findings underpin and inform CDC's approach to delivering impact in financial services in our markets.

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Foreword

You can see the impact of financial access everywhere, so why not in the evidence? CDC's Rapid Insights are for busy impact investors, to guide them through the most relevant tools and evidence and make sense of the often confusing, conflicting opinions on offer– and Timothy Ogden's evidence review on financial services and systems does that perfectly. The Financial Access Initiative at NYU-Wagner has since 2006 established itself as a leading research centre focused on exploring how financial services can better meet the needs and improve the lives of poor households. Tim, over and above his research skills, is a talented synthesizer and communicator, having helped develop over twenty books for publication. What is particularly useful about this very readable review is the synthesis of evidence on both households and firms, which tend to be covered separately by most researchers. As Tim notes, evidence from diaries about how many households must juggle their finances just to meet some basic goals around managing consumption, investment and risk, is suggestive about how firms manage theirs.

CDC has been backing financial institutions since 1949, when it invested in the forerunners of the Malaysia Building Society and Singapura Finance. In following decades CDC actively supported development finance banks across Africa, such as DFCU in Uganda (1964). In 2005 we first backed ShoreCap International, the team which went on to support over two dozen small business banks and regulated microfinance institutions across Asia, Africa and Eastern Europe, including BRAC Bank in Bangladesh. Today, CDC has US$1.3bn invested in 175 financial institutions across Africa and South Asia. Collectively they had over US$90bn of loans in 2018. Our most recent financial access investments have been in Myanmar and Nepal.

We are proud of our FI portfolio. But seven years into our new strategy of direct investing into financial institutions, CDC still couldn't find what we were looking for: a short, comprehensive, balanced, theoretically-grounded, emerging markets-focused, review of the evidence.

Evidence reviews should not be preaching to the converted. The paradox highlighted in this review is why, if all the theory and macro data shows the importance of financial systems, are the results from on-the-ground impact evaluations in emerging markets often so muted? This Rapid Insights review helps make sense of the puzzles and suggests some evidence-based paths toward increased impact:

- A clear focus on household and firm wellbeing
- Taking account of financial systems, formal and informal
- Targeting based on specific identifiable gaps in the financial system
- Building human capital in financial services and the financial system

We expect this review to help shape our impact-led and commercially rigorous strategy for financial institutions, and hope that it will be useful for other investors too.

Alex MacGillivray
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1. Theory and History

Economists and political scientists have theorized about and studied the role of financial systems in economic growth, productivity and household income and wellbeing for centuries. From the beginning of both disciplines, financial systems were recognized as foundational to national prosperity, stability, growth and power.

During the 20th century, the insights of early economists like Adam Smith and Walter Bagehot were codified into more formal theory. **These formal theories illustrated how, just as markets allowed for the efficient exchange of goods and services, financial systems allowed the efficient "exchange" of capital—moving money to times, places and people where it could be used most productively.** Solow's foundational theory of economic development recognized the importance of savings to fund investment—it took for granted that a financial system would exist to pool savings, and intermediate between savers and investors. Additional theory work focused on other functions of the financial system: **creating liquidity so that markets functioned more smoothly, easing the exchange of goods across time and space, discovering and evaluating information about potential investments, monitoring investments, managing and distributing risk.**

Historians and anthropologists, meanwhile, contributed an understanding of the role that financial systems played in history and society around the world. Several insights emerge from this body of work. **First, financial systems have developed in every civilization that has moved beyond subsistence hunting and gathering.** The earliest known writing records financial transactions—specifically agricultural loans. Evidence of fairly complex financial systems can be found in such diverse ancient societies as Mesopotamia, Greece, China, India and Rome. The tools that a financial system provides are vital to a prosperous society. **Second, development of a financial system that can provide the functions detailed in economic theory precedes rapid growth and development.** It is the ability to pool and allocate capital that allows the large-scale investment necessary to significantly boost productivity and living standards. This can most clearly be seen in the Industrial Revolution: the technologies that drove the industrial revolution were invented in the early part of the 1800s, but they were not unleashed until the financial innovation of commercial banking and equity markets allowed the financing of large-scale investments using those technologies.

2. Empirical Evidence

The empirical evidence for the impact of financial systems was limited by the dearth of quality data—from being limited to macroeconomic aggregates to simply unavailable—and methodological limitations. The literature on financial system development and its causal effect on economic growth has expanded dramatically since the 1990s with the development of more sophisticated econometric methods and the availability of new datasets, particularly "micro" datasets which capture more detailed data on firms and economies than macroeconomic aggregates. While it would be impossible to definitively prove causality of such a complex question, **the preponderance of the research over the last 25 years, using a wide variety of methods and datasets, points to a positive, causal relationship between financial sector development and economic growth.**[i]

Other important recent methodological innovations, focusing on households and their management of cash and growth (e.g. financial diaries), have vastly improved the quality of data on the role of financial services in the lives of lower-income households, and provided new insight. Diaries, which gather high-frequency data on financial transactions from lower-income households, have now been conducted in dozens of countries from Bangladesh to Scotland, South Africa to the United States, and a variety of populations. They consistently reveal that lower-income households are extensive users of financial services—both formal and informal—in order to manage their daily lives, particularly the volatility of income and spending needs. Lower-income households in these studies say they value access to formal financial tools because of the increased consistency, dependability and "rules-based" nature of formal services. However, they also continue to use informal financial services because the formal services they have access to and can afford do not fully meet their needs. Household survey data confirm findings from history: financial services are so essential, even for poor households, that informal systems will develop to fill gaps left by formal services.

i Of course there are limits to the positive relationship, as best illustrated by the 2008 global financial crisis. However, the dangers of a financial system that has "developed" to the point where it dominates a large, developed economy and provides credit to households at multiples of the nation's GDP are not particularly relevant to developing countries where 40% or more of households don't have formal accounts.

3. Impact Evaluations

While recent empirical evidence makes a strong case for the importance of financial systems and financial services, and their role in driving economic growth, that work does not address questions about the effectiveness or impact of interventions to increase access to financial services. **Programs and policies targeted at either firms or lower-income** (or otherwise excluded from the formal financial system) **households have a decidedly mixed record.**

The most common policy approach to boost access to finance for firms has been direct intervention in credit markets, either by creating government banks to target specific industrial sectors, providing subsidized capital to commercial banks for lending to "priority sectors" or simply by using regulation to require banks or other providers to supply capital for particular uses. Many evaluations of programs to boost lending via government banks or priority-lending programs seem to be plagued by politically-driven misallocation. There have been a number of successful programs, where impact evaluations show that firms gained access to credit, used it productively and benefited from increased revenue and profits. However, unsuccessful programs seem to significantly outnumber successful targeted-credit programs. There have been few programs or impact evaluations of other forms of commercial finance.

Investment to boost the availability of financial services to excluded households has a much better record in terms of outreach and inclusion. The microfinance industry now counts perhaps a billion customers worldwide, customers who were formerly excluded from the formal system, providing these services at low levels of subsidy. However, expectations that providing microcredit, microsavings or microinsurance products would rapidly lift customers above the poverty line have proven to be wishful thinking. The average impact of microcredit is modest, efforts to boost savings have had mixed results but mostly failed to achieve widespread adoption or significant balances, and microinsurance continues to struggle greatly with limited demand. Recent innovations in mobile money and digital finance have dramatically expanded inclusion again but have also made it clear (as it perhaps always should have been) that digital finance can be as—if not more—predatory than any other financial service if adequate consumer protections are not in place. Poor households do benefit from the extension of financial services, but those gains are difficult to measure because of general equilibrium effects—such as rising wages in casual labor markets—or because the gains are not transformative.

4. Making Sense of the Evidence

Given the uniformity of the evidence from theory, history and empirical analysis of the value of financial systems and financial services, it's puzzling that impact evaluations have infrequently found significantly positive effects of programs to increase access to financial services. There are several possible explanations.

1) Perhaps financial systems are not as underdeveloped as expected

In-depth studies of households' finances have revealed that there is a much more extensive informal financial system than had been appreciated in most contexts. Rather than microfinance introducing credit for the first time, many households are borrowing from (and lending to) a variety of informal sources. Similarly, in-depth studies of firms have found that, for instance, trade credit flows are significantly larger than accounted for in official statistics. In both cases, failing to account for informal financial services may have led to inflated expectations of the impact of programs.

However, extensive evidence makes it clear that, in fact, financial systems are significantly underdeveloped, holding back firms and households in those countries. The most straightforward quantitative measures of financial system development are 1) the spread between interest rates on deposits and interest rates on credit, and 2) the percentage of the population who actively uses a formal financial tool.

In a developed financial system, the interest rate spread between deposits and credit is small as financial services providers compete to acquire capital in the form of deposits and compete to offer credit to those that can deploy it usefully. Detailed measurement of the cost of intermediation using ten years of bank-level data from 160 countries illustrates that the spread in low-income countries is 2.5x larger than in high-income countries.

In a developed financial system, the majority of the population of households and firms use formal financial services. The Global Findex documents that at least a third of the global population does not use formal services, and those who do not are concentrated in lower-income countries. Global surveys find that firms report that lack of credit is a significant constraint. These self-reported views are confirmed by objective evidence: in developing countries firms are smaller (in terms of employees), less productive, less likely to grow, and much more likely to be informal.

Mismeasurement of the extent of development of financial systems cannot explain the disappointing track record of financial services and systems interventions.

2) Perhaps financial systems matter more in aggregate than for average firms or households

The empirical data that strongly shows financial system development causes economic growth is largely based on aggregated data and measuring systemic outcomes. Impact evaluations, unless they are very large (often impractically so) or specifically designed at significant cost to do so, do not necessarily capture systemic outcomes, especially when programs have significant spillover effects on non-treated participants. Financial systems are first and foremost *systems*, and therefore the *ex ante* expectation is that interventions will have systemic or spillover effects. In fact, spillover effects are in some sense the theoretical basis for the value of well-functioning and inclusive financial systems. The theory is not that banks and other institutions become perfect allocators of capital and managers of risk, but that the spillover effects of many institutions being "pretty good" at those functions yield the allocative efficiencies that drive investment, economic growth and prosperity. **Impact evaluations over the last five years provide suggestive evidence that systemic and spillover effects—sometimes also called general equilibrium effects—are part of the answer to the**

question of why financial services interventions have a quite modest track record. Estimates of the aggregate effect of the massive expansion of mobile money in Kenya show very small gains for individuals but a measurable drop in the number of households living under the $1.90/day poverty threshold. An analysis of the impact of improving access to bank branches in India finds similar results. Estimates of the general equilibrium effects of microcredit programs in India and Kenya suggest that there are large spillovers to non-borrowing households (in the form of higher casual labor wages and smoothed grain prices respectively).

Another way that impact evaluations may miss significant impact of interventions is when average treatment effects mask heterogenous outcomes. For instance, the "average" e-commerce firm founded in the 1990s, and the average social networking firm founded in the 2000s, failed miserably. However, those averages obscure the effect of firms like Amazon, PayPal, AliBaba, Facebook and SinaWeibo. Those are extreme examples of course, but the principle applies. **It is plausible that the effects of financial system and financial services interventions are concentrated in a few highly successful outliers, while average effects are modest.** Again, recent research supports this explanation. Reanalysis of microcredit impact evaluations shows that there is a consistent pattern of heterogeneity in outcomes—there are borrowers who see large gains from access to microcredit, but they are relatively small in number compared to the overall population and so averages obscure their gains.

Still, systemic effects and heterogenous outcomes do not fully explain the discrepancy between theory, history and empirical evidence on the value of financial systems and limited impact found in many evaluations. There are many impact evaluations that do find significant average positive impact of increased access to finance. Increasing access to credit for mid-size Indian exporters, for instance, had long lasting impact. Similarly in Pakistan, the abrupt end of a credit program had an on-going negative impact on Pakistani firms' output. Access to trade credit is consistently associated with positive effects on growth, revenue and firm survival. The microenterprise literature also has many examples of microenterprises showing high returns when they gain access to capital. Access to mobile money and savings have both shown causal relationships to household resilience and investment. **Why some interventions show significant average positive effects while others do not requires additional explanation.**

3) Perhaps interventions are poorly targeted or poorly designed

That financial services matter and financial systems drive growth doesn't mean that any interventions in those domains will have positive effects. Any particular intervention can fail because it is poorly designed, targeted or implemented. Still, the large volume of evaluations that find small or null effects raise the question of whether a well-designed, implemented and targeted intervention is possible. This is certainly the case with, for instance, financial literacy. It is absolutely true that higher financial literacy is correlated with positive outcomes, but virtually no attempts at boosting financial literacy have generated positive real-world outcomes. The only approaches that seem to work are "just-in-time" interventions that help people make decisions in the exact moment they are making a financial choice. But "just-in-time" interventions are extremely difficult to implement. A reasonable conclusion from the financial literacy literature is that efforts are better focused on regulation and consumer protection than on financial literacy training.

So it is not sufficient to explain away the mismatch of existing evidence by suggesting poor design or targeting is the culprit. To justify continued investment, there should be evidence of specific ways in which interventions have failed that can plausibly be corrected in future interventions and policies. The literature provides some support for this hypothesis.

As noted, there is significant heterogeneity in the impact of microcredit programs. This suggests that, if the purpose is generating significant growth, then the design of microcredit programs is a

significant limitation to their average impact. The original design principle of microcredit, which largely persists to this day, is to do minimal selection of clients, with an emphasis on repayment not on potential returns. The rhetoric claimed that every poor household could be—and more importantly, wanted to be—an entrepreneur. It is now clear that most households are frustrated employees, not frustrated entrepreneurs. While the design of microcredit has produced high repayment rates, and therefore boosted the sustainability of MFIs, it has sacrificed average returns for borrowers. **Recent evidence on targeting has uncovered a number of possible ways to improve targeting of loans at a reasonable cost.** However, questions remain about whether targeted lending can produce a large enough client segment to be sustainable, or ways in which the combination of mass credit (with low average impact) and targeted lending (with higher returns but smaller volume) can be implemented in the real world.

In terms of commercial lending interventions, the majority of programs have been targeted, government-backed lending schemes of one sort or another. Here the evidence generally finds that these programs are co-opted—credit flows not to the firms most likely to generate a return but to firms that are politically-connected or in sectors that are politically important but not economically viable. Where there has been success in such programs it appears to be linked to program designs that leave lending decisions more to market forces, allowing lenders to discriminate between firms based on likely returns. Targeted programs for export-oriented firms have a better track record of success, for instance.

Product design may be another piece of the puzzle. For both firms and households, the aim has generally been to provide access to credit to drive investment and growth. Product design, however, has focused on maximizing repayment and limiting losses. The standard microcredit loan, for instance, requires repayment to begin within a week or two of loan disbursement, and that weekly fixed payments continue without interruption. This pattern is obviously inconsistent with business investment or agricultural investment. When product designs are varied to better match investment needs, returns to borrowing are strikingly higher than those found in "standard" microcredit evaluations.

At the same time, it is clear from research studying households and small- and medium-size firms that their primary financial services need is not managing investment but managing liquidity. Both firms and households in lower-income countries face a great deal of short-term volatility in revenue/income and expenditures. When households or firms gain access to finance, they appear to use it primarily for managing liquidity, regardless of what the intention of the product was. The returns to managing liquidity may be significantly beneficial in terms of firm and household wellbeing by improving resilience and reducing the need to use negative coping strategies for dealing with shocks (reducing consumption, selling assets, cutting employees, shutting down), while not being detectable in terms of standard measures like increased income or profit. At the same time, even that impact may be depressed if the product is not well-designed for the purpose it is being put to. **Based on the evidence it is reasonable to believe that better designed products—whether for liquidity management or investment management—can produce greater impact than what has been seen from impact evaluations thus far.**

4) Perhaps other constraints on firms or households limit the impact of increased access

Underdeveloped financial systems are a significant constraint to firms and households in less-developed countries. But they are not the only constraint. Another possible explanation of the disparate evidence is that the gains from interventions are limited by other constraints that firms and households face. There is ample evidence of many different barriers to firm and household wellbeing and prosperity in developing countries.

These include:

- The policy and regulatory environment precludes or limits financial system development and/or firm growth.
- Firms and households face a variety of market failures (low demand, limited supply, limited market integration) that hold returns on investment under the threshold necessary to borrow or invest.
- Firms and households do not have the human capital necessary to choose the best investments or make those investments pay-off.

There is substantial evidence for each of these barriers. For instance, limited property rights and enforcement mechanisms hamper lending and investment. **However, from a historical lens it is clear that limits to property rights and enforcement are not enough on their own to prevent investment and rapid growth.** Limited property rights and market integration were issues in developed countries during periods of rapid growth. Growth preceded solving many of these problems. For instance, the regulatory institutions that guarantee investors' rights in capital markets were a result of political pressure after investing in stock markets became common, not before. Similarly, deposit guarantees were an outgrowth of mass use of savings and current accounts (and the loss of deposits that was fairly common). At the same time, as noted, there are meaningful examples of gains from access to finance despite these constraints. So these issues are certainly a factor limiting impact of financial system and services interventions, and are important to take into account, but do not justify avoiding such interventions.

The evidence on human capital as a primary constraint has been growing in the last decade. Global survey work and experiments have demonstrated just how important—and scarce—quality management is to firm success. While almost every country has firms with high-quality management, the research shows that the dispersion in management practices is much higher, and average quality much lower in lower-income (and lower-productivity) countries. By extension this applies to households. Relatively few households have the human capital and desire to create a growing microenterprise. A number of experiments have demonstrated large deficits in management practices in microenterprises, that small changes can produce meaningful increases in returns, but that even these small changes are difficult to maintain.

It's important to note that human capital deficits apply to financial institutions just as much as they do to other firms. Financial services are complex products that require a great deal of skill and experience to successfully manage. From business models, to operations, to product design, to marketing and customer acquisition and beyond, it is likely that human capital limitations of financial services firms are a significant part of the story of limited impact. Human capital deficits in fact help explain the issues of poor targeting and design discussed earlier. It also helps explain the limited impact of many targeted lending programs. With specific lending mandates (and sources of capital), banks do not have incentive to build up human capital to improve their ability to select customers; nor do firms have incentive to improve their human capital in order to access finance.

5. Paths Forward

Theory, history and empirical evidence establishes that financial systems and access to finance are worth investing in—they are causally linked to economic growth and firm and household wellbeing. At the same time, the evidence from impact evaluations makes it clear that simplistic interventions are unlikely to generate large impact (though they may aggregate into meaningful benefits). There are a number of channels, suggested by evidence, through which future interventions could be more effective.

5.1 Household and Firm Wellbeing

The experience of the last 20 years in developed economies shows that a) financial systems can become "over-developed" with dangerous consequences and that, b) economic growth does not necessarily yield employment growth or rising wages for all workers, especially lower-skilled workers. The on-going prevalence of both informal financial services and predatory formal financial services in countries with well-developed financial systems (e.g. the US, the UK) indicates that financial system development does not solve all the financial services needs and challenges especially of small and/or young firms, or of lower-income households.

Investments in financial systems and financial services as a development strategy should therefore be grounded in improving firm and household wellbeing. Financial services contribute to firm and household wellbeing by allowing them to manage liquidity, investment and risk.

Most interventions are unlikely to directly impact both firm and household wellbeing, and many will not touch directly on either. The magic of a well-functioning financial system is its ability to channel positive spillovers throughout the system. That does not happen automatically however so it is incumbent on investors with development goals to ensure there is a connection between investments and firm or household wellbeing, generally through increasing access to useful financial services to manage liquidity, investment and risk. As the above discussion details, that increased access may not immediately turn into measurable gains in revenues, income, profits or consumption. But as financial systems develop with a focus on firm and household wellbeing, aggregate gains are likely to accumulate.

5.2 Systemic

To ensure that they do, interventions most likely to yield impact are ones that consider how they improve the overall function of the financial system. The combined evidence from empirical studies of the impact of financial systems and recent studies establishing general equilibrium effects of expanded access to finance suggest that interventions are most likely to have an impact when they are designed to strengthen the financial system and take advantage of systemic and spillover effects. For instance, increasing the amount of capital available for lending to high-growth firms, combined with efforts to improve a lender's ability to identify these firms, if successful would strengthen a particular bank both by improving its capital structure and building up its human capital. Sustained success in such lending operations would also increase the stock of domestic capital available for intermediation and allocation with further spillover effects, strengthening the overall financial system. Another plausible systemic strategy is investment in specific high-cost parts of the financial system infrastructure. By reducing costs or increasing capability and efficiency of the financial system, the core function of the financial system in pooling and allocating capital to its most productive uses can be amplified.

5.3 Targeted

Every country, no matter how well-developed its financial system, has groups that are excluded from full participation in the financial system. Typically these are lower-income households but also marginal and new firms, immigrants or other disadvantaged groups. The reason for their exclusion is not simply discrimination. Excluded groups and low-income households (or low revenue firms) are more expensive to serve on a relative basis. They are less attractive as customers to profit-driven organizations. Given the choice between serving these customers and serving wealthier, more well-understood customers, is it any surprise that for-profit financial services firms choose to either a) not serve these customers, or b) raise prices on these customers to protect their profitability?

Bringing excluded groups into the financial system requires focused effort. Excluded groups are most likely to experience benefits from access to affordable services to manage liquidity, investment and risk, even though in absolute terms those gains are likely to be small. The investment required by financial services providers to reach out to these customers is unlikely without subsidy, given the relatively low profits available. Such subsidies will likely be necessary to boost the inclusiveness of financial systems.

Targeting can also be done via product development. As research reveals more about the needs of households and firms in developing economies, it becomes clearer that the products available are poor matches for those needs. Innovation in product design needs to focus on the core needs of firms and households and less on product types. The limited evidence available suggests that product innovation can substantially boost inclusion and impact of financial services.

5.4 Capability-Focused

It is increasingly clear that financial systems in developing countries are hampered by both financial capital and human capital deficits. Interventions that ignore the need to develop the capabilities of financial system institutions are likely to have limited impact in both size and duration. Boosting human capital in the financial system is necessary for each of the strategy components discussed above. Everything from business model development to product design to risk management is necessary for financial system institutions to function well and deliver on their promise. Each requires the steady development and accumulation of human capital. Any strategy for interventions in financial systems that does not explicitly address the need to develop human capital is likely to miss opportunities for impact.

6. Conclusion

The conclusions of this evidence review can be summarized in four main points:

1. Theory, history and empirical evidence documents that financial system development is a driver of and important pre-condition to economic growth.
2. The impact of specific interventions to promote financial system development or access to finance have been limited, though some programs do find substantial gains.
3. There are a variety of evidence-based hypotheses to explain why many interventions show limited benefits and how interventions can be designed to increase impact.
4. The evidence suggests that investments in financial systems as a development strategy should focus on firm and household wellbeing, targeting, systemic improvements and boosting human capital in the financial system to improve impact.

7. Appendix: Selected Research

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