Gender and digital financial inclusion: What do we know and what do we need to know?

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Abbreviations

BMGF	Bill & Melinda Gates Foundation
CGAP	Consultative Group to Assist the Poor
DFI	Digital financial inclusion
FI	Financial inclusion
G2P	Government-to-person
GBV	Gender-based violence
ICRW	International Center for Research on Women
IMF	International Monetary Fund
IPA	Innovations for Poverty Action
IPV	Intimate partner violence
LFP	Labor force participation
MENA	Middle East and North Africa
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
P2P	Person-to-person
Q^2	Mixed-methods (qualitative and quantitative)
RCT	Randomized controlled trial
ROSCA	Rotating savings and credit association
SHG	Self-help group
SMEs	Small and medium enterprises
VSLA	Village savings and loan association
WE	Women's empowerment
WEE	Women's economic empowerment

1. Introduction

Better and more meaningful financial inclusion may prove to be the key to unlocking the potential for micro and small enterprises to grow, reducing the exposure of poor and rural communities to income shocks, dynamizing growth, and promoting more sustainable and equitable development. Recent analysis of financial inclusion underscores that where individuals have access to financial services and products, even in poor communities, they are better able to plan and manage their income (Ruiz, 2013) and households are more likely to hold savings and to invest these savings in productive uses (Schaner, 2016b). Controlling for income and sector of employment, households that have access to savings instruments and insurance are better able to withstand economic shocks (Karlan et al., 2014; Janzen and Carter, 2013; Cole et al., 2013); they are also more able to invest in education for their children and purchase healthcare services (Prina, 2015; Dupas and Robinson, 2013a; Duflo, 2012; Bauchet et al., 2011). Communities in which a greater proportion of the members are banked are more likely to have higher incomes (Bruhn and Love, 2014) and experience lower poverty rates (Kast and Pomeranz, 2014; Burgess and Pande, 2005), denser economic activity, stronger forward and backward linkages to productive activities, and more and better employment opportunities (Bruhn and Love, 2011). Indeed, Beck et al. (2007) find that controlling for other relevant variables, 30 percent of the variation in rates of poverty reduction can be attributed to cross-country variation in financial development.

Better and more meaningful financial inclusion may also foster reduced gender inequalities. Women who have access to bank accounts, savings mechanisms, and other financial services may be better able to control their earnings and undertake personal and productive expenditures (Islam et al., 2014; Alam, 2012; Ashraf et al., 2010). They may also be able to make more choices about how they use their time, whether for employment, leisure, income-generating activities, or education (Field et al., 2016; Bandiera et al., 2013; Aker et al., 2016). They may have more substantive autonomy over their lives in decisions ranging from employment and marriage to whether to use contraception (Holloway et al., 2017; Suri and Jack, 2016; Pitt et al., 2006; Aker et al., 2016; de Brauw et al., 2014; Schuler and Hashemi, 1994). They may be better able to grow their businesses, to choose where and how to work (Field et al., 2016), and to raise their productivity and earnings and reduce their chances of being poor (Suri and Jack, 2016; Swamy, 2014). They may also have more options to leave abusive relationships and experience reduced exposure to intimate partner violence (Panda, 2014; Garikipati, 2008).

Yet untapped opportunities exist to provide a broader array of financial services for the poor and particularly for women. Conventional financial products and services still do not seem to reach the poor and women well. According to the 2014 Global Findex data, 57 percent of women around the world have a financial account, compared to 64 percent of men (Demirgüç-Kunt et al., 2015). Furthermore, the International Finance Corporation estimates that over 70 percent women-owned small and medium enterprises (SMEs) have inadequate or no access to financial services (Koch et al., 2014). The gender gap has persisted despite the growth in the number of people with access to financial services, and the gap is largest among the poor: poor women are 28 percent less likely than poor men to have a formal bank account (Demirgüç-Kunt et al., 2013).

This report builds on the work of Cultural Practice, LLC, which received support from the Bill and Melinda Gates Foundation in 2013 to produce a report titled "Understanding Gender Differences in Accessing and Using Digital Financial Services and Identifying Opportunities for Increasing Participation by Women: A Review of the Literature."

The systematic review conducted by the International Center for Research on Women (ICRW), supported by the Bill and Melinda Gates Foundation, delves into the financial inclusion literature and identifies gaps in research and practice to inform the field going forward.

But as new products and services delivered through low-cost platforms emerge, the opportunities to bank the unbanked and promote meaningful financial inclusion are multiplying. Digital financial services appear to offer innovative platforms to address financial exclusion. Digital platforms have the potential to overcome restrictions brought on by geography, reduce the transactions costs of using financial services, and enhance transparency and therefore increase trust in financial systems. By enabling financial data capture and storage, digital platforms can also help reduce the informational asymmetries between lenders and borrowers that keep large segments of mostly poor populations excluded from financial systems. They can also improve financial autonomy and privacy for users and potentially reduce the risk of cooption and appropriation of these funds by others.

Despite significant investments in mobile platforms and some prominent successes digitizing payments and transfers, women tend to face barriers to accessing and using digital financial services. Since digital financial services typically rely on mobile communications networks, access to mobile technology and the ability to use it, how and when desired, are critical factors in determining digital financial inclusion. Indeed, GSMA (2015) estimates that women are 14 percent less likely than men to own a mobile phone. The mobile gender gap is wider in some parts of the world, such as in South Asia, where women are 38 percent less likely to own a phone. There is a smaller gender gap in Sub-Saharan Africa, though there are substantial variations across the region, particularly between East Africa, where rates of mobile phone ownership for both men and women tend to be relatively high, and countries like Niger and Democratic Republic of the Congo, where women's likelihood of owning a mobile phone is 45 percent and 33 percent lower than that of men, respectively. If fewer women own mobile phones, fewer women are able to register phone-based financial accounts in their names, preventing them from fully accessing various digital financial services, like making or receiving money transfers, receiving credit, paying bills, and making decisions about their use.

Critically examining the current body of evidence can reveal the barriers for women to financial inclusion and can inform best practices for effectively engaging them through digital platforms and media. This report provides an overview of the field of gender and financial inclusion, particularly digital financial inclusion, undertaking a systematic review of key literature in the field and developing a gap analysis based on the key themes and geography that describe where the research and policy efforts have been concentrated to date. The report aims to identify areas for further research and opportunities to delve deeper into issues of gender and digital financial inclusion with a view to promoting and sustaining inclusive and more equitable growth and local development.

As a strategic research partner to the Bill & Melinda Gates Foundation (BMGF)'s Financial Services for the Poor portfolio, the International Center for Research on Women (ICRW) has undertaken a systematic review to explore recent research on gender and financial inclusion and gender and digital financial inclusion to inform the broader donor and practitioner field about gaps in and opportunities for investments in both research and interventions. Specifically, the following were the key objectives of the review:

1. To understand where and how gender influences financial inclusion and digital financial inclusion.
2. To represent the strength of the evidence base to show what the field knows and where there are gaps.
3. To highlight potential questions and knowledge gaps to inform a learning agenda for the wider field and future investments.

2. Background and Approach

Building on earlier work by Cultural Practice (2013) and an initial scan of evidence[1], ICRW has conducted a systematic review that delves into the financial inclusion (FI) literature and identifies gaps in research and practice to inform the field going forward.

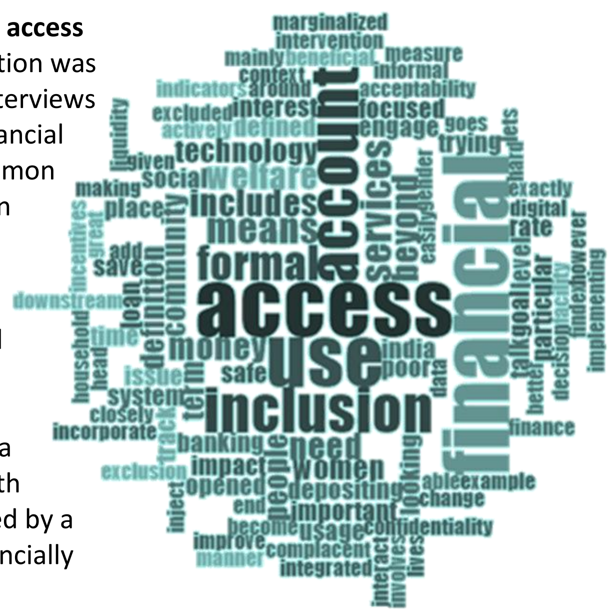
This report explores the key domains of research and evaluation around gender and financial inclusion and gender and digital financial inclusion that address access, use, and outcomes of inclusion, focusing specifically on the bottom of the pyramid and the most excluded and vulnerable populations.

Meaningful financial inclusion implies not just access but also use, since access alone does not necessarily lead to active use of financial accounts and services (see Box 1). We therefore cannot consider access alone to be a sufficient indicator of financial inclusion—it must also involve active use of the financial services and products.

In addition to focusing on access and use, we also look at the outcomes associated with financial inclusion to see what its implications are in terms of individual, household, and collective welfare and wellbeing. If

Box 1: Defining Financial Inclusion

In this report, we define meaningful financial inclusion as **access to and use of financial products and services.** This definition was informed by both the systematic literature review and interviews with subject matter experts in the field of gender and financial inclusion. The word cloud here depicts the 100 most common words that subject matter experts interviewed used when they were asked to define financial inclusion.



The World Bank (2014:15) defines financial inclusion as "the proportion of individuals and firms that use financial services." The Center for Financial Inclusion (Kelly and Rhyne, 2015:6-7) defines "full financial inclusion" as "a state in which everyone who can use them has access to a range of quality financial services at affordable prices, with convenience, dignity, and consumer protections, delivered by a range of providers in a stable, competitive market to financially capable clients."

CGAP (2017c) notes "financial inclusion efforts seek to ensure that all households and businesses, regardless of income level, have access to and can effectively use the appropriate financial services they need to improve their lives." In their working paper on the Global Findex Database, Demirgüç-Kunt et al. (2015:2) note that financial inclusion, "at its most basic level, starts with having a bank account," but it does not end there, as "only with regular use do people fully benefit from having an account." Klapper and Hess (2016:2) argue that "financial inclusion means that formal financial services—such as bank accounts, loans, and insurance—are readily available to people, and that they are actively and effectively using these services to meet their needs."

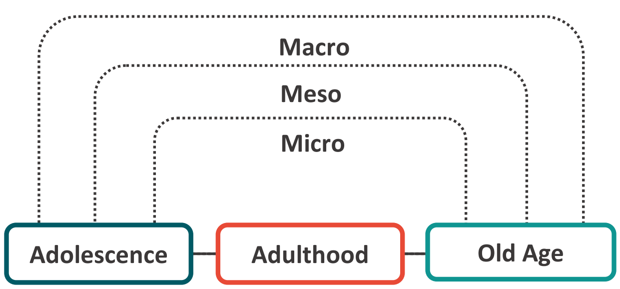
[1] The initial scan was conducted by ICRW in November 2016 to generate key domains of inquiry and identify search terms.

financial inclusion does not offer substantive improvements in economic opportunity, welfare, and wellbeing, this may explain the lack of use of existing financial services and products. Moreover, continued financial exclusion, particularly where barriers to access have been reduced, may highlight how these financial services and products fail to meet the needs of potential clients. Hence, the articles ICRW reviewed were also searched for their ability to demonstrate outcomes that are linked to improved entrepreneurship and employment, reduced poverty, increased savings and asset ownership, increased investment in human capital, health, and education, greater ability to withstand economic and environmental shocks, and empowerment.

The global revolution in mobile communications and rapid advances in digital payment systems have introduced new opportunities to connect the poor to affordable and reliable financial services and products. These digital platforms can contribute to closing the existing gender gap in financial inclusion, affecting both the demand- and supply-side factors that underlie women's current exclusion from financial systems. Digital services can also magnify some of the benefits of financial inclusion for women through traditional platforms. As a result, our review makes gender and digital financial inclusion (DFI) a specific focus within the larger FI literature and explores areas where the evidence converges and stands outs in terms of thematic focus, regional distribution, and the types of research methodologies.

Digital financial inclusion can be defined as "digital access to and use of formal financial services" (Lauer and Lyman, 2015). A growing number of financial services, including payments, credit, savings, remittances and insurance can be accessed and delivered through digital channels through which value is stored and transacted in digital form without need for paperwork or face-to-face interaction. Mobile-based financial services including mobile banking, mobile money and transfers, and mobile wallets are a core component of digital financial services.

Figure 1: Life-Cycle Stages and Levels of Analysis Used in the Systematic Review



The review outlines three levels of analysis: micro, meso, and macro. At the micro level, the emphasis is particularly on the individual and household and the gendered differences in financial inclusion and outcomes that are manifested at this level. The meso level typically focuses on community- and group-level analytics that also consider the economic and social impacts in distinct communities, regions, and sectors. The macro level considers how laws and policies can affect access and use and the aggregate impacts from promoting or securing greater financial inclusion for women, looking at the multiplier effects and spillovers to aggregate economic productivity and growth, poverty reduction, and human capital acquisition. The systematic review examines to what extent existing research at the intersection of gender and (digital) financial inclusion focuses on analysis at the micro level, as opposed to the meso and macro levels and the processes and spillovers that can be found therein.

The review also includes a life-cycle perspective spanning adolescence, adulthood, and old age. This is because the barriers to financial inclusion and the demand for gender-specific products and services, particularly for excluded populations, is likely to vary significantly over the life-cycle. Similarly, the outcomes stemming from financial inclusion are likely to be different, albeit connected, at each stage of life.

Research and evaluations of key interventions undertaken in the last two decades to promote financial inclusion shed light on the persistent gender gaps in financial inclusion. This literature points to a number of barriers in the form of social and economic constraints that underlie women's financial exclusion and explain gender gaps in access, use, and outcomes related to financial inclusion. Yet only more recently have many of the analyses of financial inclusion and exclusion purposively sought to explore why women remain excluded and why the benefits from their inclusion may not be as transformative as hoped. Increasingly, research is addressing the complexities of intra-household dynamics and bargaining and the role of social norms in shaping differential access to and use of financial products and services. There is also a growing body of research and evaluations that seeks to understand the specific and gender-differentiated needs of men and women in different contexts with different levels of institutional development and depth of financial markets. Some of this research also tests changes in product design and delivery with the explicit aim of reaching underserved populations and women, in particular. Finally, studies from various contexts increasingly focus on the outcomes of financial inclusion with a clearer gender lens and explore topics ranging from empowerment and agency to labor force participation, economic security, resilience, and wellbeing.

In the last decade, digital platforms have increasingly been championed by many in the field of financial inclusion, including the BMGF, CGAP, the World Bank, and GSMA, as an economically viable solution for banking the poor. These platforms have also proven promising in overcoming some of the gender-specific constraints to access and use, for example by circumventing restrictive norms around women's mobility and providing them with increased privacy and security, features that are especially important to women. Emerging evidence also points to several positive outcomes associated with digital financial inclusion of women that appear to mitigate or overcome some of the barriers identified with traditional financial inclusion approaches. However, there continue to be gender-based constraints to women's full financial inclusion that also extend to digital systems and explain the persistent gender gaps despite digital expansion. Among these barriers are women's financial literacy and access to mobile technology (Klapper and Hess, 2016). There may be privacy and transparency issues that make digital payments less secure and more prone to cooptation by other family members for women (Ashraf, 2009; Jakiela and Ozier, 2016). There may also be challenges with "cashing out"—that is, their ability to access kiosks and "brick and mortar" institutions independently and without supervision— especially where doing so relies on women's relatively higher levels of mobility (Allen et al., 2016). Where agents for mobile banking are in public markets and/or are disproportionately men, there may also be social and normative restrictions on women cashing out publicly and engaging with agents.

Exploring these barriers to access and use can help to define where to make investments in programs and policies to address financial exclusion. Looking critically at the outcomes from financial inclusion for women can also tell us whether financial inclusion should be reinforced by other policy and programmatic levers to maximize the benefits and increase economic opportunities for women. Examining where barriers exist over the life-cycle and considering how micro-, meso-, and macro-level interventions and policies can magnify the benefits from financial inclusion are also likely to yield critical information for donors and development practitioners about what works and what may need to be changed.

Box 2: Defining Key Terms Used in This Report

Agency is "the ability to define one's goals and act upon them." Agency "also encompasses the meaning, motivation and purpose which individuals bring to their activity, their *sense* of agency, or 'the power within'" (Kabeer, 1999:438).

In alignment with the Bill and Melinda Gates Foundation's new conceptual model, we define **women and girls' empowerment** as "the expansion of choice and strengthening of voice through the transformation of power relations so women and girls have more control over their lives and futures" (BMGF, 2017:4).

Financial inclusion refers to access to and use of financial products and services (see Box 1).

Financial literacy consists of the awareness, knowledge, skills, attitudes, and behaviors that are necessary to make financial decisions (Hung et al., 2012).

Financial products are instruments that help individuals save, invest, or acquire insurance or a mortgage. At the more developed and formal end of the spectrum, financial products might include treasury bills, mutual funds, and bonds (Economy Watch 2010). In the context of products that are more likely to be available to consumers at the bottom of the pyramid in developing countries, financial products are more likely to refer to savings accounts, mobile money and mobile accounts, insurance schemes, loans, education and health savings mechanisms, and pensions.

Financial services are the process of and transactions involved in obtaining financial products related to consumer finance, real estate, banking, and insurance (Asmundson, 2017).

Gender "refers to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men." The attributes and opportunities ascribed to women/girls and men/boys and the relationships between them are socially constructed rather than biological, learned through socialization, and context- and time-specific, meaning that they can change over time (UN Women, n/d).

Gender-based violence (GBV) is violence that is directed at an individual based on his or her biological sex, gender identity, or perceived adherence to socially defined norms of masculinity and femininity. It includes physical, sexual, and psychological abuse; threats; coercion; arbitrary deprivation of liberty; and economic deprivation, whether occurring in public or private life (USAID, 2013).

Gender equality refers to the equal rights, equal responsibilities, and equal opportunities of women and men and girls and boys. "Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female" (UN Women, n/d).

Government-to-person (G2P) payments are payments from the government to individuals; these may include social transfers as well as wage and pension payments (CGAP, 2017a).

Microfinance "refers to a movement that envisions a world where low-income households have permanent access to high-quality and affordable financial services to finance income-producing activities, build assets, stabilize consumption, and protect against risks. Initially the term was closely associated with microcredit—very small loans to unsalaried borrowers with little or no collateral—but the term has since evolved to include a range of financial products, such as savings, insurance, payments, and remittances" (CGAP, 2017b).

P2P refers to **person-to-person** payments. In a recent study, CGAP identifies three P2P models that could be applicable to underbanked populations in developing countries and help them move up the financial ladder: digitizing social credit, group savings, and for-profit P2P credit market places (CGAP, 2015).

3. Methodology and Data

The analytical approach outlined in the previous section informed the preliminary list of search terms used in the literature scan as well as the key domains for analysis. Additional search terms were added when the systematic review revealed new themes of importance. The final list of search terms is provided in Box 3.

> ***Box 3: Search Terms for the Systematic Review***
>
> **Gender and** Financial Inclusion; Financial Resilience; Banking Correspondents; Financial Autonomy; Remittances and Financial Inclusion; Mobile Apps; Mobile Money; Mobile Financial Services; Digital (Social) Benefit Payments; Financial Literacy; Financial Exclusion; Financial Services; Banking; Remittances; Financial Services for the Poor.
>
> **Financial Inclusion and** Women's Economic Empowerment; Women's Empowerment; GBV/IPV; Violence; Women's Decision-Making; Women's Savings; Women's Assets; Women's Labor; Labor Market Segmentation; Labor Markets; Poverty Alleviation; Risk Aversion; Risk Aversion and Seasonality and Shocks; Decision-Making; Savings; Assets; Remittances; Livelihoods; Cash Transfers; Benefit Cash Transfers; Gender-Based Violence; Intimate Partner Violence; Youth; Adolescents.
>
> **Financial inclusion and (Gender/Women) and** G2P; Cash Transfers; Conditional Cash Transfers; Social Protection; Pensions; Preferences; Demand; Trust; Policy; Governance.
>
> **Digital Financial Inclusion** and Gender**;** Gender and Formal Employment; Gender and Entrepreneurship; Women's Economic Empowerment; Gender Based Violence; Intimate Partner Violence; Youth; Adolescents.
>
> **Digital financial services**
>
> **Digital payments**

Sites for the systematic search included the development banks, international non-governmental organizations, and organizations, such as the World Bank, IPA, CGAP, BRAC, ACCION, IMF, Better than Cash Alliance, Data2X, GSMA, the Campbell Collaboration, Grameen Foundation, and 3ie. Searches were also conducted in key finance-related databases, like the World Bank's Global Findex and CGAP's Microfinance Gateway, and in databases of social science, economic, and development journals, such as Google Scholar, Elsevier, Eldis, JSTOR, RePEc, Science Direct, and EconLit. Large search engines were used to generate the list of articles, which were then cross-checked with smaller collections, such as the *Journal of Economic Policy*, *Feminist Economics*, the *Journal of Economic Perspectives*, and *Gender & Development*, to ensure that the larger search engines were picking up smaller publications.

The systematic search was also informed by key informant interviews with subject matter experts identified in conjunction with the Gates Foundation and from among the authors who write prominently on gender and digital financial inclusion (please see Appendix A for the full list of experts interviewed). These interviews helped corroborate the findings on knowledge gaps and opportunities for more research and interventions and identify any gray literature or key unpublished documents and articles that were missed in the systematic search.

The complete sample of English-language papers[2] identified through the systematic search were put through an abstract review to exclude those that did not have the relevant intersectionality of gender and (digital) financial inclusion. Studies were included if they considered the gender dimensions of financial inclusion or disaggregated results by gender. Peer-reviewed journals, government publications, institutional reports, program evaluations, policy evaluations, policy briefs, conference papers, theses, and book chapters were all included in the review, while newspaper/magazine articles and blog posts were excluded. While this study focused on low-income countries, studies from middle- and higher-income countries were included when their findings were generalizable or might yield specific insights relevant to more excluded populations.

[2] While some of the studies discussed in this report are not in English, the systematic review included only English-language publications.

The full-text reviews and coding of the remaining papers organized the search terms into key themes as well as into the spheres of analysis outlined in the previous section, namely: micro, meso, and macro and the life-cycle framework. These papers were evaluated using a scoring methodology in order to ensure a systematic and objective assessment of their rigor and contribution to the field. Broadly, the parameters for scoring included the study design, methodology, and analytics, with sample size considerations applied specifically to quantitative studies.[3] Sample sizes referred to in the scoring were defined as follows: large (1000+), medium (500-999), and small (0-500). In scoring intervention research, the intent was not to privilege randomized controlled trials (RCTs) but to ensure that rigorous quasi-experimental and experimental evaluations which draw from both qualitative and quantitative methodologies were valued. The scoring methodology also rewarded strong gender analytics. Finally, publications that were externally reviewed and published in peer-reviewed journals were given higher scores. A detailed outline of the scoring methodology can be found in Table 1.

Table 1: Scoring Methodology

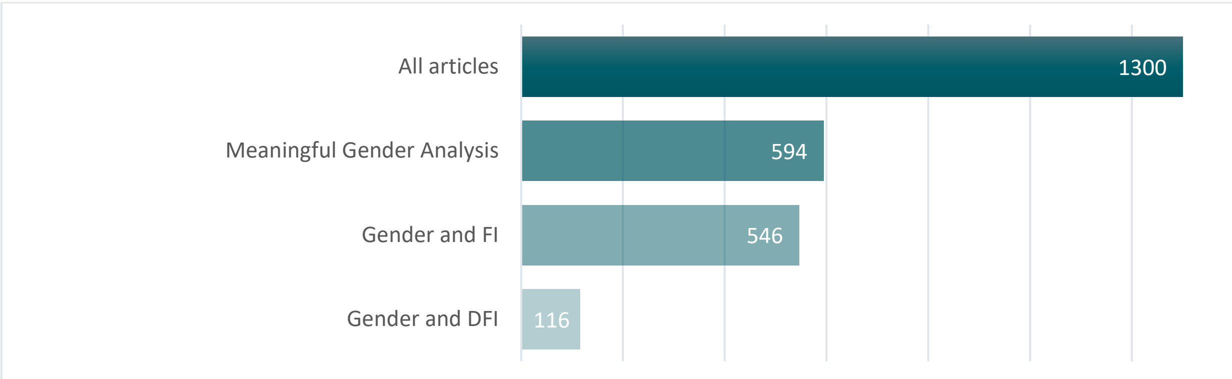
	Weak (1-3)	**Medium (4-7)**	**Strong (8-11)**
Formative research	• Opinion papers • Policy briefs • Case studies / case reports • Qualitative or quantitative studies which lack clearly defined research questions and have weak methodology and analytics	• Qualitative or quantitative studies with clearly defined research questions and robust design, methodology, and analytics but a small sample size (for quantitative studies)	• Qualitative or quantitative studies a with clearly defined research questions, robust design, methodology, and analytics, and a large sample size (for quantitative) • National regional data reports
Intervention research	• Descriptive data only broadly defining the intervention and outcomes	• Qualitative or quantitative evaluations with a clear research question, robust design, methodology, and analytics but a small sample size (for quantitative) • Quasi-experimental and experimental designs; meta-analyses	• Qualitative or quantitative evaluations with a clear research question, robust design, methodology, and analytics, and a large sample size (for quantitative) • Quasi-experimental and experimental designs; meta-analyses

The data generated on the distribution and the strength of the evidence on gender and (digital) financial inclusion form the basis of the gap analysis and have informed the learning questions for research and policy analysis put forward in this report.

The initial literature scan produced a total of 1300 papers, mostly journal articles and reports. A systematic abstract review resulted in the elimination of 706 of these papers. Of the remaining 594 papers, 546 focus on financial inclusion (FI) and 116 on digital financial inclusion (DFI); these numbers are not mutually exclusive, as some publications discuss both traditional financial services and digital financial services (Figure 2).

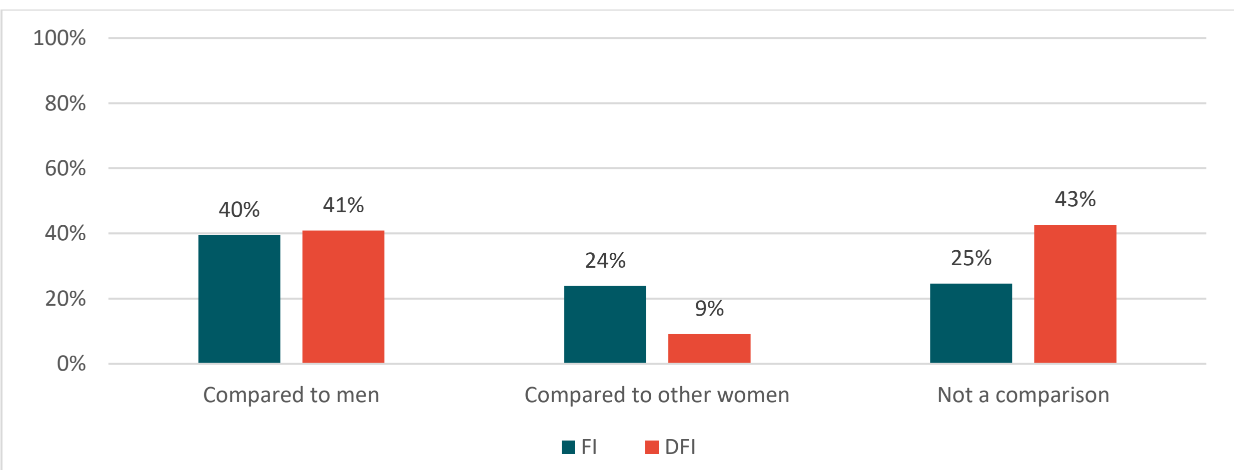
[3] A mixed-methods research appraisal tool was used to ensure consistency in the assessment and scoring of studies; see Pluye et al. (2011).

Figure 2: Distribution of Articles Surveyed for the Systematic Review



A closer look at the way in which gender is taken into account in the FI and DFI literatures, presented in Figure 3, reveals some interesting patterns. Particularly, the largest group of papers (43 percent) identified within the gender and DFI literature appears to have a broad focus on women as the population of interest, followed by those papers which include a comparative analysis between men and women (40 percent). Less than 10 percent of these studies include an analysis of gender and DFI that examines the differences between different groups of women. Meanwhile, in the gender and FI literature, the emphasis appears to be on comparative studies that include men and women (40 percent) and those that focus on different populations of women (24 percent). One-quarter of the gender and FI studies do not appear to have a comparative focus.

Figure 3: The Ways in Which Women Are Taken into Account in the Included Literature



As the timeline in Figure 4 suggests, the subject of digital financial inclusion grew in prominence in the literature about 15 years after financial inclusion. Research on both topics has been steadily rising, and the dip in numbers after 2015 is presumably due to the time-lag between articles being published and being available in databases.

Figure 4: Publication Years of the Articles Included in the Systematic Review

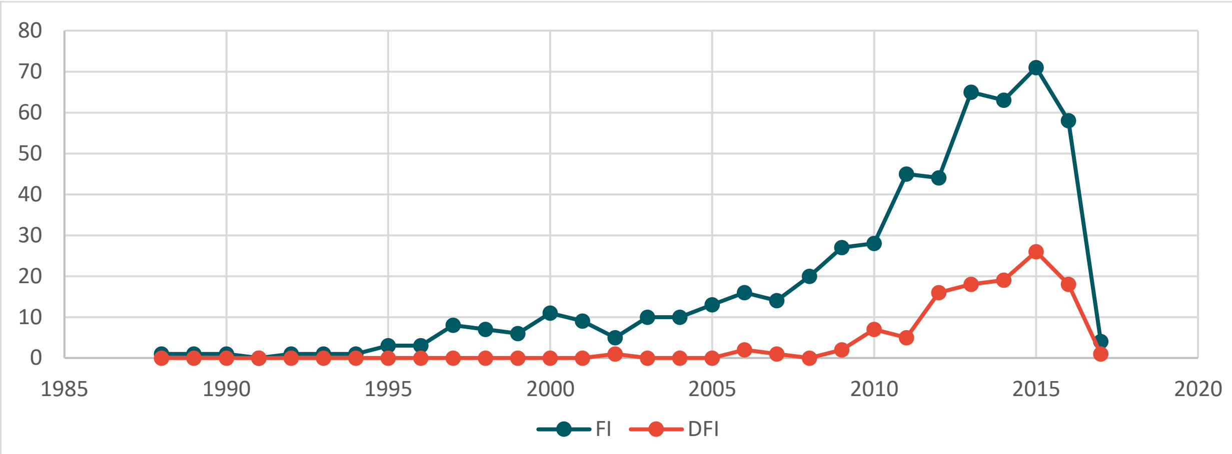
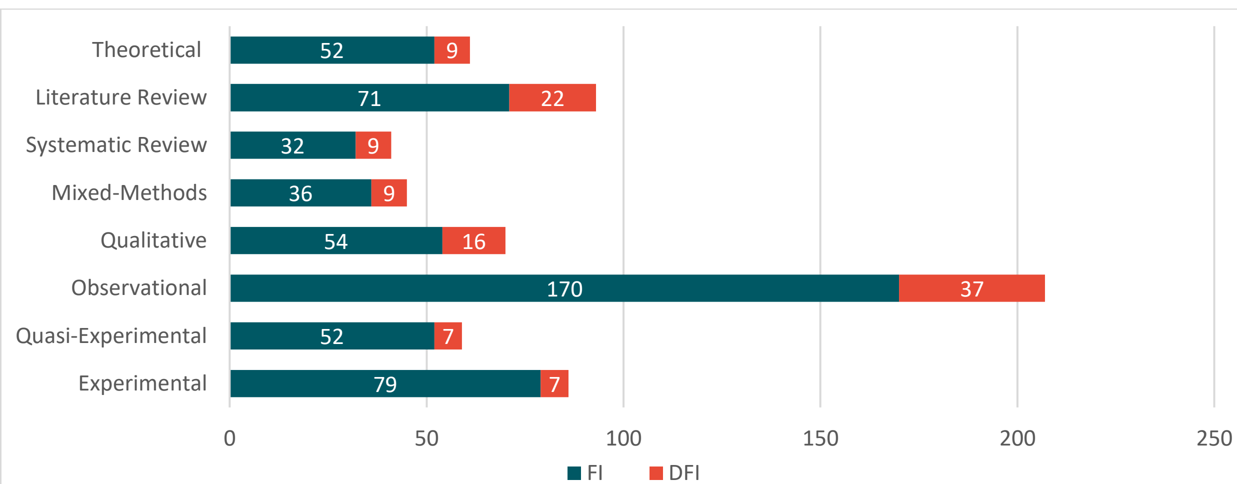


Figure 5 illustrates the distribution of the kinds of studies included in the systematic review. The largest cluster of studies on gender and FI as well as gender and DFI are found in the observational category, with 170 of the financial inclusion papers and 37 of the digital financial inclusion papers falling in this category.[4] Literature reviews are the second-largest category in the sample, encompassing 71 papers focused on financial inclusion and another 22 focused on digital financial inclusion. A number of the evaluation research studies in the sample utilize quantitative methods; 86 of them are experimental and 59 are quasi-experimental. Lastly, the review includes 69 qualitative and 45 mixed-methods studies.

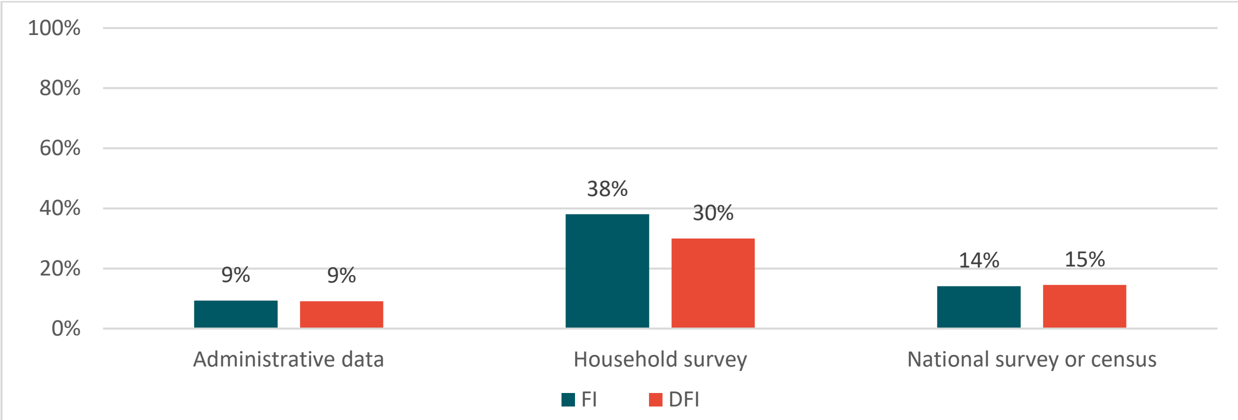
Figure 5: Methodologies Used in the Studies Included in the Systematic Review



In addition, the largest proportion of studies that use quantitative data draw from household surveys (Figure 6). Specifically, 38 percent of the gender and FI papers and 30 percent of the gender and DFI papers use household surveys; this is followed papers whose analyses draw on national surveys, at 14 percent and 15 percent, respectively. Only 9 percent of the quantitative studies rely on administrative data in their analyses.

[4] Observational research or field research is a type of non-experimental research in which a researcher observes or analyzes ongoing behavior.

Figure 6: Sources of Quantitative Data Used in the Included Literature



Both FI and DFI papers are primarily published in academic journals or as reports. Fifty-three percent of the papers on financial inclusion and 22 percent of those on digital financial inclusion comprise peer-reviewed journal articles. At the same time, reports constitute 28 percent of the papers on financial inclusion and 49 percent of papers on digital financial inclusion. More detailed distributions of the types of publications are provided in Figures 7 and 8.

Figure 7: Type of Publication (% of Total): FI

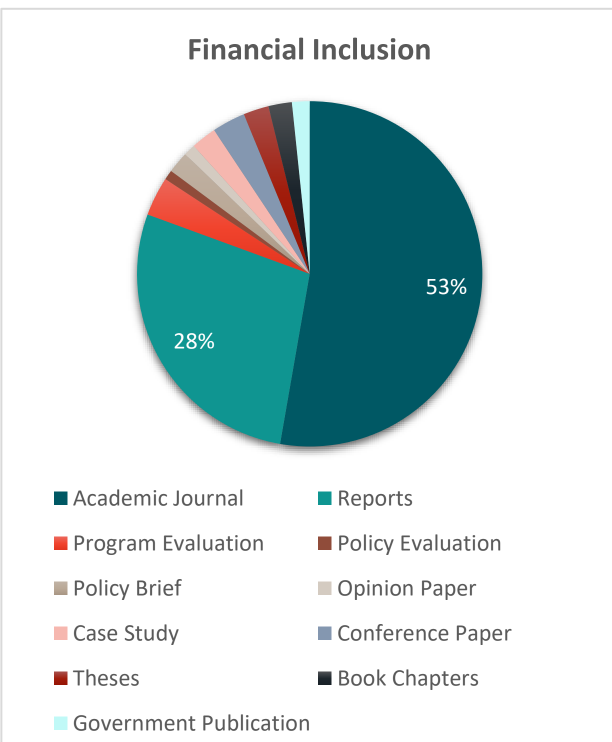
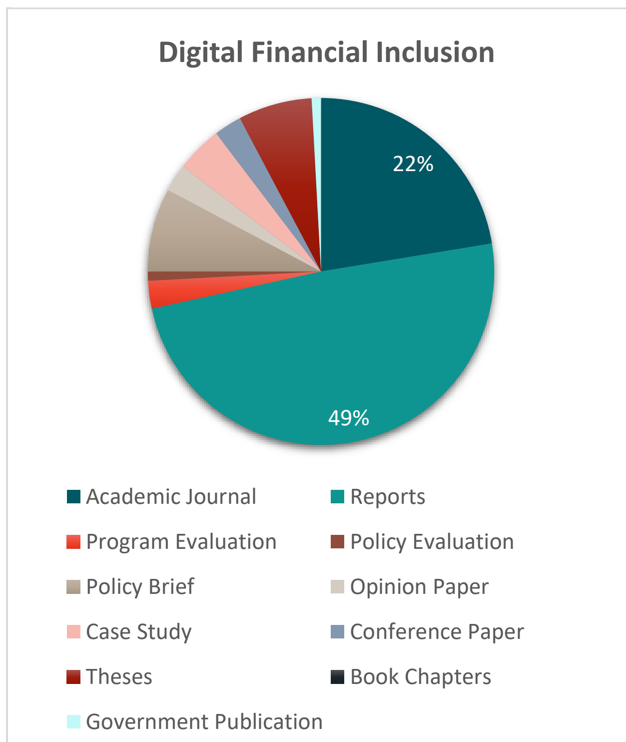


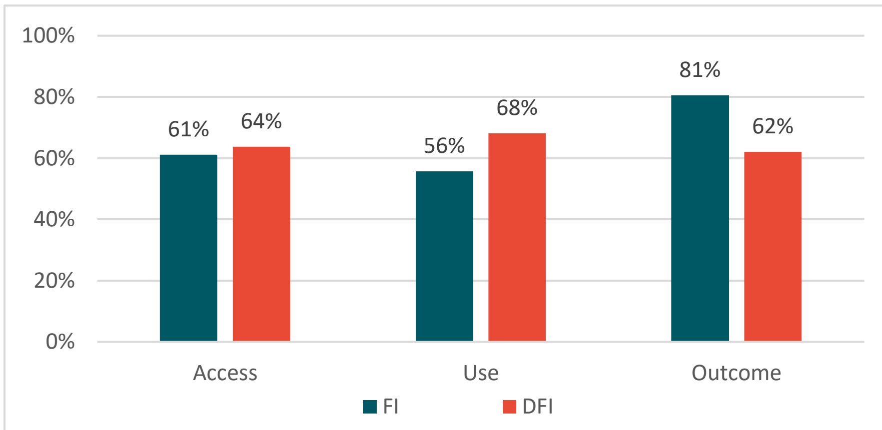
Figure 8: Type of Publication (% of Total): DFI



4. Findings

While the gender and financial inclusion literature focuses extensively on outcomes, the literature on gender and digital financial inclusion appears to have a relatively balanced distribution of studies addressing access, use, and outcomes (Figure 9). Among the 594 publications included in the systematic review, 363 make mention of issues affecting access, 335 mention issues affecting use, and 467 address the outcomes of financial inclusion, including digital financial inclusion.[5] The key themes that are included in the FI literature on outcomes are empowerment and economic empowerment. Within the DFI literature, the emphasis on the use of financial products and services is noteworthy, particularly because that is the least emphasized domain in the FI literature.

Figure 9: Focus on Access, Use, and Outcomes in the Included Literature



Breaking down the literature included in the review by the level(s) of analysis it addresses, we find ***large emphasis on the micro level***: 497 papers discuss micro scenarios (83 percent of total papers), 127 discuss meso scenarios (21 percent), and 197 discuss macro scenarios (33 percent) (Figure 10).

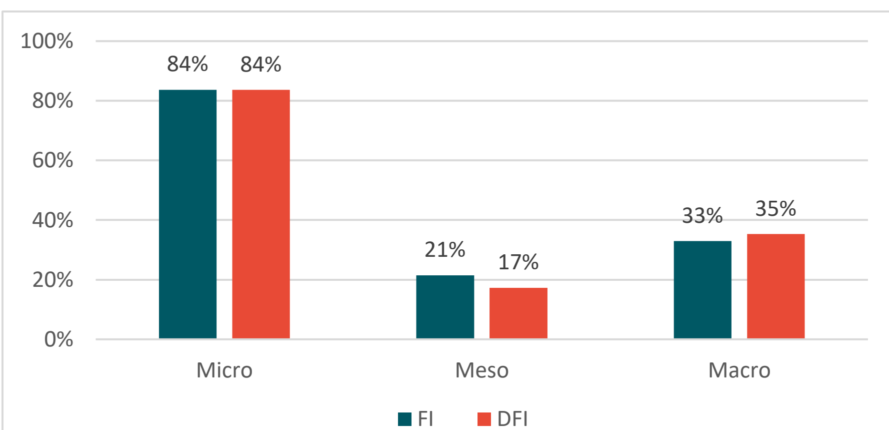


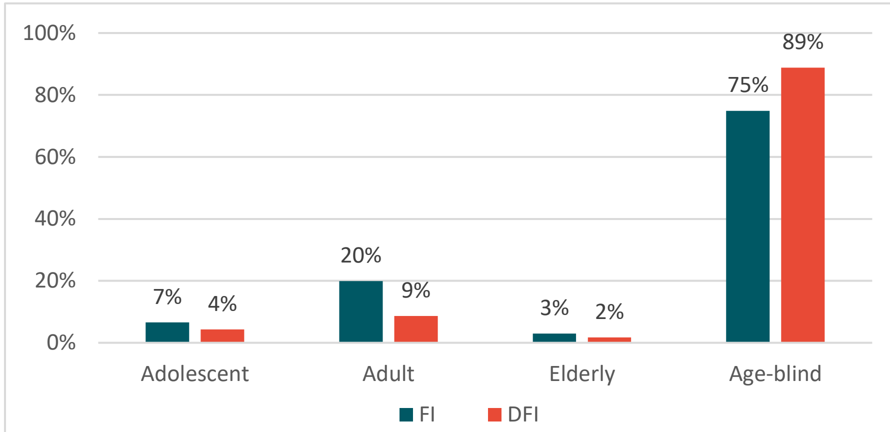
Figure 10: Levels of Analysis Addressed in the Included Literature

Considering the life-cycle, ***the clear majority of the literature included in the systematic review is age-blind*** (Figure 11). Compared to the DFI literature, a larger percentage of the publications on financial

[5] As with most numbers tallied in Section 4, these numbers are not mutually exclusive, as most publications address multiple sectors, kinds of financial services, levels of analysis, issues relating to access, use, and outcomes, etc.

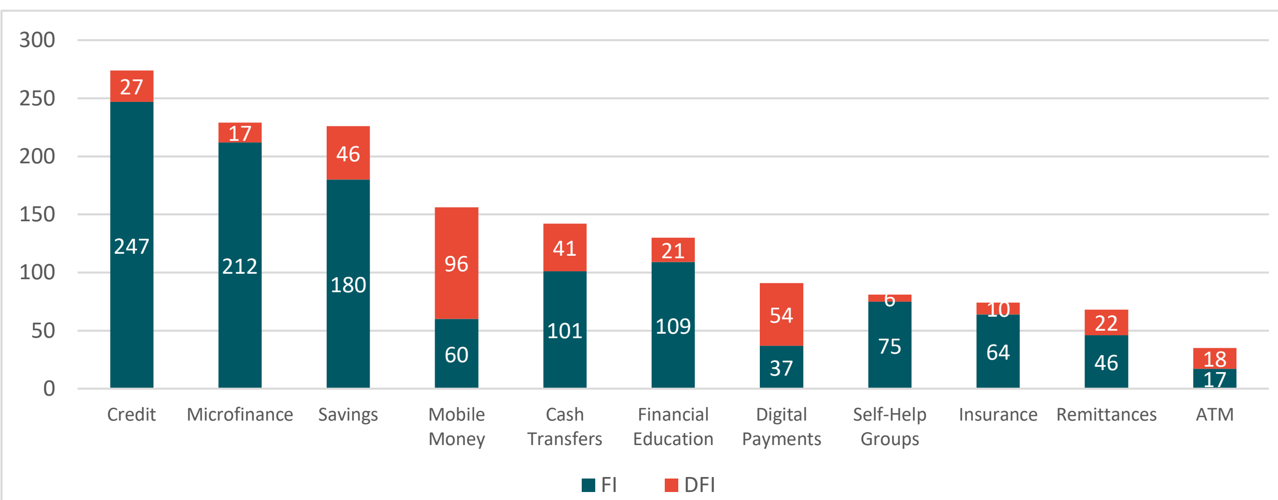
inclusion focuses specifically on one or more stages of the life-cycle. Elderly individuals are the least researched population in terms of both FI and DFI.

Figure 11: Stages of the Life-Cycle Addressed in the Included Literature



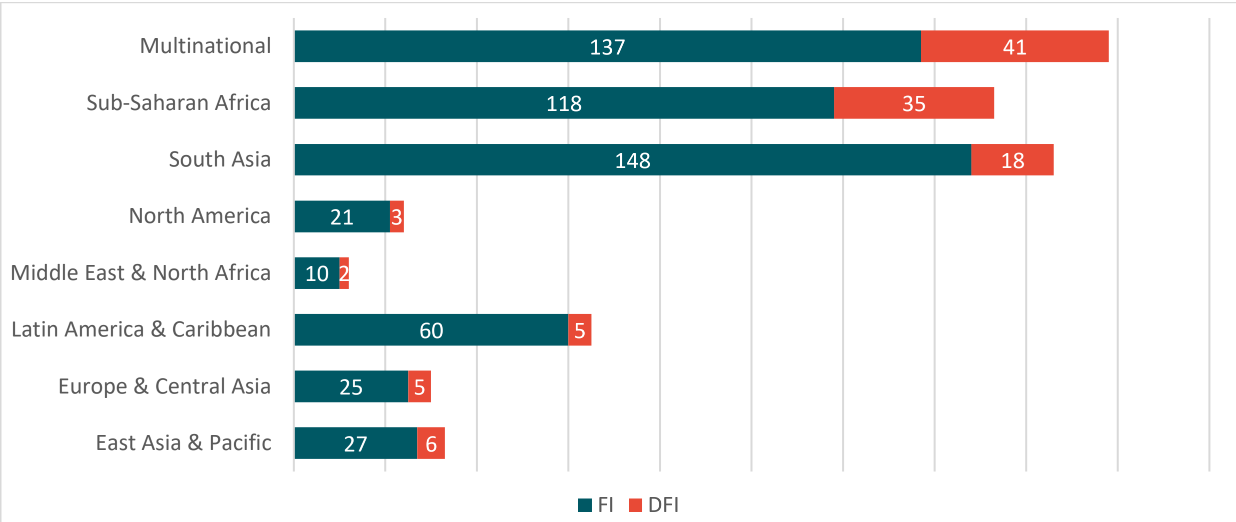
The review also tallies the types of financial services and products discussed in the publications included (Figure 12). These span a wide range, from informal financial services such as self-help groups (SHGs) and microfinance, which are traditionally administered at the community level, to more individualized digital services, most notably mobile money. As expected, ***the most explored and analyzed financial products or services that make explicit mention of gender or women are credit and microfinance***. These are followed by products and services related to savings. The least mentioned financial product or service is the ATM.

Figure 12: Types of Financial Products and Services Considered in the Included Literature



In terms of the regional focus of the literature included in this review, ***research on financial inclusion is predominantly conducted in South Asia, whereas digital financial inclusion is most researched in Sub-Saharan Africa***. Overall, studies addressing gender and (D)FI most often focus South Asia or Sub-Saharan Africa—or else they are global in nature or cover multiple regions (Figure 13). Researchers' level of interest in these two regions, in particular, aligns well with the reality on the ground: according to the 2014 Global Findex database, South Asia and Sub-Saharan Africa are among the top three most financially excluded regions in the world (Demirgüç-Kunt et al., 2015). Despite being the region with the lowest financial inclusion rate in the world, the Middle East and North Africa (MENA) has the lowest amount of research on gender and (digital) financial inclusion.

Figure 13: Regions Studied in the Included Literature



A further breakdown of geography shows us that research in South Asia is disproportionately concentrated in India and Bangladesh, with very few studies in other countries. Similarly, Kenya accounts for one-third of the research conducted in Sub-Saharan Africa.

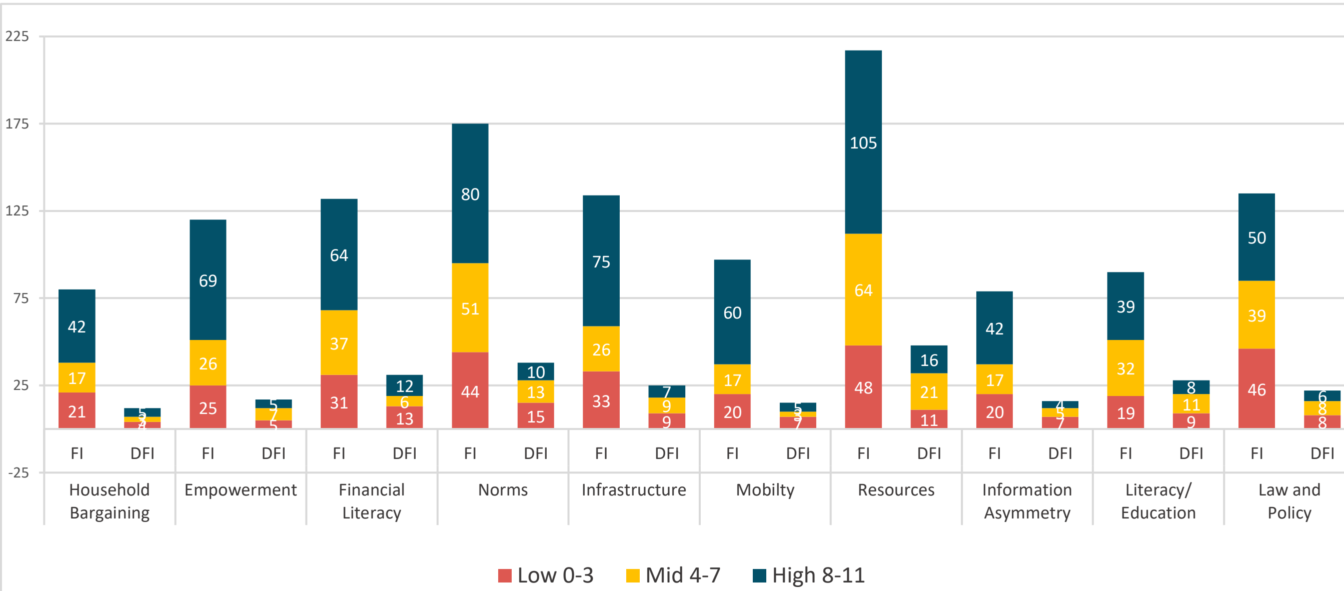
4.1. Findings: Access

Over half of the publications surveyed for both financial inclusion and digital financial inclusion consider issues of access.

Of the literature included in the review, 363 publications deal with at least one issue related to accessing financial products and services, whether traditional or digital. In the financial inclusion literature included in the systematic review, 334 of the total 546 articles (61 percent) deal explicitly with issues of access to financial products and services. The barriers to access for which the articles in the systematic review were coded consist of: norms; infrastructure; agency/empowerment; mobility; laws and policies, including, for example, those governing property ownership and succession and those concerning identification requirements for banking and contracting; financial literacy; resources, such as immovable, financial, and digital assets and income; household bargaining; general literacy and education; and informational asymmetries (Figure 14).

The literature addressing gendered issues of access to financial products and services is most concentrated on resources (e.g., lack of money to open an account), norms, and laws and policies. Out of 116 articles on digital financial inclusion included in the systematic review, 69 (59 percent) are attentive to issues of access. As with the FI literature on access, this subset of the DFI literature is heavily concentrated on issues of resources and norms, although there is also more focus on the subject of literacy and education.

Figure 14: Numbers and Average Quality Scores of Publications Addressing FI/DFI and Issues of Access



In addition to the issues of access that were coded for specifically, the systematic review brings to the fore several other issues that are suggested to influence a person's access to financial products and services. These include demographic characteristics such as minority status, caste, marital status, and immigration status; time constraints faced by women; and a dearth of products appropriate for the poor. Another subject raised in the literature is individuals' lack of social networks, which are an important entry point for engaging with self-help groups, among other mechanisms through with people gain access to financial products and services. Within the digital financial inclusion literature, language barriers and a lack of awareness of products and services are the most often cited access-related issues outside of the topic areas covered in the coding scheme.

Most of the literature addressing access to financial products and services consists of peer-reviewed journal articles, while most publications addressing access to digital financial products and services are reports.

The types of publications for the financial inclusion and digital financial inclusion literature as these relate to gendered issues of access are quite disparate. The financial inclusion publications with an emphasis on access issues are overwhelmingly peer-reviewed journal articles (154 of 334) and reports (104 of 334), while digital financial inclusion publications on this subject are predominantly reports (38 of 69). The numbers of other types of publications, such as book chapters, conference papers, and government publications, are generally in the single digits for both FI and DFI literature related to access.

In terms of the methodology employed by the researchers whose work is included in this review, the vast majority of the FI and DFI publications that deal with issues of access to financial products and services are observational studies, followed by literature reviews and qualitative studies. The overall quality of publications is higher for the financial inclusion literature related to access as compared to the digital financial inclusion literature on this subject (an average score of 6.4 and 5.0, respectively, on our 0-11 scale).

Box 4: DFI's Potential in the MENA Region

"Formal women entrepreneurs can benefit [from financial inclusion], especially if the business is online," as in the case of women in Saudi Arabia who run an export business online, which allows them to bypass many of the restrictions women entrepreneurs in the country typically face. (L. Klapper, key informant interview with ICRW, January 25, 2017)

South Asia and Sub-Saharan Africa are the most well-studied regions when it comes to accessing financial and digital financial products and services.

The clear majority of the literature on access to financial products and services is concentrated on South Asia (83 of 334 publications) and Sub-Saharan Africa (78 of 334). In fact, studies conducted in those two regions account for just less than double the number conducted in all other regions combined, excluding multinational studies. The case is not changed significantly when looking at the literature related to access to digital financial products and services. Sub-Saharan Africa (22 of 69 publications) and South Asia (11 of 69) switch rankings, but they remain the two most studied regions. Excluding multinational studies, all other regions combined make up only 12 additional the studies in this sub-set.

Micro-level analysis drives the literature on the intersection of gender and access to financial products and services and to digital financial products and services.

Among the articles related to financial inclusion and access, most employ micro-level analysis (277 of 334 publications), focusing on individual- and household-level characteristics impacting access to financial products and services. Within these studies, lack of resources (assets, income, etc.) emerges as the most prominent inhibitor to women's access to financial products and services. Also prominent in the literature are prohibitive cultural norms governing women's access. These same two issues are featured most prominently in the digital financial inclusion literature related to access, as well, with literacy and education—and financial literacy, specifically—not far behind. Of all the digital financial inclusion literature included in the systematic review, 62 of the 69 studies entail micro-level analysis.

Macro-level analysis is also well-represented in the financial inclusion literature (142 of 334 publications), focusing most on issues of access related to resources, laws and policies, and norms. Discussion of laws and policies at the macro-level include discriminatory lending practices and identification requirements that adversely affect women. About half of the digital financial inclusion literature includes macro-level analysis of issues related to access, emphasizing resources, norms, laws and policies, and infrastructure. Meso- or community-level analysis related to issues of access to financial products and services is not prominent in either the financial inclusion or digital financial inclusion literature.

The vast majority of studies on access to financial and digital financial products and services are age-blind.

For both the financial inclusion and digital financial inclusion literature related to access, the majority of studies are age-blind (275 of 334 and 62 of 69 publications, respectively). Among the papers relevant to access issues that do incorporate life-cycle considerations, the financial inclusion literature emphasizes resources, norms, and literacy for adults, financial literacy and resources for adolescents, and norms for the elderly. The digital financial inclusion literature follows similar patterns as the FI literature but is for the most part age-blind regarding access to financial products and services.

4.1.1. Implications

Many of the findings on the gaps in the analysis concerning access to financial products and services reflect the relative maturity of the financial inclusion literature and the nature of the development discourse in the 1990s, which focused on access to productive resources as being key for solving development problems in a context of deregulation, privatization, and increasing global integration.[6] Similarly, the focus on how gender norms shape access is much more developed in the financial inclusion literature than in the digital financial inclusion literature, suggesting that there are opportunities to dig deeper into the norms that shape access to DFI.

Three findings on the gaps in the existing research stand out here and emerge consistently across the analysis of the gaps in access, use, and outcomes:

- Access to FI and DFI by women has been significantly under-studied in the Middle East and North Africa. This is surprising given that this is a region with particularly rich formal and informal financial institutions and codes about lending and borrowing and with a significant penetration of digital technology. It is also surprising as this is a region where gender inequality is particularly stark in terms of such issues as physical mobility, voice, labor market participation, and norms and dictates that define gender roles. Investing in more research on how DFI can facilitate access to financial services in this region would be particularly useful.

- Similarly, the lack of age-specific research is perplexing in a context in which providers are increasingly being exhorted to "know their customer." The failure to differentiate the customer by age, sex, and location and the focus on age-blind research does not contribute to a better understanding of how FI and DFI can facilitate differentiated outcomes for youth, prime-age adults, or the elderly.

- Finally, the lack of meso-level analyses frustrates "knitting up" the micro with the macro. How access is affected by meso factors and institutions is a question that can inform the types of barriers that must be overcome or the extent of the development and macro spillovers from financial inclusion in terms of the outcomes. That is, we need to better understand to what extent meso-level barriers to women's mobility, or participation in the public sphere, or engagement in decision-making fora at the community level limit women's ability to translate more financial resources into greater expenditures or investments that can dynamize the local economy. Individuals typically live in households that are embedded in communities. The failure to explore the intermediating meso factors at a community level that also influence a woman's access to financial products and services—digital or otherwise—means that interventions to increase access may encounter unforeseen barriers at the community, local, or institutional level. For instance, if the assumption is that women can cash-out private digital transfers and have greater privacy through digital transfers, but doing so requires that they travel to a point of service in their community or engage publicly with non-family males as intermediaries, then this assumption may not be fulfilled. The extent to which these barriers reflect attitudes and practices that are reinforced through community institutions will suggest how actions and interventions to mitigate these limitations may need to be directed to reinforce the benefits from DFI.

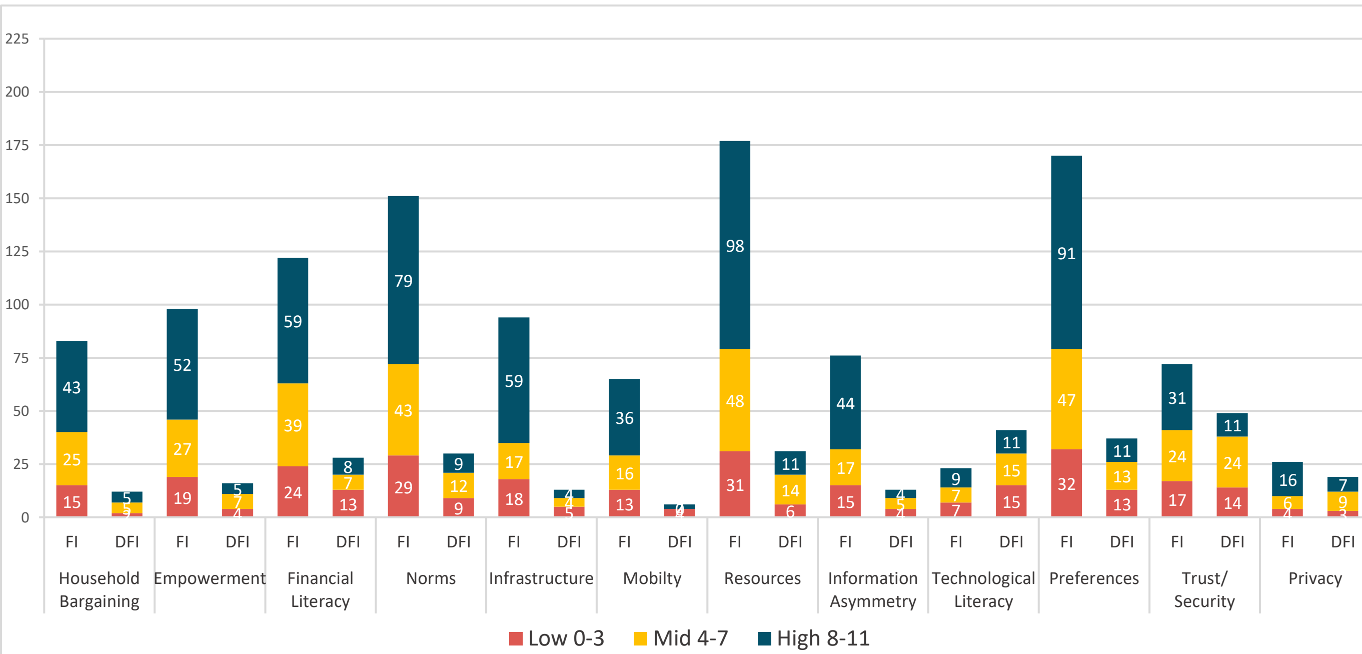
[6] For a comprehensive analysis of the development discourse in the 1990s and 2000s, see Kanbur (2009) and Seguino (2012).

4.2. Findings: Use

Issues related to use of financial products and services are addressed in a larger proportion of the digital financial inclusion literature than the financial inclusion literature.

Among the publications included in the systematic review, 304 of the total 546 papers (56 percent) related to financial inclusion discuss usage of financial products and services, while 75 of the total 116 papers (65 percent) related to digital financial inclusion address usage of digital financial products and services. The barriers to use of financial products and services for which the publications were coded consist of: norms, infrastructure, informational asymmetries, preferences, resources, financial literacy, trust/security, technological literacy, household bargaining, privacy, agency/empowerment, and mobility (Figure 15).

Figure 15: Numbers and Average Quality Scores of Publications Addressing FI/DFI and Issues of Use



The financial inclusion and digital financial inclusion literatures focus on different aspects of use.

The FI literature addressing issues of use of financial products and services focuses on resources, preferences, social norms, and financial literacy as determinants of use. Several issues around use receive significantly more attention in the digital financial inclusion literature, namely trust/security, technological literacy, and privacy.

While the larger focus on technological literacy is to be expected in the context of DFI, the finding that privacy and trust/security are addressed in a larger proportion of the digital financial inclusion literature is noteworthy. Indeed, 49 of 75 DFI publications discuss trust/security as a determinant of use, compared with 72 of 304 publications in the FI sub-set. Similarly, 20 of 75 digital financial inclusion articles discuss privacy, while only 26 of 304 of financial inclusion publications consider privacy as it relates to the use of financial products and services. Some articles in the DFI sub-set of the literature focus on how digital financial services give women *more* security and privacy from their families in their financial transactions, while others consider how women may actually have *less* security and privacy, often due to women's lower levels of technological literacy or their reliance on family, friends, and bank agents to use mobile money services and ATMs.

The larger proportion of articles that focus on the use of financial products and services in the DFI literature relative to the FI literature is likely due to the nature of these financial products and services. Given the large gender gap in mobile phone ownership in low- and middle-income countries (Santosham and Lindsey, 2015), the focus on use of digital financial products and services may be indicative of researchers' greater concern with women's technological literacy—their ability to use the technology independently once they have access to it—and preferences rather than with the issue of access to the mobile phones or other technologies in the first place.

The literature addressing use of financial products and services consists of mostly peer-reviewed journal articles and reports; most publications addressing use of digital financial products and services are reports.

The financial inclusion publications related to the determinants of use of financial products and services are overwhelmingly peer-reviewed journal articles (140 of 304) and reports (94 of 304), while publications dealing with issues of use related to DFI are predominantly reports (39 of 75). There are only a handful of other types of publications, including book chapters, conference papers, policy evaluations, and government publications, for both sub-sets of the literature.

In terms of the methodology employed by the researchers whose work is included in this review, there are a high number of observational studies in both sub-sets of the literature on issues related to the use of financial products and services: 104 of 304 articles on financial inclusion and 21 of 75 articles on digital financial inclusion. The FI literature on use of financial products and services also features a number of experimental studies (51 of 304), while the DFI sub-set of the literature includes more literature reviews (14 of 75) and qualitative studies (12 of 75). The overall quality of publications is higher for the financial inclusion literature related to use of financial products and services as compared to the digital financial inclusion literature (an average score of 6.8 and 4.7, respectively, on our scale from 0 to 11).

Research on issues relating to use of financial products and services is heavily focused on South Asia and Sub-Saharan Africa.

Out of the 304 financial inclusion papers analyzing the use of financial products and services, approximately one-quarter focus on South Asia and one-quarter on Sub-Saharan Africa; another quarter are multi-country studies. The research in these regions focus mostly on social norms, preferences, financial literacy, and resources, although the research conducted in South Asia also has a more substantial focus on women's agency and empowerment as a key determinant of use. The least researched regions are the MENA region and East Asia and the Pacific, which is consistent with the overall findings of this review. Similar patterns emerge when tallying DFI publications that examine issues related to the use of digital financial products and services, with South Asia, Sub-Saharan Africa, and multi-country studies dominating the literature.

The majority of both financial inclusion and digital financial inclusion publications analyze issues of use at the micro level.

Among the publications reviewed, 268 of 304 papers on financial inclusion and 65 of 75 papers on digital financial inclusion analyze issues of use at the micro level. In the FI literature, frequent topics of issues related to use at the micro level of analysis include preferences, resources, and social norms. In the DFI literature, there is a greater emphasis on technological literacy, trust/security, and preferences as these relate to issues of use of financial products and services at the micro level.

The meso level of analysis is used the least frequently in both financial inclusion and digital financial inclusion literature; meso-level analysis is applied in just 80 of 304 financial inclusion papers and 14 of 75 digital financial inclusion papers related to use. In both the FI and DFI sub-sets of the meso-level literature on use, social norms and resources are frequently explored; trust/security is the most commonly researched determinant of use in the digital financial inclusion literature.

At the macro level of analysis, 113 of 304 papers on financial inclusion and 26 of 75 papers on digital financial inclusion analyze issues of use. This sub-set of the financial inclusion literature focuses strongly on resources, social norms, infrastructures, and preferences as determinants of use. In the digital financial inclusion literature, the focus at the macro level is again on trust/security, resources, technological literacy, and social norms.

Most publications do not specifically refer to the life-cycle stages of the populations researched, and the same is true for those specifically focused on issues relating to use of financial products and services.

While different issues affecting use have been discussed across 304 publications in the financial inclusion literature, in only 15 of the FI publications is the analysis specifically concerned with adolescents and youth, and in only seven is it concerned with the elderly. Age-specific research is even less prevalent in the included sub-set of DFI publications; out of the 75 DFI papers addressing issues of use, only one paper refers to adolescents and two to people of old age.

4.2.1. Implications

As with the findings on access, we observe the same three prominent gaps emerging regarding the use of financial products and services, digital or otherwise: underrepresentation of the MENA region, the lack of differentiation by life-cycle stage, and the absence of a focus on the meso level.

Another more surprising finding is the relative dominance of analysis of issues related to trust and security in the use of digital financial products and services. Proportionally, far more reports and journal articles are dedicated to trust and security in the DFI literature than the FI literature. An important question would be: what is it about the digital nature of financial products and services that may inspire or respond to a need for trust and security in financial institutions? And given that many of these products and services are also linked to physical brick-and-mortar banks and financial institutions governed by national laws and regulations, what is the aspect of the digital service that makes it more trustworthy? This has implications, beyond the financial realm, for citizen oversight of financial institutions and their accountability to newer and poorer customers and to development policies that emphasize unlocking capital and promoting greater investment in under-served areas and communities.

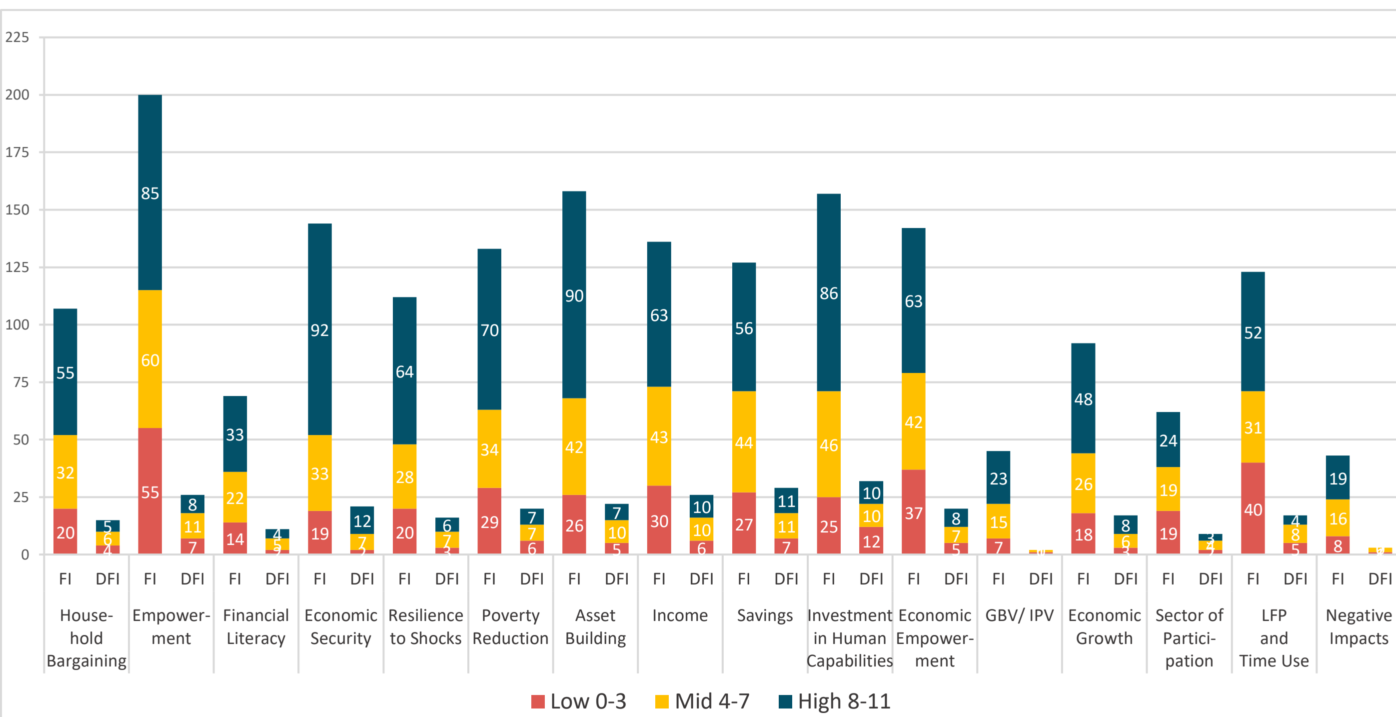
4.3. Findings: Outcomes

A total of 480 articles discuss various outcomes of financial inclusion, some of which straddle the FI and DFI literature. Within the included FI literature, 449 out of 546 articles (82 percent) discuss the outcomes of financial inclusion; 74 publications out of the 116 included DFI publications (64 percent) discuss the outcomes of digital financial inclusion.

The systematic search of the literature on the outcomes associated with financial inclusion and digital financial inclusion focuses broadly on four large themes for which the included articles were coded: economic security, resilience to shocks, labor force participation (LFP), and agency/empowerment. Several additional sub-themes were included in the coding to support a more granular analysis: income, savings, asset building, poverty reduction, investment in human capabilities, mobility, intra-household bargaining, financial literacy, economic growth, economic empowerment, sector of participation, and gender-based violence (GBV), including intimate partner violence (IPV). The gap analysis also finds some negative impacts of certain financial products and services, for which articles were also coded (Figure 16). Examples of negative impacts might include over-indebtedness and intra-household conflict over finances, especially in the context of microfinance and credit products and services. In one article on digital finance, for example, women cite digital remittances as the reason their family members no longer visit their homes as often (Wandibba et al., 2014).

The emphasis on the outcomes that are associated with financial inclusion or digital financial inclusion varies.

Figure 16: Numbers and Average Quality Scores of Publications Addressing FI/DFI and Outcomes



A majority of the articles discussing outcomes of financial inclusion and digital financial inclusion use observed data for their analysis; 120 of 449 articles in FI and 20 of 74 in DFI. The second-most used methodology for FI articles is experimental research (73 publications of 449), whereas literature reviews are the most common type of publication for the sub-set of DFI articles related to outcomes (13 of 74).

In terms of the methodology used in the research, a large number of publications discussing outcomes of FI are from peer-reviewed journals; 238 of 449 FI articles that address outcomes are drawn from academic journals, whereas only 15 articles of the 74 DFI publications related to outcomes are peer-reviewed. Most publications discussing outcomes of DFI are in report form (35 publications of 74). There are very few experimental papers on DFI and outcomes (five publications in total). Articles discussing outcomes of FI are on average of higher quality than the sub-set of DFI articles related to outcomes (an average score of 6.5 for FI articles related to outcomes, versus an average score of 5.2 for outcomes-related DFI articles).

The research focus is shaped by the geographic concentration; among financial inclusion articles, empowerment is disproportionately highly researched in South Asia.

The FI literature on outcomes has a heavy emphasis on empowerment in the context of South Asia (77 publications). Research on FI in other regions also focuses on empowerment, albeit in smaller numbers. The only two regions where this is not the case are North America, where asset building takes precedence, and East Asia and the Pacific, where savings is the most discussed outcome. Studies covering multiple countries or regions are more likely to focus on labor force participation (41 out of 124 publications) and investment in human capabilities (52 out of 124 publications). Among the 74 DFI articles focused on outcomes, the research in Sub-Saharan Africa focuses mostly on savings and income (10 and 11 publications, respectively), and the research covering multiple regions emphasizes investment and empowerment (16 and 15 publications, respectively). Other regions do not feature enough DFI research to draw meaningful conclusions.

Overall, asset building is one of the most frequently discussed outcomes across micro-, meso-, and macro-level studies on financial inclusion (a total of 169 publications).

Similar to papers focusing on access to and use of FI and DFI, papers on outcome focus most on the micro level, (383 out of 449 financial inclusion publications, and 61 out of 74 digital financial inclusion publications), followed by 153 FI and 29 DFI publications focusing on the macro level. In the financial inclusion literature on outcomes, asset building is frequently highlighted. Additionally, agency/ empowerment is a disproportionate area of focus in micro-level FI studies (181 out of 449 publications), and to a lesser extent in meso-level studies (61 of 449 publications). Macro-level FI studies, on the other hand, tend to focus on economic security and poverty reduction (73 and 66 publications, respectively). Gender-based violence is the least discussed outcome across all levels of research (only 45 of the 449 publications in this sub-set of the literature). Within the DFI literature related to outcomes, the micro-level analysis focuses most on investment in human capabilities (30 publications out of 74) as an outcome, followed by savings (28 of 74 publications). Macro-level DFI studies on outcomes also tend to focus on these topics as well as on economic growth.

Once again, the literature is significantly age-blind within its exploration of outcomes.

While some financial inclusion literature does focus on adolescent/youth and elderly populations (23 and 13 publications, respectively), there is virtually no consideration of the life-cycle in the digital financial inclusion literature as of now.

4.3.1. Implications

We observe the same regional gaps and age-blindness in the literature on FI and DFI regarding outcomes as we did with access to and use of financial products and services. Interestingly, there are more meso-level publications concerning outcomes that in the previous two categories.

Another gap that stands out is a topical one: literature that addresses empowerment. Curiously, there is proportionately more analysis in the literature on the empowerment and economic empowerment outcomes for women from financial inclusion than from digital financial inclusion. This is startling since the analysis of empowerment and the emphasis on women's economic empowerment has grown over the last decade, with various strands of feminist research embracing a critical analysis of empowerment (Kabeer, 1999, 2001a, 2001b; Kabeer et al., 2013) and increased emphasis by development and multilateral agencies on the importance of women's economic empowerment. By not exploring the channels through which DFI can promote or sustain women's empowerment and agency, we fail to fully understand a host of other potential spillovers that DFI may be able to foster for women's ability to influence household bargaining and decision making, invest in their own and their families' human capabilities, accumulate savings and assets, and exercise agency over their labor force participation and time use. Similarly, without digging deeper into agency issues, we will also fail to understand why there may be muted or even negative impacts for women from FI and DFI.

5. Discussion

What is a meaningful gap?

The systematic search of the literature revealed a number of potential gaps that have implications for research and programs to promote women's financial inclusion and digital financial inclusion. Yet, defining which of these is a meaningful gap requires a deeper look at the quality of the research and the extent of unanswered questions in the thematic area or dimension identified.[7] Interrogating the gaps was done iteratively through our own analysis and using the qualitative interviews ICRW conducted with 15 key informants and feedback ICRW solicited from four subject matter experts,[8] asking them to identify which gaps remain in their area of expertise and interest and what key articles and reports speak to critical areas for further analysis and product and service development. We also held two public fora to share the findings and solicit feedback from a larger audience of researchers and practitioners. The systematic search was undertaken iteratively, as the included articles were recoded for some of these additional dimensions to see which ones remained under-studied and to explore the type and quality of research in these new areas. This iterative approach continually built out the set of domains and questions through which to look at gender and FI and DFI.

One example of this iterative coding and analysis process is that in our initial data coding, we did not code for data source. As we reviewed the information collected in the key informant interviews and feedback from subject matter experts, however, it became apparent that the data sources that were used in the peer-reviewed and gray literature that we had reviewed disproportionately drew on household survey data, and for the most part, "à la carte" or "boutique" surveys designed purposefully to capture demand-side elements, whereas relatively fewer articles used supply-side and administrative data. Recoding the articles for data sources revealed that the use of supply-side data in these articles and reports is less prevalent. Approximately 9 percent of all articles and reports for both FI and DFI use administrative supply-side data. This draws attention to the need to use supply-side data in combination with other data sources to examine access to and use of financial products and services and potentially, to explore outcomes from DFI and FI.

Another example of how we identified meaningful gaps can be found in the exploration of norms and preferences. While these would have appeared to be well-studied from our exploration of the literature, the key informants and subject matter experts with whom ICRW interacted highlighted to us that these domains need substantial further inquiry. As we dug into the literature, we found that many of the pathways through which norms and preferences affect access, use, and outcomes are not well articulated and explored. In particular, the methodologies do not allow for the disproportionately quantitative approaches to be interrogated with qualitative inquiry that would elucidate these pathways more fully.

Our assessment of the relative importance of the gaps identified in the literature is also informed by a feminist economic perspective.[9]

[7] Robinson et al. (2011:1325) identify research gaps in systematic reviews as occurring "when the ability of the systematic reviewer to draw conclusions is limited."
[8] Subject matter experts gave written feedback on the report. Key informants took part in a semi-structured interview.
[9] See Benería et al. (2016) for an analysis of the evolution of feminist economic theory and practice.

This perspective highlights the importance of an intra-household analysis and a focus on time use and time burdens. Our interest is in revealing how an analysis of the household and of intra-household bargaining and processes can inform our understanding of how FI and DFI can transform women's lives and foster greater realized agency and empowerment. Additionally, we want to explore those factors and barriers that mediate or frustrate positive outcomes or produce unintended negative consequences related to FI and DFI. A focus on women's time use and their increasingly dual roles as caregivers and workers or producers is also an important lens through which to view the research on gender and FI and DFI. If women's time is not fungible, if care services are not available, if women have little autonomy of movement, their ability to access and use financial products and services may be highly circumscribed and many of the benefits from financial inclusion are likely to be unfulfilled (Hasan, 2010). It is this framework and analytical lens that informs the collection of key and overlapping issue-areas that describe some of the prominent gaps in research to date. We believe that further research in these areas can critically probe the potential and realized benefits from FI and DFI for women and inform the development of better and more meaningful products and services that meet the needs of users and ultimately contribute to more human-centered and sustainable development.

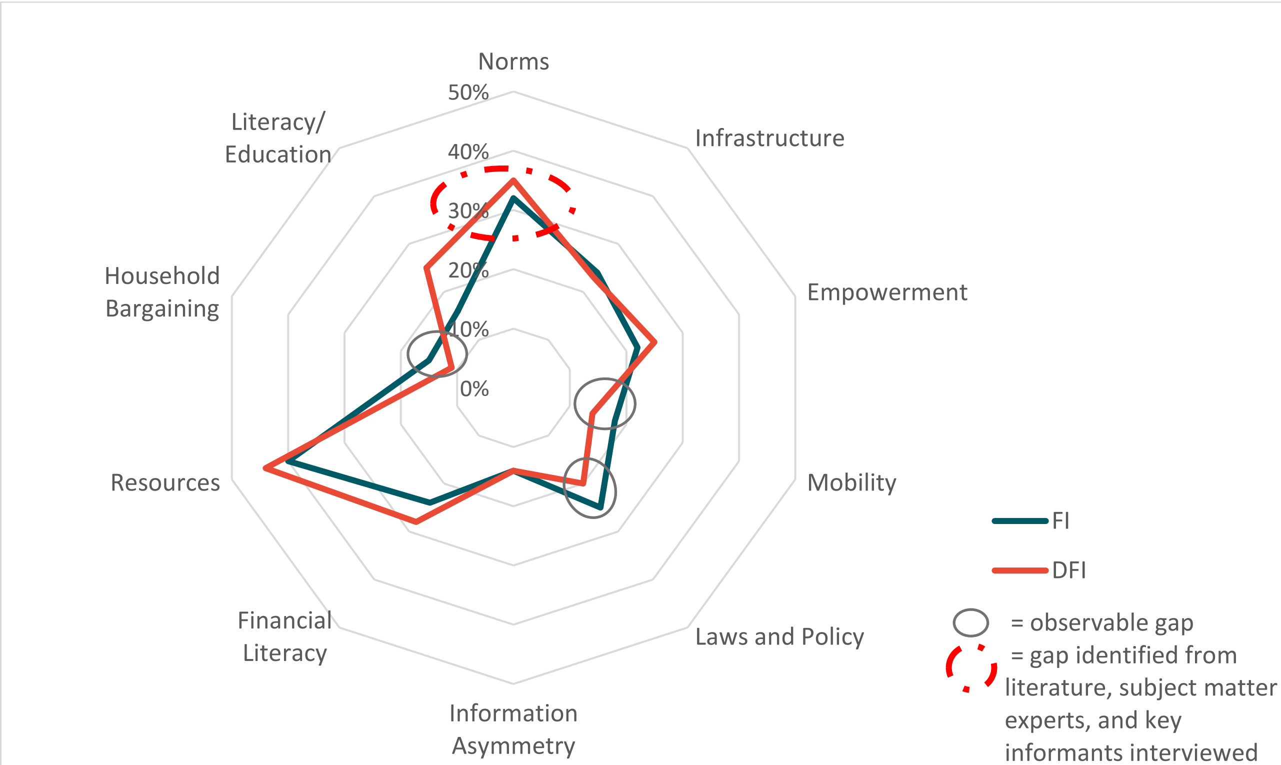
Women's and girls' (economic) empowerment underpins the analysis undertaken across the thematic areas discussed in the following sub-sections.

Women's empowerment (WE) and women's economic empowerment (WEE) includes a number of the domains that we have identified separately in the coding of the literature, such as agency/ empowerment and the ability to avoid/ negotiate negative consequences, to enter the labor market or control one's own time allocations, to earn an income, to acquire assets and hold savings, and to experience increased autonomy/ power in household bargaining. Consequently, we do not consider WE and WEE as a separate domain or topic to be further explored, but address it through the other topics that we have identified as being emblematic of particularly important gaps for further research. As is apparent from Figures 14, 15, and 16 above, however, we did specifically code publications for "agency/ empowerment" to see to what extent the components of agency and empowerment were also explicitly linked to a definition or notion of empowerment that was referenced in the article or report. The definitions of agency and empowerment, WE, and WEE may be divergent and variously applied in the publications included in the systematic review, so we did not rely on a fixed definition of these terms in the coding of the literature.

Given that the majority of documents were found through peer-reviewed journals or published online as reports on large platforms through key organizations working on financial inclusion (such as the IMF, World Bank, GSMA, the Better than Cash Alliance, and the United Nations Capital Development Fund), it is not surprising that the greatest proportion of papers ranked either strong or medium in terms of their quality. The same is true for those papers published in the key areas we have identified as gaps (see Figures 17, 18, and 19 below). In the key gaps that we have identified, information asymmetry as well as negative impacts have the weakest proportion of papers. Since there was little variation in the strength of the papers, we chose not to focus on this dimension for the gap analysis.

The following discussion highlights some of the key gaps we consider to be the most meaningful and draws attention to those articles and reports that exemplify good research and inquiry into the gap and highlight the need for further research and inquiry—either highlighting "knowledge voids" or calling attention to the need for different methodologies and approaches to illuminate aspects of the gap that can improve access, use, and outcomes. In some cases, we bundle the gaps that are closely related and are not mutually exclusive domains[10] (poverty, resilience to shocks, and economic security; labor force participation, sector of participation, and time use). In other cases, we treat them separately because of the richness of the literature, as in the case of intra-household bargaining, preferences, and norms. Negative impacts are discussed as a stand-alone topic even though the impacts may occur in a number of domains related to the previous categories.

Figure 17: Focus on Issues of Access in the Included FI and DFI Literature and Gaps Identified



[10] For instance, correlations of the thematic codes underscore that resilience, economic security, and poverty were all strongly and positively correlated in the analysis. See Appendix C for the correlations of the thematic codes.

Figure 18: Focus on Issues of Use in the Included FI and DFI Literature and Gaps Identified

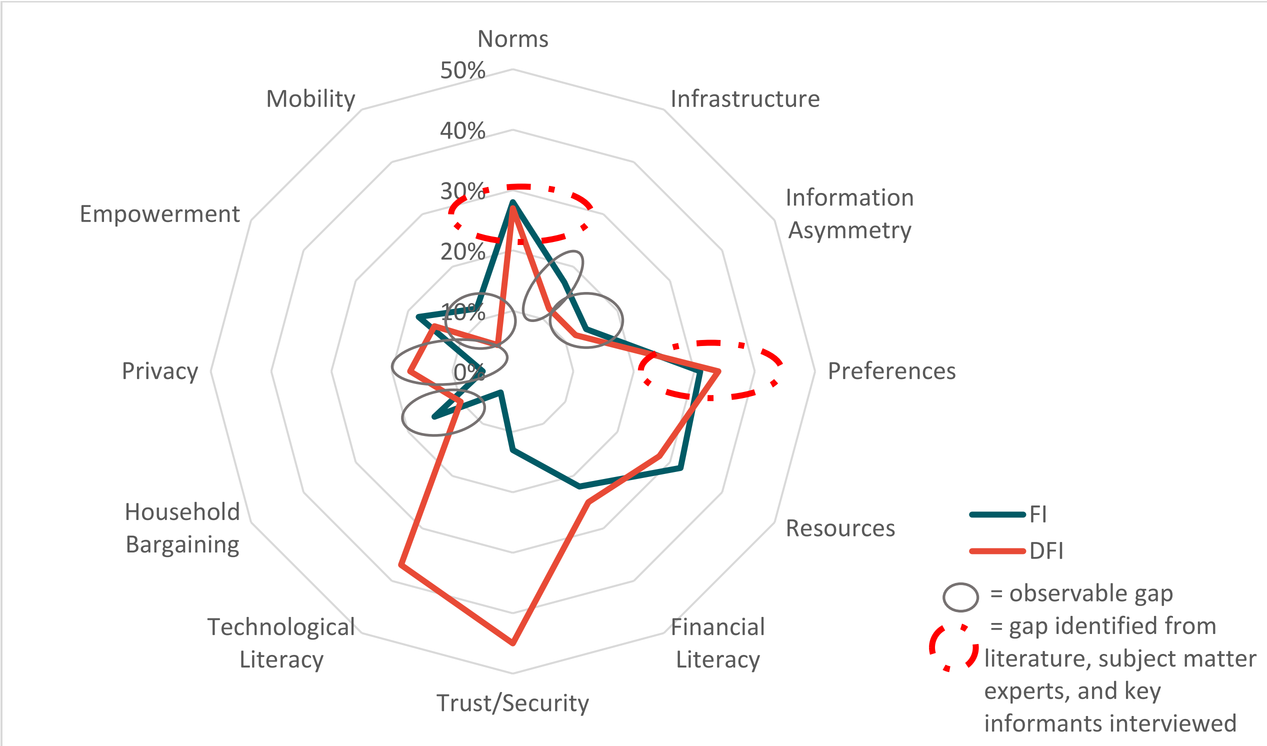
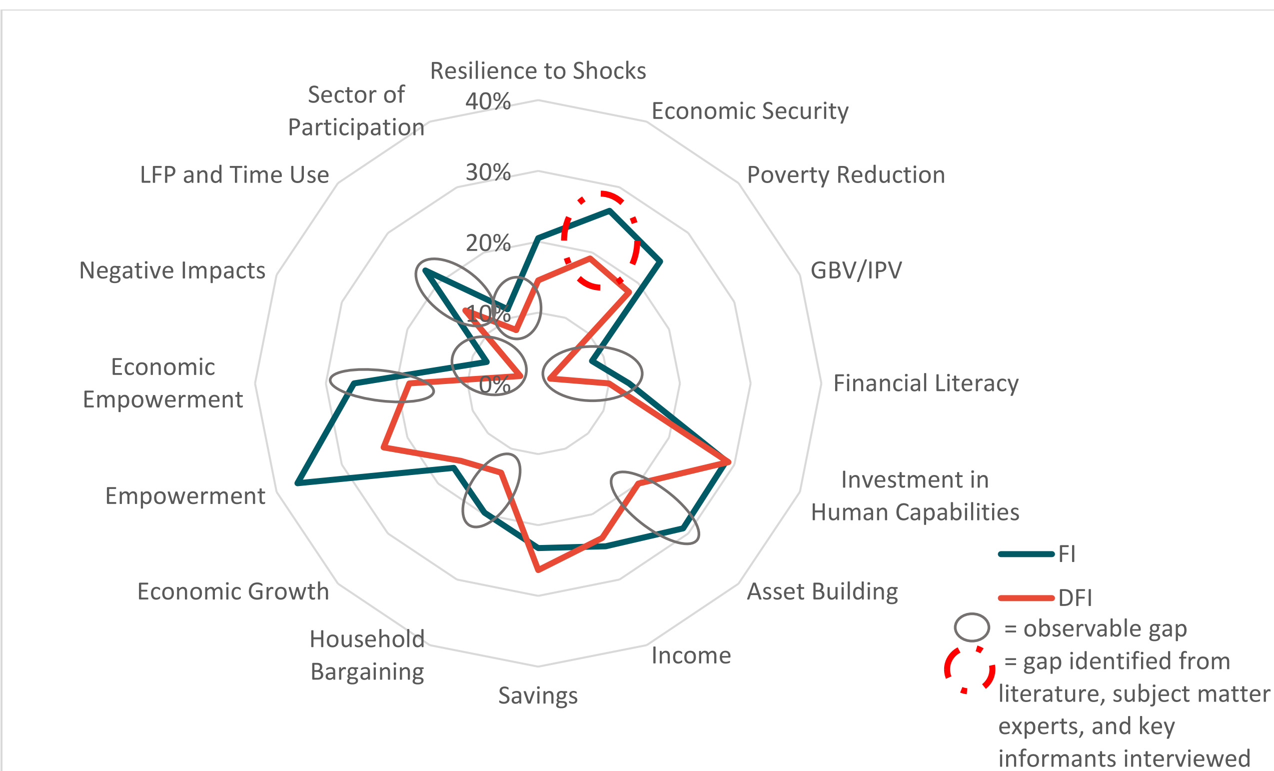


Figure 19: Focus on Outcomes in the Included FI and DFI Literature and Gaps Identified



5.1. Norms and Social Institutions

Norms and social institutions shape societies' understanding and views on what are considered acceptable attitudes and behaviors. These sets of rules, whether implicitly followed or codified and formalized, can deeply influence individuals' ability to utilize their capabilities, take advantage of economic opportunities, and exercise agency and raise their voice. The development discourse increasingly recognizes the influence of norms and social institutions, including the extent to which gender-based discrimination embedded in norms and social institutions underlies and perpetuates the constraints and inequalities women face in economic, social, and political spheres. An extension of this is a growing body of research that explores the role of gendered norms and social institutions in shaping women's financial inclusion and outcomes. These studies include analysis of how norms such as those governing women's access to resources, their mobility, and their social interactions, as well as attitudes toward women's economic activity and financial autonomy, can impede their inclusion or shape their preferences (World Bank, 2014; Johnson, 2014; Arun et al., 2016). There also is a critical mass of research on gender-based discrimination in institutions—legal frameworks, policies, and regulations—that finds such discrimination acts as a key barrier to financial inclusion (Demirgüç-Kunt et al., 2013). ***Overall, a significant portion of the FI and DFI research remains focused on the micro sphere, and the household in particular, and there appears to be a dearth of evidence on meso- and to a lesser extent macro-level analytics of norms, social institutions, and financial inclusion.***

Box 5: The Importance of Understanding and Changing Norms to Achieving Impact

> "It's one thing to give people resources, another to coordinate their use of those resources, then another to change women's attitudes and change norms on a community level for husbands and community leaders. We need to measure all of those things. We have theories on why giving women more financial control leads to reduced poverty, but we need to examine all of those factors for projects to work." (E. Field, key informant interview with ICRW, February 14, 2017)

That norms shape women's access to and control over resources and consequently their ability to access financial products and services—credit in particular—has been one of the early areas of focus of FI and DFI research (Fletschner and Kenney, 2011). Agarwal (2003) notes that gendered norms around land succession impede women's ability to secure credit through the formal financial system, which relies on collateral to guarantee loans. Broader discussion of how norms impact intra-household bargaining and resource allocation is provided by Doss's (2013) World Bank working paper, which, among others, includes references to seminal works by Folbre (1994) and Agarwal (1997) that urge researchers to undertake an analysis of intra-household bargaining and decision making within the context of the social network, community, or broader society. Feminist economics literature also sheds light on how socially accepted norms of behavior can impact women's human capital, their economic activity, time use, mobility, and social interactions. Some of the recent studies on gender and financial inclusion implicitly or explicitly explore these pathways of impact.

A study by Johnson (2004) is among the earlier examples of such studies. The author explores the gender-differentiated patterns of use of rotating savings and credit associations (ROSCAs) in Kenya through an analytical framework that examines the influence of intra-household norms. Her analysis reveals the influence of norms on the differing patterns in men and women's income streams and spending responsibilities and consequently their demand for financial products: ROSCAs which allow for small amounts of savings and offer small but relatively frequent loans fit the liquidity needs of women much more closely than those of men and explain the gendered difference in ROSCA membership rates. She also finds that women's reliance on informal social networks and their resulting incentive for compliance

Box 6: Research Gaps: Gender Norms Concerning Technology Use

> "Understanding what norms surround women's usage of these digital technologies is a huge gap—people don't understand how gender norms overlap with the ability of women to use these technologies." (N. Rigol, key informant interview with ICRW, February 16, 2017)

support ROSCAs' sustainability. This result is also echoed in a study by Kuada (2009:85) in Ghana, which concludes that women entrepreneurs—who tend to be more constrained in accessing bank financing—compensate by "cultivating social relationships and using the social capital derived from these relationships" as a mechanism to access credit.

More recent studies include evaluations of interventions that seek to promote savings, in particular. Dupas and Robinson (2013a) report findings from an experiment they designed in which they offered ordinary savings accounts to Kenyan entrepreneurs, most of them women, which resulted in higher levels of savings, investment, and income. While their study does not expand on the pathways of impact, one of the points they raise is the possible role of formal savings accounts in changing social obligations for informal insurance; in other words, formal savings accounts may reduce entrepreneurs' need to rely on loans from family members and those in their social networks. Similarly, in another study in Malawi, Brune et al. (2011) explore the differential impact of commitment savings over regular savings. The authors attribute the higher savings levels associated with the commitment model to the ability of individuals to resist social obligations around extending loans. However, these studies lack a gendered analysis that could shed light on the differences in the extent to which men and women might feel constrained to comply with requests for credit and therefore could benefit from savings models that can shield their income and assets from friends and family members.

Norms can also shape women's ability to navigate and interact with financial institutions (Field et al., 2016; Dupas et al., 2016). In their study in India, Field et al. (2016) find that gendered mobility constraints—specifically, that women need to be accompanied by a man to go to a bank—act as a significant barrier to women's ability to bank. There is also emerging evidence suggesting that financial models that are informed by gender norms can have a transformative effect on these gender norms themselves, a theme discussed further in Section 5.3 on intra-household bargaining.

The issue of transactions costs acting as a barrier to financial inclusion is widely studied, more recently in the digital financial inclusion literature, which explores the potential impact of reduced costs achieved through mobile platforms. Transaction costs associated with access to and use of financial products and services include time and travel costs, which can be particularly high in rural areas, as well as fixed and marginal monetary costs, for instance those associated with opening and maintaining a bank account, in addition to fees applied to financial transactions like withdrawals and transfers (Karlan et al., 2016).

In a number of recent studies, digital financial products and services are found to significantly reduce these transaction costs, both in monetary terms (Allen et al., 2012; Jack and Suri, 2014) as well as in terms of time (World Bank, 2014). While these studies allude to the particular benefits of reducing transaction costs through DFI for women, analysis informed by the broader normative context that shapes what women can be and do, and of gendered outcomes as they relate to norms remains nascent. ***Simply reducing transactions costs alone may not produce the outcomes desired if we do not understand what other normative barriers and proscriptions affect access to and use of financial services and products. Further research is needed on how financial inclusion, digital or otherwise, can be affected by gender norms.***

Among the studies that introduce some degree of gender analysis to the subject include those by Dupas and Robinson (2013b) and Prina (2015), who in their studies in rural Kenya and Nepal, respectively, find that eliminating the costs associated with opening a regular savings account has a significant positive impact on the uptake of formal savings accounts. An interesting question, also raised in Dupas and Robinson (2013b), concerns the need to further understand how norms about what women can be and do mediate the use of their savings and may impact both their preferences for different types of savings products and their sustained use of these products. In many contexts where women are considered to be responsible for household health expenditures, for instance, the convenience of immediate and low-cost savings accounts may be preferable to interest-bearing accounts (Dupas and Robinson, 2013a). Further analysis of preferences is taken up in the next section.

While there has been some progress in understanding the intersections between gender norms and financial inclusion, there is a need for more experimental research that uses behavioral economics methodologies and distills out the role of gender norms and the ability to contest and redefine these norms through intra-household bargaining and negotiation. Games and hypothetical scenarios could be very useful to unpack the processes of intra-household bargaining and reveal some of the gender norms that shape these processes, highlighting points for intervention and support. As argued by Pearse and Connell (2016), individuals navigate a complex social terrain in their daily lives that is permeated by a multitude of gender norms. However, as research and practical experience shows, despite the appearance of social consensus, it is rare for all members of a society to share the same beliefs. Hegemonic norms about masculinity and femininity can disguise a proliferation of variants and practices. Departures from norms can often go unnoticed, co-existing invisibly alongside more conformist behavior. As Gammage et al. (2015:6) point out: “A key point here is that while norms prescribe practices, they do not directly translate into them: there is scope for bringing about change within norms as the exercise of agency in the translation process subtly alters their meanings, an endogenous and often hidden process of change.”

This means that the methods and approaches that unpack the nature of social dictates and constraints on women’s behavior need to be flexible and qualitatively delve into the extent to which norms can be upheld, stretched, or broken and in what arena and under what circumstances. This argues for more Q^2 methodologies (i.e., approaches that combine qualitative and quantitative analysis) to be brought to bear in order to better understand the challenges and potential opportunities for digital financial inclusion to foster agency and empowerment of women, reduce poverty and inequality, and achieve measurable outcomes in terms of individual, household, and collective wellbeing.

5.2. Preferences

Individuals’ preferences can impact their demand for and use of various financial products and services. Although often conceptualized and explored at the individual level, preferences are influenced by a complex and interrelated set of factors. A burgeoning body of research combines formative and experimental approaches to understand these complex pathways of impact.

One of the significant contributions to the discussion is informed by the analysis of how preferences are shaped by individuals’ position within the institutions of the state, market, household, and community (Arun et al., 2016; Johnson, 2004, 2014; Kabeer, 2001a). This analytical framework provides for clear gendered analysis of preferences and financial inclusion, since (as discussed in Section 5.1) norms and practices embedded in these institutions are highly gendered.

Box 7: Research Gaps Concerning Women's Preferences

> "This is a cart-before-the-horse problem: We are talking about educating women on using banking services before we even know what they really want from banks." (N. Esipova, key informant interview with ICRW, January 23, 2017)

Recent studies that have explored preferences with such nuance allude to gendered preferences in risk, liquidity, and privacy, though some studies have been more explicit in their gender focus than others. There is also a growing literature that explores trust in banking institutions as a key underlying factor shaping individuals' financial behavior (Dupas et al., 2016). These studies often refer to the gender differences in trust in institutions and technology but have only recently started to explore what underlies this difference.

In their study in Kenya, Dupas et al. (2012) find that uptake of savings products remains low despite lowered transaction costs. They attribute this outcome to the absence of trust in financial institutions that lack transparency and have a long history of corruption. In a more recent study, Bachas et al. (2016) examine the savings behavior of conditional cash transfer recipients in Mexico before and after a debit card roll-out and find that the recipients' saving practices improve over time as their level of trust in the digital platform increases. These studies underscore how information and experience are important in shaping individuals' trust, but they stop short of exploring the gendered dimensions of trust beyond the binary approach of men versus women.

Box 8: Women's Preferences and FI: The Importance of Savings Mechanisms

> "Lots of digital financial services are focused on P2P or bill payment, which is not what women want. We know from prior research that savings are the most frequent financial service used by women. We rarely see digital financial services being anchored in a savings proposition." (A. Gincherman, key informant interview with ICRW, January 27, 2017)

Gendered risk behavior has been studied in a number of domains, including how gendered norms and behavior may influence individuals' financial preferences. While these studies often reveal that women are more risk-averse than men (Nelson, 2016), a more complex analysis of *how* and *why* this tendency has been observed has been emerging more recently. For example, in their study of demand for weather index insurance in Bangladesh, Akter et al. (2016) find that although gendered differences in risk perceptions and risk aversion can explain some of the differences in demand for this kind of insurance, a key determinant of adoption is trust in institutions, which was found to be lower among women. The need for understanding women's risk preferences in the context of the institutions is also underscored in the paper by Arun et al. (2016), which highlights that higher levels of risk aversion among women needs to be understood in the context of whether or to what extent women can rely on institutions to mitigate the risk they are taking on, for instance**,** when they take out a loan. Similarly, a study by Delavallade et al. (2015) shows how different risk exposures can influence men and women's preferences for different types of financial products. Specifically, in their study in Senegal and Burkina Faso, the authors find that because women have higher perceived and realized health risks, they choose savings tools over weather insurance.

Another direction of research probing preferences focuses on liquidity preferences, particularly in the context of understanding individuals' preferences concerning savings products. This body of research incudes studies by Dupas and Robinson (2013b) and Dupas et al. (2012) in Kenya, which find that high transaction costs that impose liquidity constraints can deter individuals from engaging in saving, particularly if they expect they will need small sums to deal with emergencies and economic shocks. As discussed in Section 5.1 on norms, the need for liquidity can be highly dependent on the spending responsibilities within households, which can be uniquely gendered (Kiewisch, 2015); for instance, in many contexts, women are largely responsible for household health and food expenditures. The gendered nature of household spending roles and responsibilities, in turn, can explain gender-differentiated demand for commitment savings products. While many of the recent studies on savings modalities acknowledge the different preferences over liquidity, there is still a gap in exploring this phenomenon with a gender lens.

Finally, women's preference for financial products and services that allow them to keep their financial information private is explored in the FI literature and particularly in recent studies on gender and digital financial inclusion. These studies examine whether the privacy provided by mobile platforms affects women's uptake and use of financial products and services and has more positive impacts by reducing the likelihood of cooptation (Aron, 2017) and increasing women's bargaining power within their households (Field et al., 2016; Aker et al., 2016). ***Further analysis of what women prioritize in financial products and services and why they specifically tend to seek greater privacy in their financial transactions could also lead to a better understanding of how to engage others in women's economic empowerment through financial inclusion or at least reduce those obstacles that limit women's access to and use of financial products and services.***

5.3. Intra-Household Bargaining

Among the research gaps affecting both access to and use of financial products and services is the gap between the financial inclusion literature and the digital financial inclusion literature on intra-household bargaining. While the financial inclusion literature has more research on how intra-household bargaining affects access to and use of financial products and services, the digital financial inclusion literature has fewer analytical pieces on how household bargaining can mediate access and use or indeed frustrate positive outcomes.

Digital financial inclusion can potentially increase financial inclusion for many excluded populations. Yet, despite significant investments in mobile platforms and some prominent successes digitizing payments and transfers, women appear to face some barriers to accessing and using digital financial products and services. As is clear from this systematic review, not all digital products in all circumstances promote financial inclusion and bring positive outcomes for women.

Box 9: The Effects that Intra-household Dynamics Can Have on Women's Financial Inclusion

> "We provided phones to female workers who didn't already have them, but some women returned them because their husbands said they couldn't keep the phones. We discovered that these women likely did have the resources to buy their own phones, but were not permitted to. However, we also found that when the factory gave the phones for a work purpose, women reported fewer of these problems to us."
> (E. Breza, key informant interview with ICRW, February 10, 2017)

The same challenges that describe barriers to access to and use of traditional financial products and services are relevant for digital financial inclusion. Knowledge of these products, financial literacy and numeracy, norms and expectations about women's ownership of assets, and women's ability to earn and/or control income separately from the household or primary breadwinner will all shape women's ability to use mobile technologies for DFI. While many of these barriers have been alluded to as explanatory factors when examining gender gaps in use, few studies have explicitly unpacked them as part of their research design ex ante. One fruitful domain of inquiry that is gradually being explored in tandem with the development and delivery of digital financial products and services is that of intra-household bargaining.

Gender analysis in the field of development has greatly advanced our understanding of the household and of the complex processes of intra-household bargaining and conformity to and contestation of prevailing gender norms. Early work challenged the hitherto-unitary model of the household, acknowledging the possibility of conflicting preferences between different household members, including men and women, and highlighted the importance of resource availability for individuals to successfully bargain for their preferred outcomes (Agarwal, 1997; Hoddinott et al., 1997; McElroy, 1990; Sen, 1987, 1990; Jackson, 2013). Central to these bargaining inequalities are socially constructed and internalized norms about gender roles and responsibilities.

A recent article by Schaner (2016a) that explores the use of ATMs posits that the continued use of products and services with higher transactions costs for savings can demonstrate that lowering transaction costs may make savings more prone to cooptation by other family members. Schaner investigates this hypothesis by randomly assigning ATM cards to 1,100 newly-opened bank accounts in rural Kenya. The use of ATM cards reduced withdrawal fees by 50 percent. She finds that although the cards increased account use overall, joint and male-owned accounts are wholly responsible for the positive treatment effect, leading her to hypothesize that women whose savings may be more prone to cooptation and expropriation prefer higher-cost withdrawal methods that may enable them to protect their savings. Schaner also finds that individuals with low levels of household bargaining power save less when accounts have ATM cards, while individuals with high levels of household bargaining power save more. These findings are similar to other analyses that explore the role of ROSCAs in providing a social and externally governed framework for women's savings that may also shield them from being coopted by other family members (Johnson, 2004; Anderson and Baland, 2002).

Another experimental study by Ashraf (2009) underscores that asymmetric information affects financial transparency and pooling behavior within the household. This study assigned married couples in the Philippines to an experiment in which they would receive small amounts of cash under different conditions of information and privacy, with spouses either not having full information, having full information about each other's receipt of money but not being required to communicate, or having full information and being required to communicate. Ashraf (2009:1268) finds that "conditions of asymmetric information interact with underlying household control structures to create greater incentives for hiding, and thus any interventions that change household public information should take into account what the underlying roles are." Ashraf notes that when choices are private, men put money into their personal accounts. When choices are observable but not negotiable, men commit money to consumption for their own benefit. When required to communicate, men put money into their wives' accounts. Ashraf also finds that women whose husbands control the savings decisions exhibit the same type of behavior as that of the men when placed in control. In Ashraf's view, this provides further evidence that the effect of privacy of information—and of communication—is heterogeneous and is largely dependent on existing household roles. In order to enforce their preferences, wives and husbands have different incentives to hide away money or commit money to consumption, according to prevailing gender roles. Yet in this analysis, changes in information and communication interact with underlying control to produce what Ashraf (2009:1245) calls "mutable gender-specific outcomes," giving rise to optimism about the possibility of interventions around behavior change communication and couple communication to support more collaborative intra-household behavior.

How financial inclusion, digital or otherwise, can affect household bargaining and power imbalances within a household is also an outcome of interest, providing opportunities for greater financial autonomy to shift power within a household (Doss, 2013; Amin et al., 1998; Goetz and Gupta, 1996; Kabeer, 2001b).

Mobile money and other digital financial products and services have the potential, like their traditional counterparts, to change relative bargaining power in the household. Among the potential benefits, there are those of reduced surveillance by others of the size and timing of mobile transfers, and of the total balance in the electronic account (Aron, 2017). These features have the potential to protect savings from cooptation and appropriation by others. Indeed, as Aron (2017:31) notes, "Greater privacy may influence both inter-household allocations (Jakiela and Ozier, 2016) and intra-household allocations (Duflo and Udry, 2004)." And as the literature on intra-household bargaining shows, if the type of expenditure by gender differs, there could be substantial implications for intra-household welfare and wellbeing (Chattopadhyay and Duflo, 2004; Hoddinott et al., 1997).

Box 10: The Importance of Engaging Men to Change Household Decision Making and Other Norms

> "Taking a community approach is one way to change norms: not just focusing on women, but focusing on the men in their lives and community leaders. In financial services, there has been very little experimentation on trying to change some of these things. One program tried to change the behavior of men; it gave a two-for-one deal on phones, so the man would give his wife the free phone, and eventually saw the value in her having that. The big issue is: how do you scale some of these programs? They are very expensive and require a lot of handholding." (M. El-Zoghbi, key informant interview with ICRW, February 21, 2017)

One recent article on DFI that explicitly explores gender norms in an intra-household bargaining framework is by Field et al. (2016). This article explores digital financial inclusion in India using an experimental design. The authors took advantage of a large-scale randomized controlled trial, conducted in partnership with the Indian state of Madhya Pradesh, to explore variation in women's control over household resources received through the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and test the role of digital payments in increasing that control. At the time of the experiment, payments for the MGNREGS were deposited into a single household bank account, almost exclusively owned by men. As the authors note, under this model, "a woman's MGNREGS earnings were transferred directly to her husband" (2016:1). The authors tested a number of different modalities of potential financial inclusion, including opening bank accounts for women and linking their MGNREGS payments to these and adding a two-hour "financial information intervention" called "link plus." The design was intended to examine the effects of increasing a woman's control over her wages separately from the effect of increasing her access to a bank account.

The results from the Field et al. (2016) study demonstrate that those who received the most intensive intervention—digitally-linked payments into their own bank accounts along with financial education—were 34 percent more likely to be listed on the MGNREGS rosters 15 months after the intervention. Additionally, private sector employment among these participants also increased by 24 percent. Moreover, those women who had received the "link plus" intervention were more likely to engage in economic transactions outside the household and reported higher levels of mobility relative to the control group. The authors interpret this as having increased "female bargaining power" (2016:2) to negotiate work and to challenge prevailing gender norms about women's ability to work outside the home.

Another article by Aker et al. (2016) also explores the impact of cash transfers through mobile money platforms in using data from a randomized experiment of a mobile money cash transfer program in Niger. After a severe drought, households in 96 villages were targeted to receive a monthly unconditional cash transfer, with women as the primary beneficiary. The first delivery channel provided a monthly transfer of cash, where the cash was counted into individual envelopes and transported to distribution centers via armored vehicles. Typically, one village was chosen as a distribution point for a group of villages. In the second experimental treatment (Zap), program recipients received their cash transfer via mobile phone.

After receiving a money transfer notification, recipients had to bring their mobile phone to an m-transfer (mobile phone-based money transfer) agent located in a village or market nearby and have the agent cash-out the balance of the mobile transfer. In order to distinguish the impact of the electronic delivery mechanism from that of the mobile phone, the authors implemented a third experimental treatment (Mobile). In the Mobile intervention, program recipients received a mobile money-enabled mobile phone and training on how to use it. The Mobile and Zap interventions differed in the cash transfer delivery mechanism as well as in the type of technology provided (m-transfer versus a mobile phone). Comparing outcomes between the Mobile and Cash groups allows the authors to measure the additional effect of mobile phone ownership, conditional on the physical cash transfer program. The authors find that households receiving m-transfers had higher dietary diversity and that children in these households consumed more meals per day. The authors conclude that these results are due to the m-transfer mechanism and not to the mobile phone.

Aker et al. (2016) identify two key contributions that their analysis makes to the literature. The first is evidence of the contributions that mobile money transfers make to reducing transaction costs for beneficiaries. The second of these is in expanding our understanding of the direct impact of m-transfer systems on household welfare (Blumenstock et al., 2016; Jack and Suri, 2014; Donovan, 2012). The authors note that much of the literature has been unable to disentangle the impact of the technology from the transfer mechanism. In contrast, their experiment exogenously varies access to both the m-transfer technology and the mobile phone, thereby allowing them to identify different behavioral responses to each.

Unpacking the nature of the transfer and the degree of privacy sheds light on intra-household bargaining processes. In contrast to the physical transfer of cash, the Zap transfer mechanism made it more difficult for program recipients' family members or spouses to view the arrival of the transfer, at least for some time, because the program recipient was notified of the transfer arrival via a discrete "beep." Many of the Zap transfer recipients wore their phones around their necks so that they could be notified of the m-transfer immediately. Zap program recipients reported that once they received the beep, they waited until evening before informing their spouses. As a result, they were able to discuss how to use the transfer with their spouse in the privacy of their home rather than in a public setting where social and gender norms may have had additional influence on their bargaining power. In contrast, since Cash and Mobile program recipients had to travel to obtain or cash-out their transfers, often with household members, they reported that they immediately provided the cash transfer to the accompanying family member, with little opportunity to discuss how the transfer would be used. Enabling bargaining in the privacy of the household and not subject to public view or scrutiny appears to have permitted more welfare-enhancing investments in child wellbeing and diet.

The authors undertake a series of tests for the impact of the Zap intervention on intra-household decision making. Overall, they report that the transfer was primarily spent by the program recipient's husband or son: 52 percent of program recipients in the Cash villages reported that they were responsible for spending at least part of the cash transfer, with no statistically significant difference among the three groups. While all recipients (99 percent) stated that they were consulted on how to spend the cash transfer, there was a marked difference in who was able to physically obtain the transfer: only 8 percent of Cash program recipients travelled without a household member to obtain their transfer, whereas over 47 percent of Zap households did so, with a statistically significant difference between the Zap and Mobile/Cash treatments. In addition, women in Zap villages were more likely to travel to weekly markets and be involved in the sale of household grains than households in the Mobile or Cash villages, suggesting that women were more involved in key household agricultural activities.

The articles reviewed here highlight the importance of an explicit focus on gender and intra-household bargaining and the processes by which financial inclusion, and particularly digital financial inclusion, can be mediated by power inequalities and bargaining within the household. Similarly, a more sophisticated approach to non-unitary households is likely to generate more information about which mobile technologies and digital payments can alter negotiation over the use of income and transfers and the agency of women to control resources or even to seek employment. The systematic review highlights that this is a nascent domain for research, as few articles explicitly set up the experiments or conduct any difference-in-difference analysis to distill out potential variations in intra-household bargaining on access, use, and outcomes from digital financial inclusion. Moreover, as the gap analysis demonstrates, there is very little use of Q^2 methodologies to tease out some of the potential shifts in bargaining approaches and relative power that can occur with digital technologies. In particular, it is crucial to take into account the role of privacy in DFI, whether in terms of the knowledge that other household members have of the transfer or in terms of the ability to engage in bargaining beyond the scrutiny or observation of key household and community members who may act as gatekeepers of traditional norms and expectations about how much agency and power women may be able to wield in the negotiation.

5.4. Labor Market Participation and Time Use

Additional thematic gaps emerging from the systematic review are the links tying labor force participation and time use to access to and use of financial products and services, digital or otherwise, and the impacts or outcomes of digital financial inclusion on labor force participation and time use. The more mature financial inclusion literature has a larger footprint in this area, while the digital financial inclusion literature has less of an analytical reach in this domain.

Box 11: The Connection Between Women's Labor Force Participation and FI

> "The 'big picture' solution is to bring more women into the labor force; once women enter the labor force, they make money and become more likely to open accounts." (N. Esipova, key informant interview with ICRW, January 23, 2017)

In terms of access and use, a woman's participation in the labor market and engagement in economic activity is what makes her an economic actor of interest to financial service providers. Clearly, women who are employed or who generate income are more likely to seek financial products and services and be financially included. Yet the literature on financial inclusion reinforces that women continue to be underserved, accessing fewer formal financial services and products and in lower amounts than men (Beck et al., 2007; Klapper and Hess, 2016). Another stream of research linking employment and economic activity to financial inclusion focuses on regulations. Where banking and financial sector regulations mandate stable employment and minimum earning requirements, women are more likely to be excluded (Demirgüç-Kunt et al., 2013). Where women are less likely to work for pay or generate regular income, they are more likely not to have savings, to hold limited savings in cash or assets, or to be in debt. Formal savings are also found to be less common among women who do not have regular income and who cannot comply with minimum balance requirements to secure free savings accounts (Dupas et al., 2012). Hence, labor market attachment and economic activity are likely to affect both access to and use of financial products and services.

The mechanism whereby meaningful financial inclusion, digital or otherwise, can affect employment opportunities or choice of occupation is also a compelling arena for further analysis. There can be a number of routes to greater economic activity and employment for women through which access to and use of financial products and services increase access to credit or insurance and enable women to leverage more resources to invest in economic activity or to mitigate the risk of investing in economic activity.

One article by Menon and van der Meulen Rodgers (2011) looks at financial inclusion and women's labor force participation by examining the impact of India's rural banking reform on access to credit and self-employment. This article studies the effect of credit on self-employment among Indian women and men in rural households, using India's National Sample Survey Organisation's 1983-2000 household survey data. Interestingly, the authors find that access to credit has a different impact on men and women's labor force participation and economic activity. The legislation required that banks open branches in rural areas, thereby increasing the potential availability of financial services and credit to the underserved. Results indicate that this type of financial inclusion and access to credit fosters self-employment by women, primarily as own-account workers but also as employers, while it discourages men's self-employment and work as unpaid family workers. As the authors note: "The most striking result is that women's self-employment responds positively to the number of new rural bank branches" (2011:63). Specifically, the number of women who are self-employed as own-account workers is found to increase by 0.16 percentage points with a unit increase in the number of bank branches opened in unbanked rural locations per capita. In contrast, no statistically significant relationship is found between the opening of new bank branches and men's self-employment. When the authors investigate lending, differentiating between access to formal and informal loans, "women's probability of self-employment as own-account workers shows greater responsiveness to loans from banks compared to loans from informal sources such as moneylenders, employers, and family members" (2011:65-66). The conclusion emphasizes that where women are credit- and mobility-constrained, reducing the transactions costs of accessing banks and obtaining financial services can have significant payoffs in terms of women's ability to work and engage in own-account work.

Disentangling the impact of financial or digital financial inclusion on employment, however, can be more complicated. Does access to and use of financial resources increase autonomy and mobility, improve access to networks for job seeking, and improve the likelihood that a woman will seek and find employment? Yet another question could be: how does being financially included increase the likelihood that a woman will seek and find formal employment or qualitatively shift the nature of that employment to be more formal? The example of digitizing wage payments for workers—it increases the transparency and accountability of employers and means that labor and social security taxes are more likely to be paid—is one that can be used to argue how such financial inclusion can transform the nature of work, making it more likely to be formal (Better than Cash Alliance, 2017; Adhikari and Bhatia, 2010). ***The gap analysis underscores that there is more work to be done in this area, particularly looking at the diversification of economic activity and the choice of occupation or sector.***

Despite the potential for digital financial inclusion to generate multiple employment benefits, the systematic review reveals a substantial dearth of information concerning the intersection of digital financial inclusion and labor force participation and time use. The few publications that illuminate some of these linkages therefore stand out.

One article that explores women's access to employment resulting from digital financial inclusion is that of Suri and Jack (2016), which explores the impact of M-PESA mobile money on poverty. The authors estimate that access to the Kenyan mobile money system increased per capita consumption levels and lifted approximately 194,000 households—2 percent of Kenyan households—out of poverty. Moreover, they find that the positive impacts on economic wellbeing are more pronounced for female-headed households. These positive impacts appear to be driven by changes in financial behavior, higher savings, and increased financial resilience as well as improved labor market outcomes, especially for women, who moved out of lower-return agricultural activities and into more profitable small businesses and retail. While this article is particularly rich in terms of its findings, there is an absence of an intra-household perspective that might explain why and how women in some households are better able to shift economic activities using mobile money compared with those in other households.

Box 12: The Connection Between Women's Labor Force Participation, Decision-Making Power, and FI

> "The most significant barriers to women's financial inclusion are access to and control over assets. And independent income. These barriers are sometimes embedded in laws and are tied to household decision-making—who is named on the bank account, the loan, the mobile phone bill. […] Being able to participate formally in the labor market is key, because it is an initial step to financial inclusion to get wages paid into an account." (T. Hasan, key informant interview with ICRW, March 21, 2017)

Another article on DFI that explicitly explores intra-household bargaining and economic outcomes is by Field et al. (2016), which also considers the impact of digital financial inclusion on employment. This article explores the digitization of MGNREGS wage payments for women and is discussed in Section 5.3, above, on intra-household bargaining. Field et al. report that women who received digitized wage payments through the MGNREGS program were more likely to be on the payroll for MGNREGS 15 months after the intervention and that those women whose digitized wage payments were automatically transferred to a bank account were also more likely to work in the private sector after MGNREGS. This finding highlights that the act of digitizing wage payments and supporting meaningful financial inclusion through the intervention is likely to increase women's control over their earnings and increase their ability to negotiate working outside the household subsequently. While the article hypothesizes these channels, it does not explicitly model the bargains or bargaining process within the household or explore this "negotiation" through a methodology that would link qualitative and quantitative analysis to probe how this bargaining takes place and to what extent women's increased economic autonomy and ability to participate in work outside the household are enduring.

These important articles notwithstanding, there remains a scarcity of research on the impact of financial inclusion and digital financial inclusion on the quality of employment and the duration of labor market attachment for women.

The impact of FI or DFI on time use is also under-studied in the literature. The impact is likely to be ambiguous and mediated by context and access to other services, such as care services (e.g., daycare, elderly care services), that can reduce women's time burdens or time required for unpaid care work. Ex ante, if financial inclusion increases time invested in paid or income-generating work and there is no concomitant reduction in unpaid time use, then such inclusion can increase women's time burdens and therefore increase time poverty. If financial inclusion, digital or otherwise, can increase women's access to capital and improve the efficiency of the time they invest in paid work, however, then women's time burdens can be ameliorated. Similarly, if financial inclusion enables women to purchase labor-saving devices to make their unpaid work more efficient, then overall time constraints can be reduced and their time can be freed up for other activities, including productive activities (Gertler et al., 2016).

The studies that have linked financial inclusion to time use focus more on productivity losses incurred as a result of the time required to access and use various financial products and services. For example, Manyika et al. (2016) estimate that time spent accessing financial services and payments represents an important channel for productivity loss. In India, Manyika et al. (2016:19) report: "We estimate that

Box 13: Using G2P Payments for Government Cost Savings and Individual Time Savings

"We have evidence in several contexts that the increased efficiency and transparency of digital payments can lead to cost savings for both senders and receivers. Governments transitioning from cash-based to digital systems to deliver benefits and services can see significant savings in transaction costs, including reductions in leakage. The access costs to receivers are also reduced as they save the time that they would have spent collecting payments." (K. Holloway, key informant interview with ICRW, February 8, 2017)

Indians lose more than $2 billion a year in forgone income simply because of the time it takes traveling to and from a bank." For this reason, digital financial inclusion presents a powerful avenue for potential time saving and efficiency gains, particularly if DFI reduces time spent cashing-out wages or making payments and transfers (Aker et al., 2016).

Another publication that includes a time dimension is the Better than Cash Alliance (2017) report on digitizing wage payments in Bangladesh's garment sector. This report focuses on the enormous time and cost savings to the private sector from digitizing payments to their employees, noting: "Overall time required for workers on the production line, guards, and administrative employees to disburse wages fell by between 32% and 80%. In general, production losses were significantly reduced, largely due to workers spending less time away from the production line or employers requiring workers to withdraw wages outside working hours" (Better than Cash Alliance 2017:8). While these benefits are not disaggregated by sex, time out of the production line means lost wages, and since garment production is particularly feminized, this implies time savings and fewer lost wages for women workers. But these time savings are only meaningful if cashing-out at ATMs is convenient and free of fees or if cards and mobile phones enable women to easily make payments and purchases with their digitized wages. If not, then this time saving on the factory floor is likely to lead to time shifting, increasing the time burdens for women cashing-out wages during non-work hours.

Another realm for efficiency gains and time savings is explored through social protection schemes and government transfers. Aker et al. (2016) introduce a time dimension in their exploration of the introduction of a digital social protection transfer system in Niger to examine the benefits for individuals and households. The authors find that many of the positive results can be explained, in part, by the fact that m-transfer program recipients spent less time obtaining their transfers and women increased their bargaining power within the household. Compared to the recipients of manual cash transfers, m-transfer program recipients traveled shorter distances to get their transfers. While the average time savings were relatively small—approximately 2.5 days over five-months—the authors note: "this is a conservative lower bound on actual time savings" (2016:3).

Despite these encouraging studies, we found very few peer-reviewed journals or reports on women's time use and time poverty as a barrier to financial inclusion or even on the impact of financial inclusion, digital or otherwise, on the more efficient or equitable distribution of time use and time devoted to unpaid work within the household. Understanding these linkages and impacts can also shed light on the potential for digital financial inclusion to support other positive outcomes, including women's increased labor force participation or engagement in economic activity. Furthermore, the failure to look at time use, and particularly care burdens (borne disproportionately by women), in the literature is likely to obscure other opportunities to invest in programs and policies that can reinforce the potential gains from FI and DFI for women or enable the shift to more formal and better quality employment.

5.5. Poverty, Resilience, and Economic Security

Box 14: Using Financial Products to Smooth Consumption

> "Around sixty percent of people invited to participate in a savings program came to an information session and enrolled; seventy percent of these people were women. […] A lot of these participants had irregular income streams and were looking for a way to smooth their consumption or save for a rainy day." (E. Breza, key informant interview with ICRW, February 10, 2017)

Although poverty clearly affects the likelihood of a person being excluded from having access to (and therefore using) financial products and services, the majority of the FI and DFI articles that explore poverty and closely related concepts, such as economic security and resilience, are largely located within the outcomes literature.

Among the papers that stand out from the systematic review is the NBER working paper by Karlan et al. (2016), which provides an overview of recent studies on financial inclusion and its impacts from the standpoint of how the interventions and programs address and compensate for market failures and lead to measurable improvements in outcomes for the poor. This paper reviews a number of articles that look at the overlapping determinants of poverty, economic security, and resilience to shocks. Among the market failures these authors consider are imperfect information, high transaction costs, behavioral biases, unenforceable property rights, and lack of competition, which they argue "create wedges that inhibit the delivery of traditional financial services" (2016:1). Although their focus is not explicitly on gender and financial inclusion, they outline some key channels and pathways through which FI and particularly DFI can reduce risk, enable consumption smoothing, reduce exposure to shocks, increase transparency and reduce corruption, reduce the cost of borrowing in informal markets, promote savings, and enable productive asset acquisition that can have gendered implications. These channels are likely to impact individual and household wellbeing and result in measurable change that can be documented. Although the authors note that digital financial platforms offer promising opportunities to dramatically improve both products and the market environment, including the potential for products to be better tailored to the needs of the poor, they also caution that these new avenues for product development and delivery require a careful and nuanced understanding of the market failures that affect the lives and wellbeing of poor families.

Kast and Pomeranz (2014) explore how financial inclusion can improve wellbeing by explicitly delving into the complexity of debt burdens for the poor in Chile using a randomized field experiment with a sample that consists mostly of women (91 percent). The authors note that in addition to low and unstable income, poverty is frequently characterized by heavy debt burdens. The poor face acute liquidity constraints and are often forced to borrow informally or formally, accumulating unmanageable debt burdens. Kast and Pomeranz find that providing participants with access to a free savings account, thereby reducing barriers to saving, reduces their short-term debt by about 20 percent. Consequently, participants have less need to reduce their consumption when they experience an economic shock, and they report significantly improved subjective wellbeing. The authors conclude: "Precautionary savings and credit therefore act as substitutes in providing self-insurance, and participants prefer borrowing less when a free and formal savings account is readily available" (2014:1). Their analysis of the uptake patterns echo previous findings about the interrelation of gender and privacy and cooptation of savings and earnings: that women participants are particularly likely to be faced with requests by others to share their resources, which poses an additional and particularly challenging obstacle to saving.

Another compelling publication that explores the outcomes of digital financial inclusion for the poor is the article by Aker et al. (2016) that we also profiled in the analysis of intra-household bargaining (Section

5.3). Using data from a randomized experiment, the authors find evidence of benefits of a mobile money social protection transfer program in Niger in terms of poverty outcomes: household dietary diversity was found to be between 9 and 16 percent higher among households that received the mobile transfers, and children in these households consumed more food. The authors attribute these results, in part, to time savings associated with the mobile transfers, since the program beneficiaries spent less time traveling to cashing-out locations and waiting for their transfers than those who received manual cash transfers. As was discussed in Section 5.3, the mobile transfers were also associated with changes in women's intra-household bargaining power, enabling them to channel more funds to consumption.

The Suri and Jack (2016) article highlighted in the discussion on labor market participation and time use (Section 5.4) addresses the impact of the M-PESA mobile money service on poverty. The authors find that access to mobile money lifted approximately 2 percent of Kenyan households out of poverty and that the positive impacts on economic wellbeing are more pronounced for female-headed households. The article also reports increased financial resilience and savings as well as improved labor market outcomes tied to access to mobile money; this is especially true for women, who are found to have moved out of lower-return and more volatile and risky agricultural activities and into more profitable small businesses and retail.

The gender literature either in terms of financial inclusion or digital financial inclusion appears to be rather weak concerning the pathways through which FI and DFI may affect poverty, resilience, and economics shocks. While papers on financial inclusion and poverty reduction are numerous, the elucidation of pathways to poverty reduction that are clearly gender differentiated and based on solid micro-foundations and modelling or apply experimental and behavioral analysis are few.

As the Venn diagrams exploring the intersections of the analyses of poverty reduction, economic security, and resilience to shocks show (Appendix C), these is significant overlap between these concepts. Additionally, the more developed literature about poverty reduction also addresses asset acquisition, retention, and disposal as a means to cushion households against risk. Although there are a few studies on microinsurance, they are seldom gendered or explicitly examine gendered risks. The asset acquisition literature tends to focus more on credit than it does on financial inclusion, but the link is clearly made between asset acquisition and resilience to shocks. Moreover, there is a larger body of literature on women's access to assets through marriage, dowry savings and payments, inheritance, and entrepreneurship and the implications for their individual poverty and wellbeing and those of their households (Deere and Doss, 2006; Deere et al., 2013; Johnson et al., 2016).

Again, the systematic review finds a paucity of studies that embrace both qualitative and quantitative analyses to probe the channels through which financial inclusion and digital financial inclusion can particularly enable women and their families to escape poverty. There is an increasingly stronger literature that applies RCTs and field experiments to explore impact analysis, particularly for digital financial inclusion, but it remains one that does not enable us to tease out the pathways to economic sufficiency or greater resilience. We also have many quantitative inquiries on key aspects of financial inclusion and asset acquisition, or even exposure to shocks, that focus on farming households but that don't look explicitly at women's individual opportunity sets and choices for mitigating risk (Fink et al., 2014; Cole et al., 2013).

5.6. Supply-Side Considerations

Box 15: Supply-Side Barriers to Women's Financial Inclusion

> "On the supply side, an important barrier is inappropriate sets of product offerings. Many providers just put pink in the marketing campaign to 'incorporate gender' into their products. Product design that takes into account the specific needs and preferences of women can address specific gender barriers to economic empowerment." (K. Holloway, key informant interview with ICRW, February 8, 2017)

A significant portion of the financial inclusion literature focuses on the demand side and investigates individual- and household-level factors that shape financial and digital financial inclusion and outcomes. Relatively few studies explore the supply-side aspects of financial access and use as closely, and even fewer do so with a gender lens. In addition, while some of the supply-side studies use administrative data or institution-based surveys, what remains common to all analyses is a reliance on household surveys, such as the Findex, which provide a limited picture of the supply side, for example, on the array of financial products and services available to different populations and geographies. The strength of these surveys often stem from their ability to provide insights into individual and household preferences and shape supply-side thinking on product and service design and dissemination.

For instance, as discussed in more detail elsewhere in this report, several experimental studies that collect information from households have generated insights into the types of savings products that can incentivize uptake and use among men and women and have provided evidence on clients' price sensitivity (to transaction costs) and risk behavior (Dupas and Robinson, 2013a; Dupas et al., 2012). Another recent study by Kalba (2016) also relies on household-level data from Cote d'Ivoire and, using an innovation diffusion theoretical framework, studies the underlying causes of the adoption/use gap in mobile money platforms. The study, which also draws from the M-Pesa experience in Kenya as a comparative benchmark, offers policy recommendations targeted to the supply side which include the importance of strengthening agent networks both in terms of quality and density, fostering interoperability across mobile money service platforms to expand product use, and refining the policy and regulatory frameworks to enable interest-bearing accounts. GSMA's recently concluded study in Cote d'Ivoire and Mali explores the mobile money gender gap using a gendered customer journey framework and combining administrative data with primary data collected through methods like phone surveys and focus group discussions. The study reveals that the gender gap is most pronounced at the pre-registration stage and is driven by the gender gap in mobile phone ownership. Furthermore, women with a registered account are found to be more likely than men to engage in unregistered mobile money usage, preventing them from fully benefiting from their account and raising issues of privacy, independence, and security. The findings also suggest that women are less likely than men to become frequent users of mobile money, as they use the medium less frequently and for lower amounts than men (Minischetti, 2017).

Another area that shapes the supply side and features in our gap analysis is the role of laws and policy as they relate to digital financial inclusion. While this topic is more extensively discussed within the context of financial inclusion (World Bank, 2015; Demirgüç-Kunt et al., 2013), there is less emphasis on laws and policy as they relate to digital financial inclusion. How laws that pertain to account registration, property ownership, or accessing identity documents affect mobile access—and as a result, DFI—is under-explored in the literature. Similarly, the potential impacts of competition policy on mobile providers or policy about data protection and privacy on women's DFI are also under-studied. Yet, policy clearly shapes DFI as well as its outcomes. For example, policies such as demonetization in India in 2016, which removed certain bills from circulation, or the "cashless economy" policy that Nigeria began implementing in 2012 are very likely to affect women, who may depend disproportionately on cash or have limited access to bank accounts, digital or otherwise (Bulusu, 2016; Loeb, 2015).

Where we find most of the literature about laws and policy as they relate to digital financial inclusion is in the social transfers literature. Policies to ensure that social transfers are made digitally and that they include or are targeted at women have the potential to increase DFI, as we have noted in this report. The importance of a payments ecosystem and opportunities to cash out, however, are critical in ensure that access transforms into use. As demonstrated by Field et al. (2016) in their study of MGNREGS, other parallel investments may be needed to support women's bargaining and capabilities to use and control these transfers and wages. In many cases, the laws and policies that affect digital platforms and regulate financial and mobile service providers are very new and their ramifications have not been studied with regard to women's financial and digital financial inclusion. This is clearly an area which requires more attention in the future.

Asymmetric information is at the core of the analysis of supply-side decisions regarding credit, including in the studies reviewed for this report. A large body of literature, including seminal work by Stiglitz and Weiss (1981), studies the impact of imperfect information in credit markets and the lenders' inability to assess borrower riskiness and to observe how credit is used, and it finds that these informational asymmetries affect the pricing (interest rates) and the quantity of loans supplied, resulting in credit rationing.[11] These studies also frame the role of collateral as a mechanism for mediating the risk of lending. Early studies have applied this theoretical framework to explain why the rural poor and women are disproportionately financially excluded (Besley, 1994). This framework has also been critical to the analytical foundation of microfinance, demonstrating how group lending and social capital can overcome informational asymmetries (Besley and Coate, 1995).

Karlan and Zinman (2009) explore the lending practices of microfinance institutions. Specifically, they estimate the impacts of a consumer credit supply expansion using a field experiment working with a South African lender. The lender relaxed its risk assessment criteria by randomly approving a portion of marginal applications it would normally have rejected. The authors estimate the resulting impacts using new survey data on borrower behavior and wellbeing and administrative data on loan repayment and find that the marginal loans appear to have been profitable for the lender while producing measurable benefits to borrowers. The expansion of credit to marginal borrowers appears to have increased women's access relatively more than that of men. Women were less likely to borrow from other formal sources and less likely to seek informal lending, while there were no statistically significant changes to men's sources of lending.

Jack et al. (2016) also offer evidence on how changes to the terms and conditions of a loan can result in higher levels of financial inclusion without increasing risk for the lender. Specifically, the authors study the changes to loan uptake and repayment rates when a Kenyan dairy cooperative exogenously replaces high down-payments and joint liability requirements with asset-based loan collateralization, where the asset in question is a large water tank acquired by the loan itself. They find that loan uptake has increased significantly under the asset collateral model (from 2.4 percent to 41.9 percent). The findings from the study suggest that where legal and institutional frameworks support secure property rights and contract

[11] Adverse selection and moral hazard are the two key dimensions of supply-side information asymmetries. Adverse selection is the case in which lenders cannot easily distinguish high-risk from low-risk borrowers and need mechanisms for effective screening. Moral hazard occurs when providers are unable to enforce how much effort and care clients take to repay their loans (Karlan et al., 2016).

Box 16: Financial Services Providers Need to Be Incentivized to Serve the Poorest and Most Excluded

> "Banks don't actually care about banking the poor—not in a moral or ethical sense, but in a financial sense. You see it in the resources they give to last-mile problems. […] There has to be some way in which banks have incentives to provide high -quality services to these people. Long-term harms are created when you create a bad service or a bad product. A woman who has her money stolen by an agent will never bank her money again." (N. Rigol, key informant interview with ICRW, February 16, 2017)

enforcement, asset-based collateral models of lending can enhance credit access among marginal lenders. While the study does not have an explicit gender lens, this particular finding has clear gender implications, as women are often more constrained by traditional collateral requirements than men.

Historically, women's lack of documented and secure ownership of assets which they can use as collateral has been one of the more emphasized constraints to their financial inclusion (Fletschner and Kenney, 2011; Deere et al., 2013). In a significant proportion of these studies, the gender asset gap is discussed within the context of discriminatory legal frameworks and norms and practices that are biased against women (Fletschner, 2009; Fletschner and Kenney, 2011). While a majority of these studies focus on rural areas and land as the main form of collateral, evidence elsewhere clearly points to collateral as a universal constraint for women. For example, a recent survey of several banking institutions in the MENA region points to collateral, along with credit history and business experience, as key to credit supply decisions (Bouffay and Shallal, 2013). Klapper and Dutt (2015) highlight some of the emerging arguments on how digital platforms can offer alternative forms of collateral for women who do not have access to traditional collateral assets. These include opportunities for women to build their credit history through digital transactions, such as utility payments, in order to seek credit from formal financial institutions. One example of such a model is M-Shwari in Kenya, which is a bank account that offers a combination of savings and loans. A collaboration between the Commercial Bank of Africa and SafariCom, a mobile network operator, M-Shwari provides short-term credit to its subscribers based on the credit scores derived from and updated based on their past use of other Safaricom products (Cook and McKay, 2015). Another example is Faircent in India, a for-profit P2P digital credit platform which offers both investment and consumer credit. Anecdotal evidence suggests that this platform has been increasingly lending to women who had been denied loans by traditional financial institutions (Gandhi, 2015 in Klapper and Dutt, 2015). ***While the emerging models of digital platform-based solutions to supply-side asymmetric information are promising, the evidence on whether and how they work has been limited. Furthermore, few of these studies make a deliberate attempt to explore the gendered dimensions of these potential new lending practices.***

5.7. Negative Impacts

Social interventions frequently have unintended consequences, where unforeseen outcomes negatively affect program participants. Within the financial inclusion literature, the negative impacts identified and discussed vary from increased intimate partner violence to decreased bargaining power. The richest information on negative impacts comes from the microfinance literature, although a considerable number of articles on cash transfers and savings accounts also discuss negative outcomes for women. There is limited consideration of negative impacts in the digital financial inclusion literature.

Within the financial inclusion literature, the negative impact most explicitly studied is intimate partner violence. IPV is also the only negative outcome explicitly tested for in studies, most commonly within microfinance and cash transfer programs. However, there is currently no consensus on the direction of the relationship between women's incomes and IPV. Hidrobo and Fernald (2013:317) suggest that the contradictory evidence is "due to contextual factors related to culture, community, timing, and household dynamics." Looking at Ecuador's cash transfer program, the authors find that the effect of a cash transfer on psychological IPV against women largely depends on a woman's level of education and on her relative level of education to her partner. They report that while incidence of IPV significantly decreases when a woman has more than a primary school-level education, for women with just a primary-level education or less, the effect of the cash transfer depends on her husband's education. When a woman's education level is equal to or greater than her husband's, a cash transfer can significantly increase psychological violence in the household.

Box 17: Efforts to Promote FI and DFI Carry Risks

> "We need to keep our eyes on customer risk and building in a strong risk-mitigation system. This is a population that is highly vulnerable to fraud; they could lose everything they have due to one small error." (K. Colson, key informant interview with ICRW, February 13, 2017)

Other studies from Ghana and Bangladesh hypothesize that microfinance loans and cash transfers increase IPV due to disagreement over use and control of the new income. Ganle et al. (2015) believe that the reported increase in IPV against women accessing finance in these two countries can be attributed to a process through which husbands seek to establish full management and control over microfinance loans. They posit that if a woman challenges her husband's attempt to control her loan, incidents of IPV within the household are likely to rise. In an ethnographic study of IPV and microfinance programs in Bangladesh, Schuler et al. (1998:51) find that "the highest levels of violence against women were in the village where it was most apparent that a transformation in gender roles were underway."

Relatedly, evidence shows that many women are not able to maintain control over their microfinance loans, which can subsequently lead to decreased bargaining power and increased dependency on their spouses. Garikipati's (2008) mixed-methods study on the impact of lending on women's empowerment finds that even when a husband uses his wife's loans for productive household expenditures, women are still unable to divert any of the incomes from loan-sponsored activities into repayments. Ganle et al. (2015) also find that women's lack of control over their loans forces them to depend completely on their husbands for loan repayments. Thus, credit can become a burden to women who "are accountable for loans over which they have no control" (Barsoum, 2006:60).

Both microfinance and cash transfers can increase women's time burdens. Ganle et al. (2015) note that when women are unable to use any of the income from their loans for repayment, they frequently turn to wage labor or selling smaller belongings, adversely impacting both allocation of their work time and control of family resources. Studies on the cash transfer programs PROGRESA in Mexico (Adato et al., 2000) and Bolsa Família in Brazil (de Brauw et al., 2014) find similar negative impacts on women's time use. Adato et al.'s study of PROGRESA shows that women's time burdens increased due to the PROGRESA requirements that participants take part in a number of activities that took place outside of the home. In some households, this created tensions, as the woman struggled to balance her new PROGRESA-related time requirements with her domestic responsibilities.

While many studies consider the unintended consequences of their interventions, only a few analyze which variables lead to a positive rather than a negative impact for program participants. In addition to Hidrobo and Fernald (2013) finding that cash transfers' impacts on IPV are mediated by a woman's (relative) educational attainment, de Brauw et al. (2014) determine that the Bolsa Família cash transfer program only increased women's decision-making power for urban populations; they find no significant increases among rural women and in fact note a possible reduction in women's decision-making power within this population. To effectively increase the financial inclusion of women when designing FI interventions, it will be important to consider women's individual, household, and community contexts and how these affect the direction of relationships between women's incomes and measures like IPV and intra-household bargaining. Most of the articles that analyze the negative impacts of financial products and services are experimental and show that these products do improve the financial inclusion of many women. In order to better understand why financial products and services negatively affect particular groups of women, further qualitative research and more precise disaggregation of which types of women (rural, young, married, elderly, widowed, polygamous, etc.) are affected are needed.

Some practitioners and researchers hope that digital financial services will help women to overcome the many barriers they face in accessing and using financial products and services. However, there is limited consideration of the negative impacts and unintended consequences that may result from women's use of digital financial products and services. Only two articles in this review devoted significant space to the analysis of DFI's negative impacts on women.

Wandibba et al.'s (2014) qualitative study on gender and mobile money transfers in eastern Kenya explore how mobile money usage affects women's empowerment and household dynamics. The authors note that participants reported that the high usage of mobile transfers by both women and men was "breeding suspicion and mistrust about spousal/partner fidelity, real family incomes, misuse of family resources, and remittances" (2014:10). Participants were concerned that mobile phones in general, and mobile money in particular, were deteriorating communication between spouses. As one woman said, "people from the same house, for instance a husband and a wife, would not be talking, but they keep sending each other mobile phone short messages… they would even send money together with withdrawal fee as soon as they left the house…this shows how mobile money is contributing to increasing holes in the vessel…" (2014:10). Men and women participants believed that the technology further contributes to the deterioration of household relationships because it conceals financial transactions and misuse of incomes. While mobile money did seem to have an empowering effect on the women studied (mobile money services increased financials flows, enabling women to more easily receive credit and pay off loans), the renewed success of their business endeavors took women out of the home more often and made them less financially dependent on their husbands, resulting in household tensions and marital problems that both male and female participants in the research found concerning.

These results highlight the need for more studies around the potential impact of DFI on social cohesion, within both households and communities. Social cohesion is an integral part of SHGs, village savings and loan associations (VSLAs), and ROSCAs, and their success is often attributed to a group-lending model that requires frequent interaction with other members and utilizes social pressure to ensure on-time payments (Deininger and Liu, 2013). A randomized experiment conducted by Harigaya (2016) in the Philippines examines how the introduction of a mobile banking technology to microfinance groups affects the savings behavior of existing clients. The study found that "individualizing the transaction procedure through digitization immediately increased group defection and weakened the peer effects of group banking" (2016:25). The study also finds that the average daily balance and frequency of deposits declined by 20 percent over two years, which was attributed to weakened group cohesion and sensitivity to transaction fees. These results should be taken into consideration when designing future DFI programming, as they point to potential inefficiencies for certain populations. This argument is bolstered by feedback ICRW received from key informants, who noted the need for more research on the impact of DFI on social cohesion, and for the examination of innovative DFI designs that attempt to preserve the social cohesion aspect of traditional group finance models.

Box 18: Efforts to Achieve Women's (D)FI May Be More Successful if They Work Through Existing Models That Have Been Shown to Work

"The number of women who participate in savings groups is enormous, and this can be a great on-ramp to accessing other formal financial services. Coming from an empowerment agenda, mobile phones are great in the long term for empowerment (both financial and other), but they are not always the best option for onboarding women." (M. El-Zoghbi, key informant interview with ICRW, February 21, 2017)

Schaner's (2016a) experimental study hypothesizes that individuals use high-transaction-cost savings devices, even when lower cost options are available, because high transaction costs help savers protect their resources from the demands of others. The study involved distributing ATM cards to married couples with newly-opened bank accounts in rural Kenya, which reduced their withdrawal fees. Schaner finds that while the ATM cards generally had meaningful effects on bank account use, they made women's savings more vulnerable to appropriation by family members, reducing formal account use for women who had lower bargaining power within their households. These results suggest that household bargaining power and the different household pressures faced by men and women mediate how women save. Schaner suggests that service providers need to develop savings products that offer women not only low transaction costs and convenience, but also high levels of safety and security. These adjustments would increase account usage by helping women with low bargaining power to protect their savings.

The results of this systematic review and the key informant interviews ICRW conducted point to the need for more research around financial consumer protection as it relates to the impact of DFI on the most vulnerable populations, especially women. As digital financial products and services are expanding financial inclusion to previously unbanked populations, regulators and service providers must carefully consider the vulnerabilities and risks that are presented at each stage of clients' access to and use of these products and services. While several thorough international guidelines on consumer protection in digital financial services exist,[12] more research is needed. Kyle Holloway, a Program Manager for the Financial Inclusion Program at Innovations for Poverty Action (IPA), noted in his key informant interview with ICRW on February 8, 2017 that more behavioral research needs to be produced to guide regulators on how to effectively diagnose potential pitfalls and design better regulation to protect vulnerable consumers.

While not specific to DFI, there are some articles that consider the negative impacts of mobile phone ownership on women. For example, a study by GSMA (2012) notes that in many contexts, husbands are suspicious of their wives and daughter's mobile phone ownership, increasing the likelihood of domestic violence within the household. While not explicitly part of the FI literature, it will be important to consider these negative impacts when designing DFI programming. Flora Myamba, an Associate Researcher at REPOA in Tanzania, gave an example of a possible harm-mitigation approach during her key informant interview with ICRW on March 17, 2017. In a recent DFI project, she explained, the research team gave women mobile phones and provided a certificate stating the purpose and intended use of the phone for the women to give to their husbands, in the hopes that this would minimize household tensions and violence over where and why the woman came to be in the possession of a mobile phone.

[12] These include the Organisation for Economic Co-operation and Development's "Report on Consumer Protection in Online and Mobile Payments" and "Consumer Policy Guidance on Mobile and Online Payments," the Better than Cash Alliance's "Responsible Digital Payments Guidelines," the International Telecommunication Union's "Regulation in the Digital Financial Services Ecosystem," the GSMA's "Code of Conduct for Mobile Money Providers," and the University of New South Wales's "The Regulatory Handbook: The Enabling Regulation for DFS."

As digital financial services become increasingly prevalent around the world, it is important for researchers to test for negative impacts in their studies. In his key informant interview with ICRW on February 14, 2017, Jeremy Shapiro, President of the Busara Center for Behavioral Economics, proposed measuring the impacts of digital financial services on women and households by looking at the rates of IPV. While measuring household bargaining can be context-specific and subjective, Shapiro argued that decreasing rates of IPV, while also difficult to measure, are a more objective measure of household dynamics as well as a measure of welfare in its own right, and one that should be used more in the evaluation of DFI services.

Overall, the limited consideration the DFI literature gives to potential negative impacts and unintended consequences is cause for concern. Careful consideration and measurement of negative impacts is imperative to build the evidence base on the positive impacts of digital financial products and services.

6. Conclusions and Recommendations

6.1. Conclusions

- The majority of analyses are based on observational or field research, with far less analysis dedicated to experimental or quasi-experimental research and fewer approaches that are qualitative or mixed-methods in nature.
- Much of the DFI literature is still in reports and gray literature and is less prominent in peer-reviewed and academic journals.
- The MENA region is under-represented in both the FI and DFI literature.
- The majority of the literature on FI and DFI is age-blind and does not explicitly address particular age groups or cohorts.
- The focus on the meso sphere in all domains of access and use and in terms of outcomes is under-studied. The macro sphere is also comparatively under-studied and may be particularly important when we consider the impacts of FI and DFI.
- How gender norms shape access to and use of financial products and services appear to be well researched in the FI literature but less well explored in the DFI literature.
- Women's agency and empowerment, economic or otherwise, appears to be analyzed to a lesser extent in the DFI literature.
- Labor market outcomes and time use are less well explored in both the FI and DFI literature.
- Asset accumulation and economic security are key outcomes discussed in the FI literature while savings, resilience, and poverty reduction are more heavily analyzed within the literature on DFI.
- There is greater emphasis on gender-based violence in the FI studies, which may partly be driven by the earlier studies on microfinance and GBV.
- The research focus is also shaped by the geographic concentration, since many of the studies on economic security and resilience to shocks are from Sub-Saharan Africa and South Asia. An exception seems to be the relatively heavier weight on analyses of gender and agency in South Asia.

The gaps in the existing FI and DFI literature discussed in Sections 4 and 5 allow us to see where future investments in research and analysis can be focused, both thematically and geographically.

- **The majority of the analyses are based on observational or field research.**

These findings draw attention to the need to develop more mixed-method approaches and to interrogate some of the quantitative analysis with more probing qualitative analysis or draw on behavioral economics and experimental approaches to investigate how DFI can ensure greater and more meaningful financial inclusion for women.

- **Much of the DFI literature is still in reports and gray literature.**

While this is in many ways a feature of the maturity of the FI literature, it also highlights that much of the more innovative DFI work has yet to enter the peer-reviewed academic journals. For those funders and development practitioners seeking to get more information about DFI, they have to pursue other sources of research and evaluation and follow a variety of platforms and institutions to cull from the literature.

- **There is a lack of research on either FI or DFI in the MENA region.**

This is particularly confounding given both the wide variations in financial institutions and penetration and the level of digital inclusion in this region. Moreover, this is a context where some of the thornier issues around gendered norms, decision making, and mobility may play out uniquely to affect women's meaningful financial inclusion.

- **The majority of the literature on FI and DFI is age-blind.**

This is a surprising considering that service providers and financial institutions are exhorted to "know their customer" better. Since age is obviously strongly correlated with the experience of particular barriers to access and use, and since the digital divide may bind more strongly on women (and older women, in particular), this has substantial implications for the delivery of more appropriate financial products and services to women across the life-cycle. Moreover, the life-cycle dictates that different products may be more valued at different points in time for young, prime-age, and elderly consumers: access to school loans, social protection and remittance transfers, payments services, health insurance, enterprise and stock insurance, life and disability insurance, low-cost savings instruments, etc. All these products may be desired across the life-cycle, but they are seldom required or sought simultaneously.

- **The meso and macro sphere are comparatively under-studied.**

The literature on both DFI and FI concentrates disproportionately on the micro sphere. The impacts of DFI and FI on meso and macro processes are less well theorized and analyzed. This means that we have very little understanding of the meso barriers to full inclusion, through financial or digital financial means, or the potential impact of FI and DFI on meso processes. Moreover, the absence of an understanding of how FI and DFI can potentially stimulate more broad-based growth and affect and be affected by the macro environment leaves many policy dimensions outside of our understanding. The complexity of how laws and institutions affect FI and DFI, or how changes in regulations can magnify the economic spillovers and benefits from women's financial inclusion, digital or otherwise, appear to be significantly under-studied.

- **There is an absence of work on gender norms in the DFI literature.**

Gender norms affect access, use, and outcomes from FI and DFI. Yet they are largely under-analyzed in the DFI literature. Norms overlap with a variety of micro, meso, and macro processes, and they have the potential to explain a number of divergent outcomes for women where the expected benefits from FI or DFI have not accrued as intended. A greater focus on how gender norms affect preferences and potentially ascribe freedoms, enhance or inhibit bargaining, or even affect the supply-side dimensions of product offerings and client recruitment would be helpful.

- **Women's agency and empowerment, economic or otherwise, appears to be analyzed to a lesser extent in the DFI literature.**

Similarly, the systematic review highlights that there is less attention paid to agency and empowerment in the DFI literature. Often, articles assume that empowerment has occurred without interrogating the pathways to empowerment or the extent to which proxies for empowerment, such as income, earnings, mobility, expenditures, etc., reflect greater agency by women.

- **Labor market outcomes and time use are less well explored in the DFI literature.**

In many explorations of the positive benefits that can flow from FI and DFI, little attention is paid to the type of labor market activity supported or enhanced, or even to the impact on women's time use. The failure to pay attention to this dimension of women's wellbeing or how FI and DFI might contribute to formalization in the labor force means that important potential benefits and costs are being ignored. Financing more effective development through financial inclusion should not come at the cost of increasing women's time burdens and time poverty—and this remains a highly under-studied aspect of the linkages between FI and DFI and their outcomes in terms of incomes, earning, poverty reduction, asset acquisition, and savings.

- **Asset accumulation and economic security are key outcomes discussed in the FI literature, while savings, resilience, and poverty reduction are more heavily analyzed within the literature on DFI.**

This most likely reflects the timing and evolution of the discourse in each stream of research. While economic security and resilience are enhanced by asset accumulation and savings, it is interesting to note how the nomenclature shifts over time and how each stream of research tends to talk to specific themes. The emergence of the term "resilience" in the literature also appears to reflect concerns emanating from overlapping crises induced by drought, climate change, and conflict, particularly in Sub-Saharan Africa.

- **There are relatively fewer analyses of the negative impacts of DFI in the literature.**

The analysis of the potential or realized negative impacts from FI focuses largely on intimate partner violence or gender-based violence more broadly. The DFI literature is even more scarcely populated with research that addresses any negative impacts. It is clear that we need to better understand how women's FI and DFI affects male status and positive male engagement with a broader aspiration for women's empowerment. If we do not fully understand the negative consequences of FI and DFI for women, particularly in terms of IPV but also in terms of potential general backlash against women's access to more resources, then in the absence of parallel investments to gain or amplify male support and endorsement, we may inadvertently expose women to greater vulnerability.

6.2. Recommendations

- More investment is needed in mixed-methods analysis, in which quantitative studies are triangulated with qualitative probes and analysis.
- (D)FI research should focus increasingly on norms as they shape access, use, and outcomes.
- There needs to be increased focus on intra-household processes and bargaining in FI and DFI literature.
- Greater investment is needed into analysis of FI and DFI in terms of their relation to and impact on women's economic empowerment and the labor market (type of activity, sector of economic participation, formality, etc.).
- More research is needed to understand how introducing digital financial products and services into self-help groups and similar group-savings mechanisms affects the social cohesion and effectiveness of these groups for promoting women's FI.
- More focus is needed on the macro- and meso-level benefits of meaningful financial inclusion for women.
- Researchers need to undertake more life-cycle analyses of the impacts of FI and DFI.
- In terms of regional focus, more research is needed on gender and FI and DFI in the Middle East and North Africa.

Our key recommendations flow from the gap analysis in Section 4 and the discussion in Section 5.

- **More investment is needed in Q^2 analysis, in which quantitative studies are triangulated with qualitative probes and analysis.**

The need for greater investment in mixed-methods analysis reflects the disproportionate emphasis on quantitative analysis and the singularity of methodological approaches pursued in most papers and peer-reviewed journal articles. Many of these reports and articles deploy an economic framework and analysis, with a significant emphasis on quantitative methods, RCTs, dose-response analysis, and the attribution of causality. These types of approaches are less pervious to the more qualitative analysis of processes and indeed many fail to trace out the process or theory of change by which inputs are translated into outputs and outcomes. The judicious incorporation of more qualitative analysis to triangulate and probe some of the results could yield a richer understanding of these processes and highlight where they may not be automatic or ineluctable.

- **Increased emphasis on norms as they shape access, use, and outcomes is needed.**

Norms shape women's use of the financial products and services. Therefore, understanding how norms can be challenged or contested may make the delivery of more appropriate or transformative financial products and services through DFI more likely. Placing an increased emphasis on social norms as they mediate access, use, and the outcomes from FI and DFI will also enable the development community to investigate how collectively-established attitudes and practices shape the freedoms individuals and households encounter to translate access into use and effect outcomes that produce measurable improvements in their lives and communities. In this domain, we would suggest there is a need for greater exploration of the extent to which norms about the ownership of or access to mobile technology limit the use of DFI or affect whether women can travel in order to cash-out transfers and payments or engage with male non-family members as agents or intermediaries. Probing norms about the ownership of individual bank accounts or the autonomous and even negotiated expenditure of funds will also inform the extent to which women can act on the potential benefits from FI or DFI.

- **Increased focus is needed on intra-household processes and bargaining.**

A more precise and detailed understanding of household bargaining processes as they affect access, use, and outcomes from FI and DFI could be particularly helpful. Moreover, an enriched understanding of the continuous and iterative or even nested nature of bargaining could shed greater light on how women can translate the benefits of access into use and deploy financial services and products to better meet their needs and aspirations.

- **Greater investment is required in analysis and impact of financial inclusion and digital financial inclusion in terms of women's economic empowerment and in the labor market implications (type of activity, sector of participation, formality, etc.).**

The potential impact of FI and DFI in the labor market has not been fully explored. We have some powerful examples of where DFI has increased the transparency of wage payments or ensured that women have access to bank accounts for their own earnings, but these types of studies are few. We also have little understanding of how FI and DFI may facilitate a shift in sector of participation or support greater formalization of employment. This could be a particularly fertile area for further exploration that could potentially highlight a number of co-investments in other institutional processes and functions such as regulation, inspection, labor rights education, etc., that may need to be aligned to secure positive outcomes in the labor market.

- **More research should be undertaken to understand how introducing digital financial products and services into SHGs, VSLAs, and ROSCAs affects the social cohesion and effectiveness of these groups for promoting women's financial inclusion.**

Social cohesion is an integral part of SHGs, VSLAs, and ROSCAs. The success of these kinds of savings and lending groups is often attributed to a model that requires frequent interaction with other members—building social capital—and utilizes social pressure to ensure on-time payments. Key informants pointed to, and some early research has shown, that offering digital financial products and services through these group-savings models effectively individualizes the financial services, negating the benefits of these cooperative models. Further research is needed to understand how introducing digital financial products and services affects the social cohesion and effectiveness of SHGs, VSLAs, and ROSCAs. Additionally, to overcome the negative impacts DFI may have on social cohesion, new digital financial products and services should be shaped to the needs and particularities of group-savings and lending models.

- **More focus is needed on the macro- and meso-level benefits of meaningful financial inclusion for women.**

To have a greater understanding of how inputs are translated into development outputs and outcomes, we need a greater emphasis on both the meso and macro aspects of FI and DFI. This is particularly important if we are to understand how greater investment in FI and particularly DFI can secure greater access to financial resources, increase expenditures, and promote denser economic activity with more forward and backward linkages locally and nationally. In exploring these types of questions, it would also be helpful to examine the extent to which financial resources in the hands of women create more economic opportunities for women to be employed and to access product and labor markets.

- **Researchers need to undertake more life-cycle analyses of the impact of FI and DFI.**

The failure to focus on the life-cycle aspects of FI and DFI means that we miss an important opportunity to fully understand the needs of potential customers and potential constraints and barriers that can be unique to a particular stage of the life-cycle. How the aged can be more effectively financially included through DFI is a question that has not been fully explored. Another equally relevant question could be: what is the role for G2P through DFI to secure other benefits specific to each phase of the life-cycle? The barriers and constraints to meaningful financial inclusion are likely to be very different for customers in youth, child-bearing age, and older age, particularly for DFI. Supporting more work on the context and age-specific nature of financial inclusion could shed greater light on how financial services and products can be better tailored to the unique needs of women customers over the full course of their lives.

- **More research should be conducted on gender and FI and DFI in the Middle East and North Africa.**

An under-studied region is clearly the Middle East and North Africa, which is surprising given the heterogeneity of economies and contexts but also the extent of the penetration of digital technologies in much of this region. Given that many women in the MENA region face significant mobility constraints and normative restrictions that limit their ability to engage with non-family members, some of the previous research in South Asia may also be relevant, shedding light on how FI and particularly DFI can facilitate women's greater empowerment and economic agency. Investing more resources in this region could yield some prominent and powerful analysis that can inform and reinforce the benefits of FI and DFI for women.

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For the full list of resources examined in this systematic review, please contact info@icrw.org.

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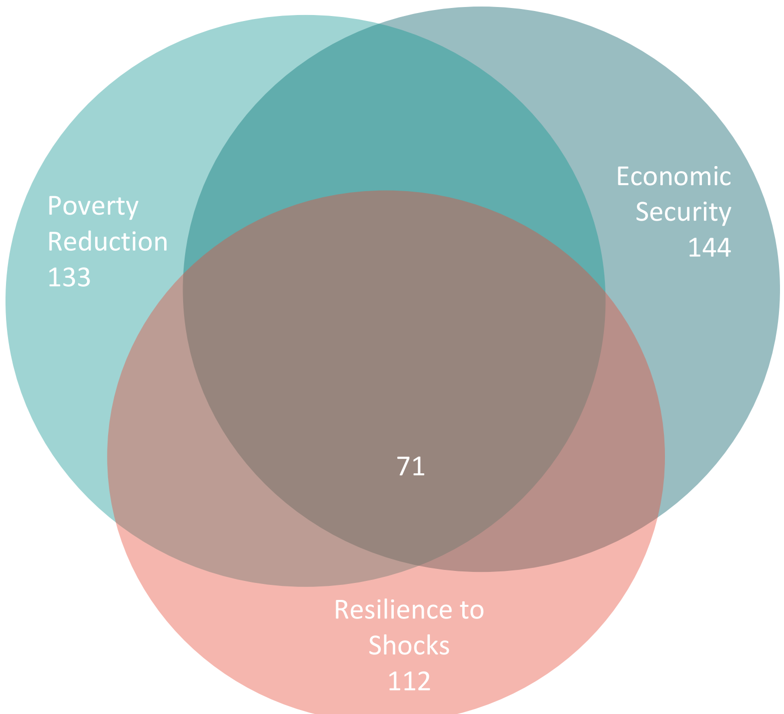
Appendix A: List of Experts Who Took Part in ICRW Key Informant Interviews

Name	Title	Organization
Alena Sakhonchik	Consultant	Women, Business, and the Law, World Bank
Anna Gincherman	Chief Product Development Officer	Women's World Banking
Claire Sibthorpe & Mireya Almazan	Head of GSMA Connected Women Head of Mobile Money	GSMA
Emily Breza	Associate Professor of Economics	Harvard University
Erica Field	Professor of Economics	Duke University
Flora Myamba	Associate Researcher	REPOA, Policy Research for Development
Jeremy Shapiro	President	Busara Center for Behavioral Economics
Joao Montalvao & Rachel Coleman	Economist Consultant	Gender Innovation Lab, World Bank
Kathleen Colson & Jaya Tiwari	CEO & Founder Director of Strategic Partnerships	The BOMA Project
Kyle Holloway	Program Manager	Innovations for Poverty Action
Leora Klapper	Lead Economist	Development Research Group, Finance and Private Sector Research Unit, World Bank
Mayada El-Zoghbi	Lead, Strategy, Research, & Development	CGAP
Natalia Rigol	Visiting Fellow	Harvard University
Neli Esipova	Regional Research Director and Gender Focal Point	Gallup World Poll
Sarah Iqbal	Program Officer	Women, Business, and the Law, World Bank
Tazeen Hasan	Senior Legal Specialist	Women, Business, and the Law, World Bank
Yasmin Bin Humam	Financial Sector Development Specialist	CGAP

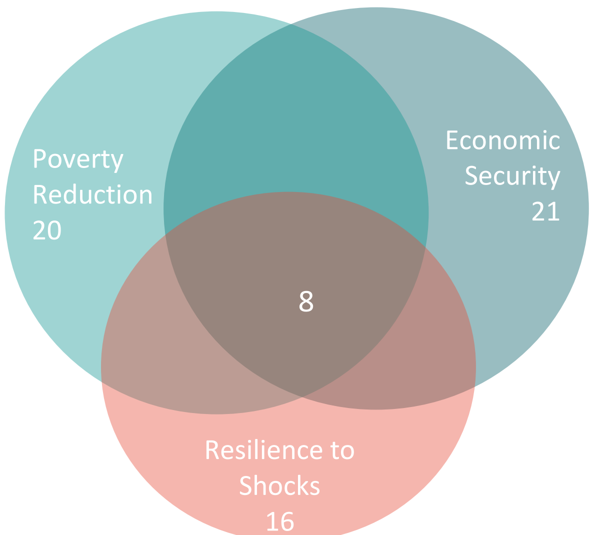
Appendix B: Correlations of Key Themes for which the Publications in the Systematic Review were Coded

	Norms	Household Bargaining	Empowerment	Information Asymmetry	Laws	Preferences	Resilience	Economic Security	Poverty Reduction	LFP and Time Use	Negative impacts
Norms	1										
HH Bargaining	0.1846	1									
Empowerment	0.4085	0.3513	1								
Information Asymmetry	0.2367	-0.0078	0.1621	1							
Laws	0.2338	-0.0066	-0.0095	0.4046	1						
Preferences	0.3374	0.1387	0.2666	0.2569	0.0137	1					
Resilience	0.2069	0.1534	0.2246	0.2806	0.1261	0.3671	1				
Economic Security	0.3464	0.1949	0.3292	0.3676	0.1821	0.5465	0.5933	1			
Poverty Reduction	0.1938	0.122	0.2453	0.2623	0.1301	0.2712	0.5446	0.5172	1		
LFP and Time Use	0.1059	-0.0278	0.0743	0.0726	0.124	0.0709	-0.0148	0.0735	0.0425	1	
Negative Impacts	0.0498	0.1094	0.1866	-0.0294	-0.0608	-0.0608	-0.0349	-0.0144	0.0578	-0.0896	1

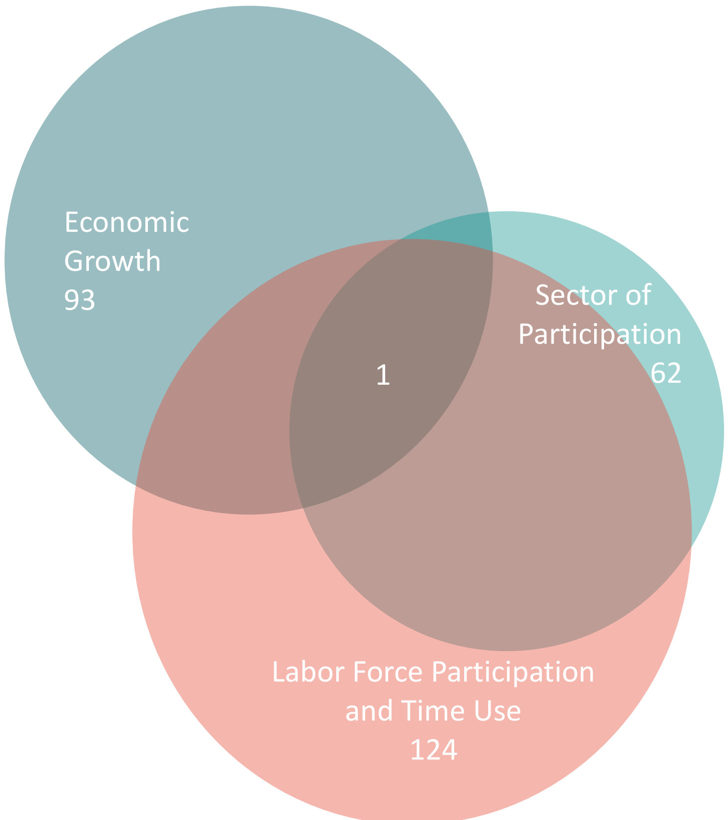
Appendix C: Venn Diagrams Depicting Overlaps between Several Key Themes in the FI and DFI Literature Included in the Systematic Review



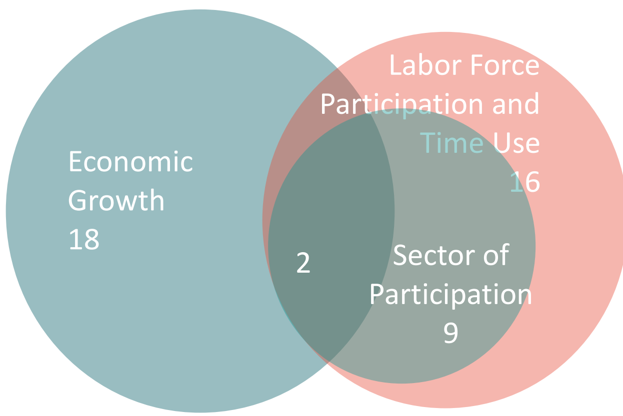
Overlap in certain outcomes-related issues within the FI literature



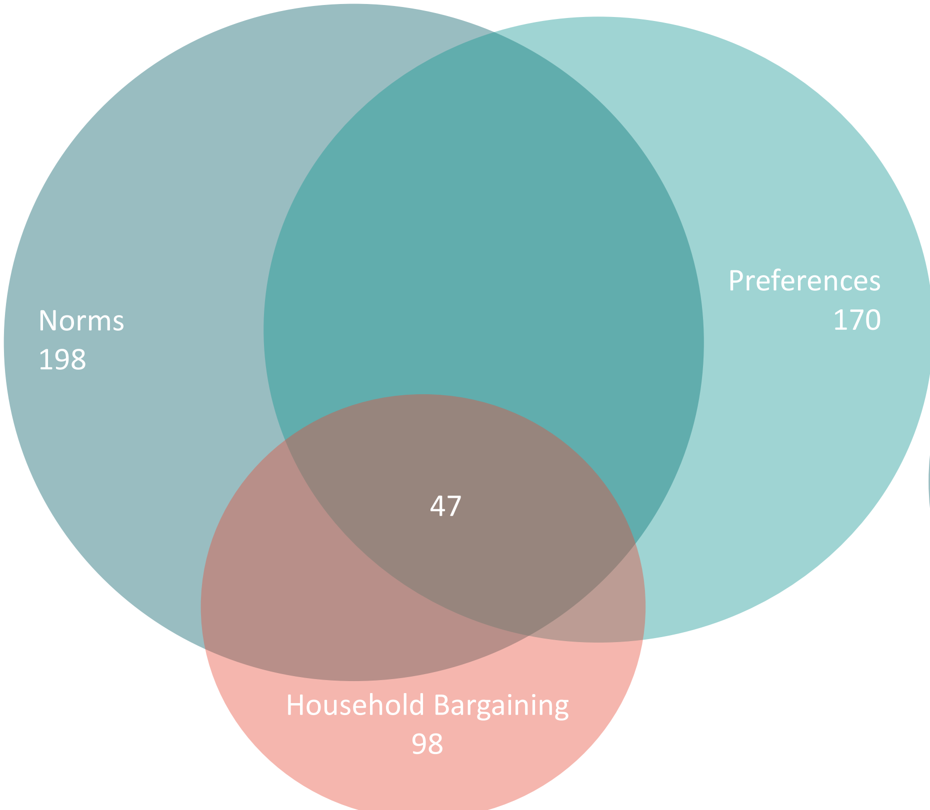
Overlap in certain outcomes-related issues within the DFI literature



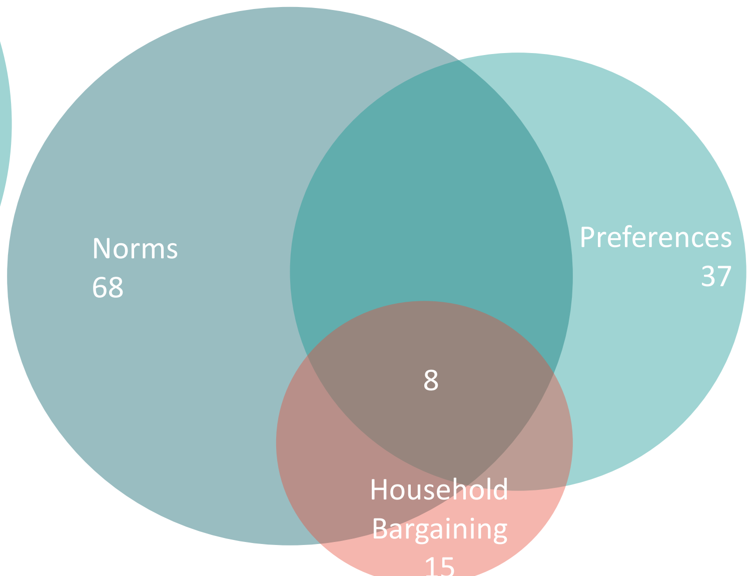
Overlap in certain outcomes-related issues within the FI literature



Overlap in certain outcomes-related issues within the DFI literature



Overlap in certain issues affecting access and use within the FI literature



Overlap in in certain issues affecting access and use within the DFI literature