

Achieving the United Nations' Sustainable Development Goals through Financial Inclusion: A Systematic Literature Review of Access to Finance across the Globe

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Abstract

Access to credit may have a direct effect on achieving United Nations (UN) Sustainable Development Goals (SDGs) in ending poverty, improving health and education, and reducing inequality. In this paper, we systematically review the growing empirical evidence on whether individuals' demographic characteristics (such as gender and race) and socio-economic features (such as income and education) effect their ability in accessing credit. Our survey covers peer-reviewed articles providing empirical evidence, using quantitative and qualitative data, published between 2000 and 2020 (February). We find that having more education and/or being more financially literate increases households' and entrepreneurs' access to credit. Individuals with lower income and less wealth are less likely to obtain credit from the mainstream financial institutions. In emerging countries, women are more likely to be rejected and deprived from formal credit, and pay higher cost. Non-Whites, ethnic minorities, disabled people and immigrants are also more likely to be excluded from the formal credit markets. We find that abovementioned credit deprived segments of the society resort to fringe finance providers, such as pay-day lenders or pawnbrokers, with higher costs. These findings are remarkably similar across developed and developing countries. Finally, we provide direction for further research in achieving SDGs through financial inclusion and access to credit by highlighting various shortcomings of the existing literature and empirical evidence.

Keywords: Sustainable Development Goals; Financial Inclusion; Financial Exclusion; Access to Credit; Systematic Literature Review

JEL classification: G21; D14; I30; O16; R20

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1 Introduction

Sustainable Development Goals (SDGs), adopted in 2015 by the United Nations (UN) with its membership of 193 countries, aim to end human poverty in all of its forms in the world. Member states acknowledge that “ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth” (UN, 2015a, p. 1). SDGs are a continuum of Millennium Development Goals (MDGs), agreed at the UN Millennium Declaration (UN, 2000), which had a narrower scope than SDGs but aimed at solving similar global problems by 2015. Important milestones have been accomplished through MDGs, in particular in diminishing extreme poverty, which is reduced by more than half between 2000 and 2015; however, it has also been acknowledged that the poorest and the most vulnerable were left behind (UN, 2015b). SDGs agenda aims to accomplish what has been started with MDGs. At the heart of the SDGs is the commitment to ‘leave no one behind’; however, progress has been slow. The key conclusion of the High-Level Political Forum by the UN held in 2019 was that “the global response to implementing the SDGs has not been ambitious enough, and a renewed commitment and accelerated action is needed to deliver the SDGs in time” (ENB, 2019).

Undoubtedly, achieving SDGs is a gargantuan task that requires global cooperation of, among others, governments, private sector, civil-society organisations, education sector, and media. One of the key mechanisms within this framework of cooperation is the financial system which constitutes the mechanism that provides households access to formal financial services, such as saving accounts, consumer credit or mortgages. Access to financial services, or *Financial Inclusion*, is defined as a basic necessity (Demirguc-Kunt and Klapper, 2013; World Bank, 2014). Within the broader financial products, access to credit, such as consumer loans, mortgages, credit card, student loans or microcredit, avails households to meet financial needs, own a home, invest in skills and education, save for retirement or establish income generating businesses.

SDGs do not include access to credit as a goal per se. However, it is argued that having access to formal financing may have a direct effect on achieving some of the broader goals of the SDGs, such as ending poverty, improving health and education, reducing gender and racial inequality (Klapper et al., 2016; El-Zoghbi, 2019). Access to credit may facilitate in achieving SDG 1 -

eliminating extreme poverty – by giving individuals the opportunity to finance investments that will lead to income generating businesses, further education and skills training, or better housing. Access to finance may also avail farmers to invest in equipment and knowledge to increase crop yields which is relevant to SDG 2 - reducing hunger and promoting food security. In terms of achieving good health and well-being, or SDG3, credit can help households to smooth out medical costs and reduce the impact of health emergencies. For SDG 4, fostering quality education, availability of finance will provide individuals the means to invest in educational opportunities, such as university degrees or further higher education, by distributing the cost over-time. Women, through access to credit, could have more say over the household budget and bargaining power, which will help to reduce gender inequality, aim of SDG 5. Availability of credit may also increase households' ability to invest in projects that will provide clean water and energy systems, achieving SDGs 6 and 7. Access to business and microfinance also has the potential to increase entrepreneurial activity and innovation, leading to more business and job creation and further economic growth, closely relevant to SDG 8, promoting full and productive employment, and SDG 9, promoting innovation.

There is a disparity across the world in accessing financial services and credit (Demirguc-Kunt and Klapper, 2013; World Bank, 2014). Inability to access such services, or *Financial Exclusion*, is argued to be detrimental to individuals economic progress, and disadvantages individuals significantly to lead a normal life expected in the modern times (European Commission, 2008; Demirguc-Kunt and Klapper, 2013). Furthermore, it is shown that there is a strong causal relationship between access to financial services and being socially excluded (Claessens, 2006; Carbo et al., 2007). Although financial inclusion has been achieved to some extent, especially in developed countries, it is reported that still there are around 2.5 billion households in the world that lack access to basic financial products (The World Bank, 2014). Hence, even though credit may be a detrimental intermediary tool in achieving SDGs, not all the segments of the society have the same chances to access it.

On the contrary, another strand of the literature highlights the negative impact of increased access to finance, particularly in the form of microfinance, on sustainable economic development and reduction of poverty, or main aims of SDGs. Microfinance model may constitute a barrier to economic growth as often newly created microenterprises has income displacement effects across the community (Bateman, 2010; Bateman et al., 2018). The commonly observed integration of the microcredit institutions to the formal financial system, coupled with the adoption of

shareholder value maximization, may create a two-tiered financial system where formerly financially excluded borrowers face over-indebtedness and higher interest rates (Aiken, 2010; Mader 2013; Guérin et al., 2013; Gimet and Lagoarde-Segot, 2014). Hence, it is observed that there is a trade-off between profitability and serving the poorest (Cull et al., 2007; 2009). Furthermore, empirical evidence on the positive impact of microfinance on people's lives is found to be inconclusive (Duvendack et al. 2011).

Given the above discussions, in this paper, our main aim is to explore who are more likely to be excluded from formal credit markets, including microfinance, across the globe. We also aim to examine whether such disparities are comparable between developed and developing countries. We review the recent growing global empirical evidence on individuals' access to credit and whether their demographic characteristics (such as gender, race, age etc.) and socio-economic features (such as income, education, location etc.) effect their ability to obtain these financial products. We employ a systematic literature review (SLR) methodology, implementing a transparent and scientific review process, which is increasingly applied recently in the areas of finance and financial markets (see for example, Nguyen et al., 2020; Corbet et al., 2019; Deku et al., 2019; French and Vigne, 2019; Ballester et al., 2019, among others). Our survey covers peer-reviewed empirical articles published between 2000 and 2020 (February).

We find that demographic and socio-economic characteristics of household determine their ability to accessing credit. Having more education and/or being more financially literate increases households' and entrepreneurs' access to credit. Individuals with lower income and less wealth face more difficulties in obtaining credit from the mainstream financial institutions. In emerging countries, women are deprived from formal credit with a highly likelihood of being rejected and paying higher costs. Non-Whites, ethnic minorities, disabled people and immigrants are more likely to be excluded from the formal credit markets. We also find that abovementioned credit deprived segments of the society resort to fringe finance providers, such as pay-day lenders or pawnbrokers. These findings are similar across developed and developing countries.

Our contribution to the literature is twofold. Firstly, we contribute to the literature by surveying the global empirical evidence to provide a detailed analysis of the findings of the literature on whether various demographic and socio-economic characteristics impact on individuals' ability to accessing credit. As far as we are aware this is the first study to undertake such analysis. We also contribute by following a SLR approach which adopts a structured process to survey the

literature. Secondly, we contribute to the literature by linking the importance of households' access to credit in achieving UN's SDGs using a comprehensive and peer-reviewed set of academic papers. We believe that this is timely as there is an increasing emphasis globally on sustainable development, particularly through eradicating poverty and economic inequality. We aim to contribute by informing policy debate and provide direction for further research in achieving SDGs through financial inclusion and access to credit by highlighting various shortcomings of the existing literature and empirical evidence. At the same time, we draw attention to the literature that highlights why access to credit may not produce the desired effects to achieve SDGs without having robust governance mechanisms, regulation and a non-profit business model. It is important to identify the demographic and socio-economic determinants of inequalities in credit markets and recognise the possible implications of such impediments in accessing credit in achieving the SDGs. Identification of such failings will inform policy makers whether more and differentiated effort should be devoted by stakeholders, national governments, regulators and international organisation to different sections of the society.

The rest of the paper is organised as follows. In Section 2 we explain the relationship between access to credit and achieving SDGs and present the arguments on the negative impact of access to microfinance on economic development. Section 3 provides the details of the SLR methodology that we utilised to undertake the literature survey. In Section 4 we present our findings in six sub-sections as i) Education and Financial Literacy, ii) Income and Wealth, iii) Gender, iv) Age, v) Race, Social Class and Disability, and vi) Household Size and Location. In Section 5 we provide a synthesised discussion of our findings, suggest areas for future research and conclude.

2 The relationship between access to credit and SDGs

Individuals access to formal credit is of particular importance among the financial services and products. Access to credit may help in achieving SDG 1, which is about *eliminating extreme poverty*. SDG 1 explicitly states that the poor and the vulnerable should have equal rights to access to financial services, including microfinance. Formal credit takes the forms of mortgages, student loans, credit cards, consumer credit, microfinance for entrepreneurs, farmers and households. Such funding resources enables access to goods and expenditures that oversize the monthly budget of the household. The ability to stretch the cost of large-scale consumption over

a period of time via credit gives individuals the opportunity to smooth their income, insure against risks and unexpected expenses, and broaden investment opportunities, which, overall, lead to better housing, further education and training, and increased mobility and social networks. Furthermore, financial products, such as having access to credit, may build poor households' resilience by reducing the stress of uncertainty and helping them to recover from shocks, which in turn gives them mental and financial confidence to take risk and invest in the long term (El-Zoghbi et al., 2019). In contrast, not being able to access credit, households may face multiple constraints for enhancing their wellbeing, which exacerbates economic disadvantage. Empirical evidence, based on multi-country data, shows that microfinance may help mitigate poverty (Pitt and Khandker 1998; Zhang 2017).

There is also a well-established literature which shows that at macroeconomic level financial development is a good predictor of economic growth (see for example Levine and Zervos, 1996; Levine, 2004). Financial development leads to an increase in the incomes of the poor faster than average per capita GDP, reducing poverty and income inequality as a result (Beck et al., 2007; Park and Mercado, 2015). It is also argued that in many countries lack of access to financial services and products, including formal credit, can create poverty traps that force people to remain poor (Banerjee and Newman, 1994; Aghion and Bolton, 1997; Beck et al., 2007; World Bank, 2014). Empirical evidence also shows that having access to finance stimulates entrepreneurial activity and innovation leading to more business creation (Meghir, 2014; Banerjee et al., 2015) and, therefore, more jobs and economic growth. Hence, providing credit to households, entrepreneurs and SMEs, is also relevant to SDG 8 which is about promoting *sustainable economic growth, full and productive employment*, and SDG 9 on *promoting innovation and sustainable industrialization*.

SDG 2 is about *reducing hunger and promoting food security* and access to finance may have an influence in accomplishing it. It is argued that farmers who have access to credit can make more investments that increase crop yields resulting in strengthening food security (FAO, 2015). These arguments are supported by empirical evidence from Zambia (Fink et al., 2014), Mongolia (Attanasio et al., 2011) and Mali (Beaman et al., 2014).

Access to finance is also related to SDG 3 which aims at *achieving good health and well-being*. Studies find that health emergencies faced by households in the absence of public health care systems in some emerging countries are one of the main causes of poverty (Frenk and Knaul,

2002; Krishna, 2006; Priyanka et al., 2011). Health shocks also result in income loss due to inability to work or the depletion of assets due to costs of treatment (Klapper et al., 2016). Access to finance in health shocks can help households to smooth out medical costs and reduce the impact of such emergencies.

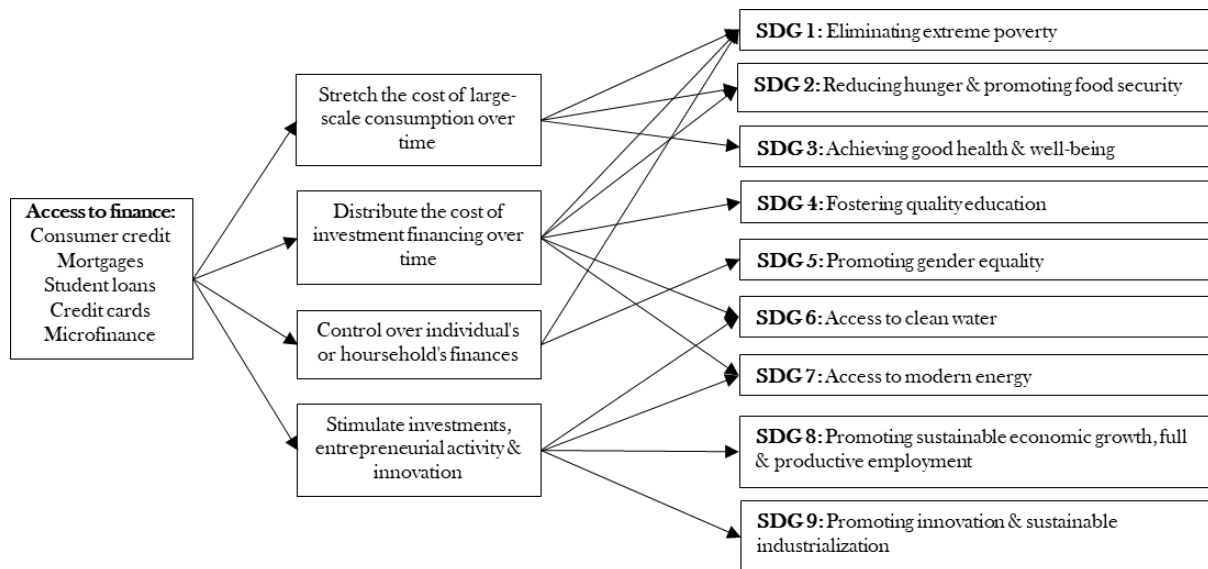
SDG 4 aims to achieve *fostering quality education*. In many countries' education and skills training require individuals' financial investment. Empirical evidence shows that loans can increase educational opportunities by availing households to pay the tuition fees required (Ashraf et al., 2003; Morduch, 2007). Hence, access to credit, such as student loans and other types of credit, may give households the opportunity to afford the required initial investment of skills training and education, and distribute such costs over time.

Furthermore, availability of credit may also increase household's ability to invest in and *have access to clean water and modern energy*, which are the aims of SDGs 6 and 7. For example, short-term low-cost credit lines (such as pay as you go models) provided by solar energy equipment suppliers in Tanzania and Kenya has increased households' usage solar energy in these countries (Parada and Bull, 2014).

Access to finances is also related to the 5th SDG which is *about promoting gender equality*. Having access to financial services, such as credit, avails women to assert their economic power (World Bank, 2014). It is argued that women are in greater need of access to such services, in comparison to men, as they are more likely than men to be self-employed (Demirguc-Kunt et al., 2013). Women make up 40% of the world's workforce and SMEs with female ownership represent around 34% of all SMEs in developing countries (Isaac, 2014). At the same time, worldwide 42% of women lack access to the financial system (Demirguc-Kunt et al., 2013). Access to finance could potentially give women greater control over their finances and increase their bargaining power in the household (Ashraf et al., 2010; Aker et al., 2014), reducing gender inequality. Also, it may lead to positive and productive outcomes as female-controlled finances are more likely spent on child welfare and necessities, such as energy and water (Duflo, 2012). It is also argued that when given similar financial opportunities as men, women have a potential to increase farm yields by at least 20% (FAO, 2011). For example, Attanasio et al. (2014) finds that access to credit led women owned businesses to expand and invest more in Mongolia.

Overall, above arguments and empirical evidence shows that a direct relationship can be established between access to formal finance and achieving the first nine of the SDGs (summarised in Figure 1 below), provided that all the segments of the society, but particularly poor and vulnerable, can access credit.

Figure 1: The link between access to finance and achieving SDGs



Having discussed the potential links between access to finance and SDG, we now review the arguments on the negative impact of access to finance on economic growth and poverty reduction, i.e. the main aims of SDGs. It is important to note that the arguments and empirical evidence related to this strand of literature derives its conclusions mainly from the microfinance (or microcredit) institutions. Firstly, it is argued that contemporary microfinance model may constitute a barrier to achieve the goals of sustainable economic development, protecting the vulnerable and reducing poverty. Accordingly, Bateman (2010) and Bateman et al. (2018) argue that microcredit programmes, creating new microenterprises, leads to income displacement effects across the community and an oversupply which reduces the revenue of existing businesses. Hence, no net employment or additional income is created. Furthermore, a significant number of businesses fail with individuals ending up in deeper poverty and insecurity afterwards.¹ For example, Karlan and Zinman (2011) find that microentrepreneurs using microfinance in Philippines reduced their business activities and employees in comparison to the control group.²

¹ These arguments are supported with empirical evidence from microcredit case studies observed in Bosnia and Andhra Pradesh state in India.

² However, they find that microcredit increased ability to cope with risk, availed access to informal credit and strengthen ties within the community.

Secondly, Gimet and Lagoarde-Segot (2014) highlight that in many emerging countries the operating model of microfinance has gradually shifted from government subsidized to a commercialized financial intermediation model. Hence, financialization of microfinance makes it increasingly more reliant on global capital markets. This leads to a two-tiered financial system with differential (and higher) interest rates and coercive terms of access for those vulnerable groups that rely on microfinance (Aitken, 2010; Husain et al., 2010; Gimet and Lagoarde-Segot, 2014)³. Commercialization also changes the performance drivers of the microfinance institutions. It is argued that to sustain banking industry benchmark level of profitability and executive compensation, influenced by shareholder wealth maximisation governance approach, commercialized microfinance institutions tend to continuously increase allocated microcredit volumes (Bateman and Chang, 2012). Gimet and Lagoarde-Segot (2014), analysing 240 microfinance institutions in India, highlight that the commercialization process inevitably led to managers' adoption of shareholder value maximization principles in governance of microfinance institutions, and, coupled with the increase in number of loans in their portfolios, generated fragility and crises in the microfinance sector. Confirming these points of views, Cull et al. (2007), examining 124 non-commercialized microfinance institutions in 49 countries, find that relatively few earn profits. Hence, profit oriented investors would have little interest in microfinance institutions that are serving poorer customers (Cull et al., 2009). Another undesirable consequence of the profit-oriented microfinance model is the eventual over-indebtedness of the borrowers. For example, Mader (2013), examining the 2010 crisis of microfinance in the state of Andhra Pradesh of India, finds that the crisis was driven by microfinance industry itself, due to privatization of the financial sector, which lead to over-indebtedness among the poor people who are increasingly dependent on debt for survival. Relatedly, Guérin et al. (2013) argue that microfinance is a short-term palliative solution, which often engenders over-indebtedness.⁴ Similar conclusions are also drawn by Karim (2011) who finds that rural women in Bangladesh are often deep in debt to several predatory creditors and argues that microcredit increases existing social and economic pressures by expanding and hardening networks of lending practices.⁵

³ Providing empirical evidence for these arguments, Aitken (2010) analyses the case study of a Mexican microcredit institution's (*Compartamos*) IPO.

⁴ Guerin et al. (2013) probe the social and economic implications of household over-indebtedness in relation to financial exclusion and consider over-indebtedness as a material process of impoverishment and of social, cultural, and symbolic atrophy. From this perspective, a family is over-indebted not only when it financially default, but also when family members fall into extreme forms of dependency, suffer from shame and humiliation, and lose crucial social relationships.

⁵ Karim (2011) also argues that women are unable to be empowered to rescue themselves from poverty by running their own individual entrepreneurial firms.

Some empirical studies investigating the potential effect of microfinance on people's lives conclude that the evidence of a positive impact is inconclusive (Goldberg 2005; Odell 2010; Armendáriz de Aghion and Morduch 2010; Orso 2011). For example, Duvendack et al. (2011), reviewing the microcredit literature, argues that the evidence neither supports nor deny the notion that microcredit can contribute to the improvement of poverty reduction and gender inequality. More recently, Banerjee et al. (2015) also find no significant changes in borrowers' health, education, or women's empowerment in the Hyderabad province of India.⁶ Guérin and Palier (2005) argue that the link between microfinance and empowerment is subtle, unpredictable and contingent on economic, socio-cultural and political context that is itself complex and evolutionary.

Thirdly, there is a strand of literature analysing microfinance from a wider political economy perspective. For instance, Weber (2002, 2004) posits that the microcredit approach to reduce poverty is strategically embedded in the global political economy. He argues that microcredit projects have been implemented primarily to facilitate liberalization in financial sectors on a global scale. In addition, microfinance functions as "a political safety-net", suppressing resistance at a local community level to liberalisation policies and economic austerity measures. By the same token, Fama (2018) argues that microfinance programs entail the expansion of financial sectors to new social, and economic spheres provide a market-based alternative to classical welfare interventions and generate specific "effects of power" such as the depoliticization of poverty.

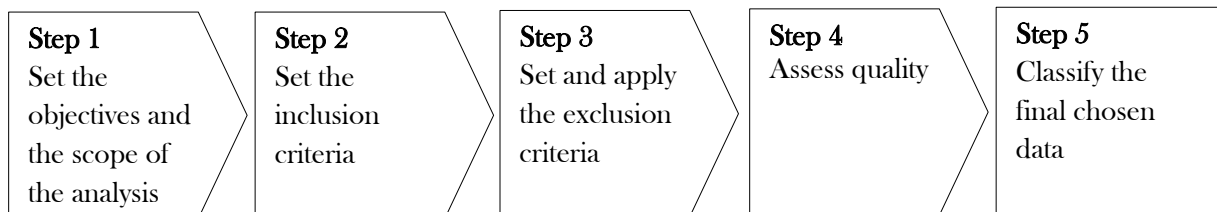
Finally, it is also argued that excessive credit may arguably engenders systemic vulnerability. Gimet et al. (2019), using a sample of 29 Western countries, show that financialization of the banking sector leading to excessive leverage increases financial fragility, lowers wages, and slows down economic growth. These arguments are based on Minsky's (1992) financial instability hypothesis positing that banks become more optimistic about the future economic prospects and take on more risk over the periods of prolonged economic growth. This, in turn, makes the economic and financial system more vulnerable to an economic downturn.

⁶ One reason they suggest for observing such non-improvement is that average businesses owned by the targeted individuals are extremely small, not particularly profitable, and difficult to expand. On a positive note, Banerjee et al. (2015) find that microcredit affect the consumption of the household, where they invest more in durable goods and restrict their consumption of temptation goods.

3 Methodology, Data and Descriptive Statistics

We conduct a systematic literature review, which can be described as “systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents” (Fink, 2005, p. 3). Unlike unstructured literature reviews, systematic literature review implements a transparent and scientific process with the aim of minimising errors and bias (Tranfield et al., 2003). Systematic literature review approach improves the quality of the review by providing clear guidance for replication (Wang and Chugh, 2014). Accordingly, we design the structured process, shown in Figure 2, to gather evidence.

Figure 2: Systematic literature review process followed



In step 1, we set the objectives and the scope of the research. Our primary objective is to examine whether households are experiencing financial exclusion in credit markets based on their observable demographic characteristics and socio-economic backgrounds by reviewing the recent empirical research. Secondly, we aim to identify and classify these characteristics. Our third objective is to provide suggestions and focus to policy makers, based on empirical evidence, to achieve SDG through providing better access to finance to potentially vulnerable segments of the society.

In step 2, we set the inclusion criteria for the systematic literature review. Our first criterion is that the articles must be published by peer-reviewed academic journals in English. Our second criterion is that we only include articles published between from 2000 onwards (up to 29 February 2020) to gather the recent evidence. Third criterion sets the choice of keywords for searching the literature. We use the following combination of keywords and phrases which resulted in six sets of search entries: i) “Financial inclusion” (FI) in the full document AND “credit”, “loan” and “mortgage” in the abstract, respectively, and ii) “Financial exclusion” (FE) in the full document AND “credit”, “loan” and “mortgage” in the abstract, respectively. Broader keywords are used purposefully to capture as many publications as possible. We searched eight major academic peer-reviewed journal publishers and identified the number of articles as follows:

- 1) ScienceDirect: FI - 183, FE - 87
- 2) Wiley: FI - 166, FE - 93
- 3) Emerald Insight: FI - 166, FE - 69
- 4) Sage Journals: FI - 126, FE - 72
- 5) Springer Link⁷: FI - 342, FE - 136
- 6) Taylor & Francis: FI - 43, FE - 39
- 7) Oxford University Press: FI - 110, FE - 53
- 8) Cambridge University Press: FI - 10, FE - 6

In step 3, we apply our exclusion criteria. It is worth to note that the numbers reported above includes the same articles that may show up a number of times in alternative keyword searches. For example, the same article may be found by searching for “financial inclusion” AND “credit” as well as “financial inclusion” AND “loan” or “financial exclusion” AND “credit”, etc. Hence, we first eliminate all the duplicate findings. Second, we exclude any research that is not examining the link between household (or borrower) demographics and socio-economic characteristics and financial exclusion in credit markets. Third, we exclude any research that does not provide empirical research based on either quantitative or qualitative data.

In step 4, we (the three researchers) independently assess the quality of the final set of articles based on content relevance. Applying the exclusion criteria generated a final sample of 55 outputs. We observe that research in the area of access to formal credit is published in a wide range of journals spanning across different disciplines including economics, sociology, finance, environment, regional and business studies.

In Table 1 we present the distribution of the articles per year of publication. We observe that researchers showed an increasing interest in the area of Financial Inclusion in recent years, as 78.2% of the papers in our data are published in or after 2015. We do not find any relevant papers in this area for the first five years (between 2000-2004) of the literature search period. There could potentially be two reasons as to why research outputs have intensified after 2015. Firstly, the consequences of Great Financial Crisis (GFC) of 2007-2009 on bank lending practices may be a factor. It is often argued that banking business has become more challenging after the

⁷ Springer Link does not allow to search for a keyword in the abstract. Hence, for this publisher we report results where all keywords are searched in the whole text.

GFC as banks had to comply with more regulation, change their business model and curb their risk appetite.⁸ These changes would suggest that in general financial exclusion may have increased after the GFC as banks became more conservative and stringent in credit risk analysis. Hence, such changes in bank lending behaviour may have triggered researchers’ interest in examining the impact of GFC on access to finance by borrowers, especially after 2008. Secondly, the publication of the 1st wave of the Global Financial Inclusion database (Global Findex)⁹ in 2011 by the World Bank (followed by 2nd and 3rd waves in 2014 and 2017, respectively) may have attracted attention of and provided researchers with the relevant data as it entails a detailed survey of around 150,000 households’ financial behaviour in 140 countries. Hence, we observe that a number of articles we have identified in our analysis have utilised this database.

Table 1: Year of Publication

| Year | Count | Share |
|--------------|--------------|----------------|
| 2000-2004 | 0 | 0.00% |
| 2005-2008 | 3 | 5.46% |
| 2009-2014 | 9 | 16.36% |
| 2015 | 7 | 12.73% |
| 2016 | 1 | 1.82% |
| 2017 | 9 | 16.36% |
| 2018 | 9 | 16.36% |
| 2019 | 11 | 20.00% |
| 2020* | 6 | 10.91% |
| Total | 55 | 100.00% |

*As of 29 February

In Table 2 we provide descriptive statistics on the country coverage of the papers identified. We find that the sample covers studies that spans to more than 135 countries. Countries that top this list in terms of the number of articles identified are the US, China and India. In Table 3 we present descriptive statistics for type of credit, unit of analysis and region. We observe that 61.8% of the papers on financial inclusion focus on Developing Countries. We also find that a significant number of studies examine access to formal credit, followed by usage of fringe lenders (Payday lenders, pawn brokers etc.) as an indicator of financial exclusion. The data is mostly collected at the household level (69.1%).

⁸ For example, in the UK GFC resulted in lenders making significant changes to mortgage product, where maturities got shorter, and 100% loans as well as interest only mortgages were no longer available. These products are particularly relevant for new borrowers and those who have limited saving and no assets. More importantly, lenders turned inwards when assessing lending risk, using internal customer data about lending performance, reducing the loan to income ratios and demanding better credit scores, and, therefore, creating a disadvantage for new customers (Canhota, 2018).

⁹ World Bank Global Findex, measures how adults save, borrow, make payments, and manage risk.

Table 2: Descriptive Statistics

| Country | Count |
|--|-------|
| US | 12 |
| India | 11 |
| China | 7 |
| Uganda | 6 |
| Bangladesh, Canada, France, Zimbabwe | 3 |
| Afghanistan, Brazil, Djibouti, Egypt, Lesotho, Mauritania, Morocco, Nigeria, South Africa, Sudan, Tunisia, UK | 2 |
| Albania, Algeria, Angola, Arab Republic, Bahrain, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Burkina Faso, Burundi, Cameroon, Chad, Colombia, Comoros, Congo, Congo, Czech Republic, Estonia, Eswatini, Gabon, Germany, Ghana, Global, Guinea, Hungary, Iran, Iraq, Italy, Jordan, Kenya, Kuwait, Latvia, Lebanon, Liberia, Libya, Lithuania, Malawi, Mali, Mauritius, Mexico, Mozambique, Netherlands, Niger, Oman, Pakistan, Poland, Qatar, Russia, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Slovak Republic, Slovenia, Spain, Swaziland, Syria, Tanzania, Togo, United Arab Emirates, Vietnam, Yemen, Zambia | 1 |

Table 3: Descriptive Statistics

| Type of credit | Count | Share |
|-----------------------------------|-------|---------|
| Credit (formal) | 35 | 63.64% |
| Fringe lender | 8 | 14.55% |
| Microcredit | 4 | 7.27% |
| Mortgages | 3 | 5.45% |
| Credit (formal) and fringe lender | 2 | 3.64% |
| Credit (formal and informal) | 1 | 1.82% |
| Inclusion Index | 1 | 1.82% |
| Peer to peer (P2P) | 1 | 1.82% |
| Total | 55 | 100.00% |

| Unit of analysis | Count | Share |
|------------------|-------|---------|
| Households* | 38 | 69.09% |
| SMEs | 8 | 14.55% |
| Country level | 3 | 5.45% |
| Entrepreneurs | 3 | 5.45% |
| Farmers | 3 | 5.45% |
| Total | 55 | 100.00% |

*Includes Individuals

| Region | Count | Share |
|----------------------|-------|---------|
| Developing countries | 34 | 61.81% |
| Developed countries | 21 | 38.18% |
| Total | 55 | 100.00% |

Finally, in step 5, we classify the sample of articles in themes based on the demographic and socio-economic characteristics analysed in each paper. To do so, first we, the three researchers, classified the articles into categories independently. Subsequently, we compared the results of the categorisation of each researcher and decided a final categorisation by resolving any disparities by discussion. We identify six group of demographic and socio-economic categories

shown in Table 4. We observe that the most frequently researched characteristics in terms of financial inclusion are education and financial literacy, income and wealth, and gender. These are followed by age, racial and social class, and household size and location, respectively.

Table 4: Identified Themes

| Themes | Number of papers* |
|-----------------------------------|--------------------------|
| Education and Financial Literacy | 34 |
| Income and Wealth | 31 |
| Gender | 30 |
| Age | 21 |
| Race, Social Class and Disability | 18 |
| Household Size and Location | 14 |

*The numbers reported are based on the themes covered by a paper. A paper can appear in multiple themes. Hence, total number of papers reported in this table exceeds 55.

4 Results

4.1 Education and Financial Literacy

In general, educated individuals are expected to make more informed decisions throughout their life. It is argued that more educational attainment is also strongly linked to better financial decision-making and greater wealth (Boshara et al., 2015). However, even though it may be argued that education is linked with financial literacy, there may be differences across educational attainment and financial knowledge, in particular numeracy skills, which maybe more relevant to financial decision making (Lusardi and Mitchell 2007; Christelis, Jappelli, and Padula, 2010). Hence, financial literacy is a more specific term which could be defined as “individuals’ ability of understanding financial products and concepts, financial risks and opportunities and make informed choices accordingly to accumulate savings, diversify assets, and purchase insurance” (OECD, 2005). Financial literacy is of more importance for individuals when financial products are more complex, an increasing trend in banking services.

In Table 5 we present a summary of the findings of the studies in the literature that examines education and financial literacy as a determinant of financial inclusion. On the final two columns we show the relationship between education and financial literacy for each article using directional arrows. Here an upward arrow indicates a positive relationship between the two attributes and financial inclusion, indicating that individuals with higher levels of education and financial literacy are more likely to have credit.

Empirical evidence overwhelmingly shows that having more education and/or being financially literate increases access to credit. Households with better education is found to be associated with greater use of formal finance in China (Fungáčová and Weill, 2015; Chen and Jin, 2017), UK (Deku et al., 2015), India (Karthick and Madheswaran, 2018; Barik and Sharma, 2019), Nigeria (Silong and Gadanakis, 2019), Germany, France, Italy, Spain (Nuzzo and Piermattei, 2019), MENAP¹⁰ region (Shihadeh, 2018), and globally (Klapper and Singer, 2015). They are also found to be receiving more favourable terms when borrowing in P2P platforms (Xu et al., 2018) and able to access to larger amount of formal credit (Luan, 2019). Only a handful of studies do not find a difference between less or more educated (Stegman and Faris, 2005; Majumdar, 2013; Xu et al., 2018; Xu et al., 2019) or financially literate (Lamb, 2016) households in accessing finance. Furthermore, the influence of education on financial inclusion does not vary between developed and developing countries. This finding is also supported by comparative studies, such as Islam and Simpsons (2017). They find that the determinants of financial exclusion are similar in Canada and Bangladesh. We find that households with lower levels of education are more likely to be users of fringe finance and payday loans (Bowles et al., 2011; Islam and Simpsons, 2017; Lee and Kim, 2017) or other alternative sources of borrowing (Fungáčová and Weill, 2015). Reliance of informal finance is also higher for households with poor financial knowledge (Cull et al., 2018).

Looking at SMEs, literature finds that owners with lower financial literacy pay higher interest rates (Nkundabanyanga et al., 2013) and have a limited access to formal credit (Nkundabanyanga et al., 2013; Mishra and Tripathi, 2017; Xu et al., 2019). Similarly, Nikaido et al. (2015) and Kairiza et al. (2017) find that SME owners' education level are positively associated with access to formal credit. Financial literacy is also found to have a moderating effect in the relationship between access to finance and growth of SMEs in developing economies (Bongomin, 2017).

¹⁰ Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Yemen, Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia.

Table 5: Education, Financial Literacy and Access to Credit

This table summarises the main findings of the literature that examines Education and Financial Literacy as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an upward arrow for Education indicates that a household with higher educational attainment is more likely to be access to finance.

| Authors, date | Data | | | | | Education | Financial Literacy |
|---------------------------------|------------|-------------------------------|-------------------|-----------------------------------|-------------|-----------|--------------------|
| | Period | Region | Level of Analysis | Product | Sample Size | | |
| Stegman and Faris (2005) | 2000-2001 | US | Households | Credit (formal) | 1,501 | No | |
| Simpson and Buckland (2009) | 1999-2005 | Canada | Households | Credit (formal) | 15,933 | ↑ | ↑ |
| Bowles et al. (2011) | 2009-2010 | Canada | Households | Fringe lender | 176 | ↑ | |
| Nkundabanyanga et al. (2013) | 2011 | Uganda | SME | Credit (formal) | 384 | | ↑ |
| Majumdar (2013) | 2011 | India | Households | Fringe lender | 20,753 | No | |
| Fungáčová and Weill (2015) | 2011 | China, Brazil, Russia, India | Households | Credit (formal) | 4,179 | ↑ | |
| Nikaido et al. (2015) | 2005-2006 | India | SME | Credit (formal) | 82,504 | ↑ | |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | ↑ | |
| Rao et al. (2015) | 2007-2010 | US | Households | Fringe lender | 10,800 | ↑ | |
| Corrado and Corrado (2015) | 2008-2010 | Multi-country* | Households | Credit (formal) | 25,000 | ↑ | |
| Klapper and Singer (2015) | 2011 | Multi-country† | Households | Credit (formal) | 38,000 | ↑ | |
| Lamb (2016) | 2009 | Canada | Households | Credit (formal and informal) | 105 | | No |
| Islam and Simpson (2017) | 2005-2014 | Canada, Bangladesh | Households | Credit (formal) and fringe lender | 15,519 | ↑ | |
| Ghosh and Vinod (2017) | 2013 | India | Households | Credit (formal) | 110,800 | ↑ | |
| Bongomin (2017) | N/A | Uganda | SME | Credit (formal) | 169 | | ↑ |
| Mishra and Tripathi (2017) | 2015 | India | Entrepreneurs | Credit (formal) | 230 | ↑ | |
| Chen and Jin (2017) | 2011 | China | Households | Credit (formal) | 8,438 | ↑ | |
| Kairiza et al. (2017) | 2012 | Zimbabwe | SME | Inclusion Index | 1,795 | ↑ | |
| Lee and Kim (2017) | 2007-2013 | US | Households | Fringe lender | 16,915 | ↑ | |
| Cull et al. (2018) | 2013 | China | Households | Credit (formal and informal) | 28,100 | ↑ | ↑ |
| Xu et al. (2018) | 2015 | China | Households | Peer to peer | 10,348 | ↑ | |
| Shihadeh (2018) | 2014 | MENAP* | Households | Credit (formal) | 16,105 | ↑ | |
| Xu et al. (2018) | 2012-2015 | China | SME | Credit (formal) | 617 | No | ↑ |
| Karthick and Madheswaran (2018) | 2013 | India | Households | Credit (formal) | 31,162 | ↑ | |
| Barik and Sharma (2019) | 2004-2017 | India | Households | Credit (formal) | N/A | ↑ | |
| Xu et al. (2019) | 2015 | China | SME | Credit (formal) | 3,243 | No | ↑ |
| Luan (2019) | 2017 | Vietnam | Farmer | Credit (formal) | 548 | ↑ | |
| Silong and Gadanakis (2019) | 2010-2011 | Nigeria | Farmer | Credit (formal) | 216 | ↑ | |
| Nuzzo and Piermattei (2019) | 2011-2017 | Germany, France, Italy, Spain | Households | Credit (formal) | 150,000 | ↑ | ↑ |
| Morsy (2020) | 2011-2017 | Global | Country | Credit (formal) | 376 | ↑ | |

*Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia, Turkey

†Angola, Djibouti, Mauritania, Sudan, Benin, Egypt, Arab Republic, Mauritius, Swaziland, Botswana, Gabon, Morocco, Tanzania, Burkina Faso, Ghana, Mozambique, Togo, Burundi, Guinea, Niger, Tunisia, Cameroon, Kenya, Nigeria, Uganda, Chad, Lesotho, Rwanda, Zambia, Comoros, Liberia, Senegal, Zimbabwe, Congo, Malawi, Sierra Leone, Mali, South Africa

‡Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Yemen, Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia.

Women are more likely to be excluded from the financial sector in countries where gaps between women and men in educational attainment are large (Morsy, 2020). Rao et al. (2015) finds that female-headed households may be more susceptible to misinformation and false advertising by fringe lenders, perhaps due to lower levels of financial literacy. They are also more likely to display a lack of financial knowledge and confidence in loan application to formal credit institutions (Xu et al., 2018). Relatedly, Ghosh and Vinod (2017) argue that more education increases financial inclusion for female-headed households in India.

In summary, it is evident from the empirical evidence that being more educated and/or financially literate increases households' and entrepreneurs' access to formal credit, and with better terms, perhaps due to their ability to make informed choices. There is also some evidence that less educated or financially illiterate individuals are more likely to be customers of fringe finance. These patterns are observed equally in developed and developing countries.

4.2 Income and Wealth

Higher income and accumulated wealth are often key prerequisites in accessing formal credit as banks assess borrowers' ability to payback predominantly through applicants' income levels and generated wealth. Therefore, it is plausible to expect a direct link between income and wealth levels and access to formal credit. We have identified 31 studies that examine income and/or wealth as a determinant of credit exclusion. However, it is important to highlight that most of these empirical studies use income and/or wealth as a control variable in their attempt to establish causal relationships between other variables (such as gender, race etc.) and access to finance in their analysis.

We present results in Table 6. Apart from few exceptions (Wyly, 2009; Lee and Kim, 2017; Silong and Gadanakis, 2019) empirical literature provides overwhelming evidence that households with lower incomes and less accumulated wealth are more likely to be excluded from the formal credit market. Studies looking at multi-country data find that poor and low-income families are more likely not to have formal credit (Klapper and Singer, 2015; Corrado and Corrado, 2015; Shihadeh 2018). We do not observe any difference in the impact of income and wealth between developed and developing countries. Household income and/or wealth is found to be a significant determinant of obtaining formal credit in the US (Dunham, 2019; Kim et al., 2019), Netherlands (Aalbers, 2007), UK (Deku et al., 2015), Canada (Simpson and Buckland,

2009), France (Cozarenco and Szafarz, 2018; Nuzzo and Piermattei, 2019), Germany, Italy and Spain (Nuzzo and Piermattei, 2019).

Similar relationships are also observed in developing countries such as in Mexico, Columbia and Brazil, where poor rarely feel welcome (Solo, 2008), in Bangladesh where households with lower income and wealth are less likely to have microcredit (Islam and Simpson, 2017), in Uganda where scarcity of loanable funds is more severe in poorer groups and affects disproportionately their poorest members (Burlando and Canidio, 2017), in China where household use of formal credit was limited and skewed toward the already better-off (Fungáčová and Weill, 2015; Chen and Jin, 2017) and SME owners with higher net worth are more likely to have access to loans (Xu et al., 2018), in India where poor are less likely to have credit (Barik and Sharma, 2019) and borrowing costs are found to be lower for wealth (Ghosh and Vinod, 2017), and in South Africa where households in the bottom half of the income distribution is disadvantaged (Fintel and Orthofer, 2020).

Literature also provides evidence that households excluded from the formal credit markets are more likely to resort to fringe financial intermediaries or informal finance. Majumdar (2013) finds that a good proportion of moneylenders meet the demand of low-income households. Wealth is found to be a key determinant of financial credit exclusion in the context of payday loan borrowing in Canada (Islam and Simpson, 2017). In the US, check cashing outlets are more prevalent than banks in areas where the median household income is lower (Dunham, 2019) and payday loans and pawnshops are more likely to be used by lower income households (Kim et al., 2019). In China, the incidence of informal loans is reported to be more prevalent in poorer regions (Cull et al., 2018).

Finally, it is argued that the impact of income and wealth on accessing formal credit is more detrimental for female household-heads and gender differences in formal credit markets manifest themselves indirectly through income (Klapper and Singer, 2015). Rao et al. (2015) finds that in the US, additional income has greater impact on the likelihood of being banked for female-headed households than for other households. Ghosh and Vinod (2017), for India, finds that female-headed households' income is a more relevant factor in explaining access to finance.

Table 6: Income, Wealth and Access to Credit

This table summarises the main findings of the literature that examines Income and Wealth as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an upward arrow for Income indicates that a household with higher income is more likely to be access to finance.

| Authors, date | Data | | | | | Income | Wealth |
|------------------------------|------------|-------------------------------|-------------------|-----------------------------------|-------------|--------|--------|
| | Period | Region | Level of Analysis | Product | Sample Size | | |
| Aalbers (2007) | 2006 | Netherlands | Households | Mortgages | 30 | ↑ | |
| Solo (2008) | 2004-2007 | Brazil, Colombia, Mexico | Households | Credit (formal) | N/A | ↑ | |
| Wyly (2009) | 2004, 2006 | US | Households | Mortgages | 17,400,000 | No | |
| Simpson and Buckland (2009) | 1999-2005 | Canada | Households | Credit (formal) | 15,933 | | ↑ |
| Bowles et al. (2011) | 2009-2010 | Canada | Households | Fringe lender | 176 | ↑ | |
| Majumdar (2013) | 2011 | India | Households | Fringe lender | 20,753 | ↑ | |
| Fungáčová and Weill (2015) | 2011 | China, Brazil, Russia, India | Households | Credit (formal) | 4,179 | ↑ | |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | ↑ | |
| Rao et al. (2015) | 2007-2010 | US | Households | Fringe lender | 10,800 | ↑ | |
| Corrado and Corrado (2015) | 2008-2010 | Multi-country* | Households | Credit (formal) | 25,000 | ↑ | ↑ |
| Klapper and Singer (2015) | 2011 | Multi-country [†] | Households | Credit (formal) | 38,000 | ↑ | ↑ |
| Islam and Simpson (2017) | 2005-2014 | Canada, Bangladesh | Households | Credit (formal) and fringe lender | 15,519 | ↑ | ↑ |
| Burlando and Canidio (2017) | 2013 | Uganda | SME | Credit (formal) | 983 | ↑ | |
| Ghosh and Vinod (2017) | 2013 | India | Households | Credit (formal) | 110,800 | ↑ | |
| Chen and Jin (2017) | 2011 | China | Households | Credit (formal) | 8,438 | ↑ | ↑ |
| Lee and Kim (2017) | 2007-2013 | US | Country | Fringe lender | 16,915 | No | |
| Cull et al. (2018) | 2013 | China | Farmer | Credit (formal and informal) | 28,100 | ↑ | |
| Shihadeh (2018) | 2014 | MENAP [‡] | Households | Credit (formal) | 16,105 | ↑ | |
| Xu et al. (2018) | 2012-2015 | China | Households | Credit (formal) | 617 | | ↑ |
| Cozarenco and Szafarz (2018) | 2008-2012 | France | Households | Microcredit | 1,098 | ↑ | |
| Barik and Sharma (2019) | 2004-2017 | India | Households | Credit (formal) | N/A | ↑ | |
| Dunham (2019) | 2010 | US | Households | Fringe lender | 998 | ↑ | |
| Silong and Gadanakis (2019) | 2010-2011 | Nigeria | Households | Credit (formal) | 216 | No | |
| Rana and Viswanathan (2019) | 2011-2012 | India | SME | Microcredit | 41,215 | ↓ | |
| Nuzzo and Piermattei (2019) | 2011-2017 | Germany, France, Italy, Spain | Households | Credit (formal) | 150,000 | ↑ | |
| Kim et al. (2019) | 2015 | US | Households | Credit (formal) | 24,001 | ↑ | |
| Fintel and Orthofer (2020) | 2010, 2015 | South Africa | SME | Credit (formal) | 40,257 | ↑ | |

*Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia, Turkey

[†]Angola, Djibouti, Mauritania, Sudan, Benin, Egypt, Arab Republic, Mauritius, Swaziland, Botswana, Gabon, Morocco, Tanzania, Burkina Faso, Ghana, Mozambique, Togo, Burundi, Guinea, Niger, Tunisia, Cameroon, Kenya, Nigeria, Uganda, Chad, Lesotho, Rwanda, Zambia, Comoros, Liberia, Senegal, Zimbabwe, Congo, Malawi, Sierra Leone, Mali, South Africa

[‡]Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Yemen, Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia.

Overall, the empirical evidence shows that individuals with lower income and less wealth are disadvantaged in credit markets and this is equally observed in both developed and developing countries. Excluded households are likely to resort to fringe finance in both types of countries.

4.3 Gender

Female's ability to access to financial services and formal credit is a widely and more directly research area in the literature. It is often argued that women face greater barriers in accessing banking products and are more likely to be credit-constrained than men. We present our results in Table 7. The findings of the literature seem to be mixed, out of the 30 academic articles we have identified around a third that do not find women to be disadvantaged in the credit markets. In particular, studies that focus on the US provide empirical evidence for both sides of the argument. Wyly (2009), Brown et al. (2019) and Stegman and Faris (2005) do not find any significant difference between women and men in accessing formal credit. In contrast, Kim et al. (2019) find that females are more likely to be customers of payday lenders or pawnshops. Rao et al. (2015) finds that in the US an additional child increases female-headed households' likelihood of being excluded in the formal credit markets in comparison to couples or male-headed households.

Findings regarding China is also split and inconclusive. On the one hand, empirical evidence shows that there is no gender disparity in accessing formal credit in China (Chen and Jin, 2017; Cull et al., 2018; Xu et al., 2019). On the other hand, Xu et al. (2018) find that women expressed having more barriers to obtaining a business loan than men even though they were less likely to default a loan in comparison to men. Chen et al. (2020) reports similar results from a study that focuses on peer-to-peer platforms in China. They show that loans borrowed by women show better performance with lower probability of default and a higher expected profit in comparison to loans issued to men. However, despite better credit outcomes, female borrowers only achieve similar funding probability to men. Hence, the authors argue that in China's peer-to-peer market's female borrowers face a gender gap.

For India, the empirical evidence is more robust, showing that women are disadvantaged when borrowing formal credit, in particular for business finance. Sandhu et al. (2012) find that loan rejection rates for female business owners or managers are greater than those of their male counterparts, and, for approved loans, there were more requirements of collateral for female

applicants. The authors argue that females are affected as a result of gender prejudices inherent in the male dominated banking sector in India. Similarly, it is found that enterprises with female owners with engagement engaged in capital intensive industries are more likely to face credit constraints (Nikaido et al., 2015). In contrast, Mishra and Tripathi (2017) do not report a gender gap when examining loans borrowed by tribal entrepreneurs. For household borrowing, Ghosh and Vinod (2017), Mani (2018) and Barik and Sharma (2019) report that female-headed households are less likely to access formal finance. Ghosh and Vinod (2017) also finds that they are more likely to have informal finance as compared to male-headed households, and borrow smaller amounts of loans.

In France, a develop country, studies looking at microfinance provide empirical evidence supporting the existence of gender inequalities. Brana (2013) shows that gender is a decisive factor regarding the amount of credit provided to borrowers when comparing with other factors in the borrower and firm profile, and females are disadvantaged. Cozarenco and Szafarz (2018) argue that a regulatory change imposing a strict EUR 10,000 loan ceiling on microcredit in France led to a harsher treatment of female borrowers in terms of loan access in comparison to men. For Canada, Bowles et al. (2011) find that females are more likely to use fringe financial products. In contrast, for the UK, Deku et al. (2015) finds that women are not disadvantaged when accessing consumer loans.

For many developing countries, empirical evidence consistently indicates towards gender inequalities in the market for formal credit. Mani (2018) reports that in Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan and Sri Lanka females are less likely to use formal credit. Chowdhury et al. (2018) find that in Bangladesh females face more stringent collateral requirements, terms and conditions for business loans in comparison to males. Examining the multi-country setting of MENAP countries, Shihadeh (2018) also reports that females are less likely to be included in formal credit markets. For Bolivia, using experimental data, Martínez et al. (2019) find that non-indigenous women household-heads' loan applications are more likely to be rejected.

Similar conclusions are drawn for African countries. In Eswatini, Lesotho and Zimbabwe female entrepreneurs have more constrained access to credit than do men perhaps due to the lack of collateral assets, such as land (Brixiová et al., 2020). In Nigeria, fewer women are found to be accessing formal credit than men, and women tend to use non-formal sources of finance (Silong and Gadanakis, 2019). For Zimbabwe, Kairiza et al. (2017) finds some evidence of female

Table 7: Gender and Access to Credit

This table summarises the main findings of the literature that examines Gender as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an upward arrow for Female indicates that a female household is likely to be access to finance.

| Authors, date | Data | | | | | Female |
|------------------------------|------------|--|-------------------|------------------------------|-------------|--------|
| | Period | Region | Level of Analysis | Product | Sample Size | |
| Stegman and Faris (2005) | 2000-2001 | US | Households | Credit (formal) | 1,501 | No |
| Wyly (2009) | 2004, 2006 | US | Households | Mortgages | 17,400,000 | No |
| Bowles et al. (2011) | 2009-2010 | Canada | Households | Fringe lender | 176 | ↓ |
| Sandhu et al. (2012) | 2011 | India | Farmer | Credit (formal) | 63 | ↓ |
| Brana (2013) | 2000-2006 | France | Entrepreneurs | Microcredit | 3,640 | ↓ |
| Fungáčová and Weill (2015) | 2011 | China, Brazil, Russia, India | Households | Credit (formal) | 4,179 | ↓ |
| Nikaido et al. (2015) | 2005-2006 | India | SME | Credit (formal) | 82,504 | ↓ |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | No |
| Rao et al. (2015) | 2007-2010 | US | Households | Fringe lender | 10,800 | ↓ |
| Corrado and Corrado (2015) | 2008-2010 | Multi-country* | Households | Credit (formal) | 25,000 | No |
| Klapper and Singer (2015) | 2011 | Multi-country† | Households | Credit (formal) | 38,000 | ↓ |
| Ghosh and Vinod (2017) | 2013 | India | Households | Credit (formal) | 110,800 | ↓ |
| Mishra and Tripathi (2017) | 2015 | India | Entrepreneurs | Credit (formal) | 230 | No |
| Chen and Jin (2017) | 2011 | China | Households | Credit (formal) | 8,438 | No |
| Kairiza et al. (2017) | 2012 | Zimbabwe | SME | Inclusion Index | 1,795 | ↓ |
| Cull et al. (2018) | 2013 | China | Households | Credit (formal and informal) | 28,100 | No |
| Shihadeh (2018) | 2014 | MENAP‡ | Households | Credit (formal) | 16,105 | ↓ |
| Xu et al. (2018) | 2012-2015 | China | SME | Credit (formal) | 617 | ↓ |
| Mani (2018) | 2014-2016 | Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka | Country | Credit (formal) | N/A | ↓ |
| Chowdhury et al. (2018) | 2011 | Bangladesh | Entrepreneurs | Credit (formal) | 152 | ↓ |
| Cozarenco and Szafarz (2018) | 2008-2012 | France | Households | Microcredit | 1,098 | ↓ |
| Barik and Sharma (2019) | 2004-2017 | India | Households | Credit (formal) | N/A | ↓ |
| Martínez et al. (2019) | 2016 | Bolivia | Households | Credit (formal) | 70 | ↓ |
| Xu et al. (2019) | 2015 | China | SME | Credit (formal) | 3,243 | No |
| Brown et al. (2019) | 1999-2015 | US | Households | Credit (formal) | 45,320 | No |
| Silong and Gadanakis (2019) | 2010-2011 | Nigeria | Farmer | Credit (formal) | 216 | ↓ |
| Kim et al. (2019) | 2015 | US | Households | Credit (formal) | 24,001 | ↓ |
| Morsy (2020) | 2011-2017 | Global | Country | Credit (formal) | 376 | ↓ |
| Chen et al. (2020) | 2012-2014 | China | Households | Credit (formal) | 287,504 | ↓ |
| Brixiová et al. (2020) | 2016 | Eswatini, Lesotho, Zimbabwe | SME | Credit (formal) | 662 | ↓ |

*Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia, Turkey

†Angola, Djibouti, Mauritania, Sudan, Benin, Egypt, Arab Republic, Mauritius, Swaziland, Botswana, Gabon, Morocco, Tanzania, Burkina Faso, Ghana, Mozambique, Togo, Burundi, Guinea, Niger, Tunisia, Cameroon, Kenya, Nigeria, Uganda, Chad, Lesotho, Rwanda, Zambia, Comoros, Liberia, Senegal, Zimbabwe, Congo, Malawi, Sierra Leone, Mali, South Africa

‡Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Yemen, Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia.

entrepreneurs being excluded from the formal financial markets. In a cross-country developing country analysis, including many countries from Africa, Klapper and Singer (2015) find that females are more likely to use informal credit, indicating a degree of inability to access formal credit. Providing global empirical evidence by examining the Global Findex data, Morsy (2020) reports a gender gap in formal credit markets. They argue that women are disadvantaged in countries where foreign-owned banks have smaller presence, state-owned banks have a bigger share in the banking system, and credit history information is less available.

Summarising this section, empirical evidence whether women has difficulty in accessing formal finance is mixed for some major economies, such as the US and China, vouching for further investigation. In contrast, there is strong evidence that women are disadvantaged in credit markets in India, in many African and other developing countries. Evidence shows that women are more likely to be rejected, pay higher costs and resort to alternative sources of finance.

4.4 Age

We present our results for Age in Table 8. It is important to note that in our data we observe age being used as a control variable rather than the main focus of the analysis. This is perhaps younger households are likely to face credit constraints due to the indirect effects of having less financial literacy or education, less wealth or income (Simpson and Buckland, 2009). Hence often it is difficult to detangle the impact of age on financial inclusion among other closely related socio-economic characteristics.

We find that results on the impact of age in accessing formal credit is mixed and inconclusive. A number of studies find that age does not matter in accessing formal credit (Bowles et al., 2011; Rao et al., 2015; Corrado and Corrado, 2015; Xu et al., 2018; Cozarenco and Szafarz, 2018; Xu et al., 2019; Brown et al., 2019; Luan, 2019; Silong and Gadanakis, 2019). Others report that younger adults are less likely to have formal credit (Deku et al., 2015; Klapper and Singer, 2015; Fungáčová and Weill, 2015; Chen and Jin, 2017; Kairiza et al., 2017; Shihadeh, 2018; Barik and Sharma, 2019). Having less probability to obtain a loan, younger households are found to resort to fringe finance (Lee and Kim, 2017; Kim et al., 2019), as well as informal finance (Cull et al., 2018). We also do not detect significant country specific or regional patterns with the exception of India where empirical findings indicate that younger adults are more likely to be excluded from the formal credit markets (Karthick and Madheswaran, 2018; Barik and Sharma, 2019).

Table 8: Age and Access to Credit

This table summarises the main findings of the literature that examines Age as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an upward arrow for Age indicates that a younger household is likely to be access to finance.

| Authors, date | Data | | | | | Age |
|---------------------------------|------------|------------------------------|-------------------|------------------------------|-------------|-----|
| | Period | Region | Level of Analysis | Product | Sample Size | |
| Simpson and Buckland (2009) | 1999-2005 | Canada | Households | Credit (formal) | 15,933 | ↓ |
| Bowles et al. (2011) | 2009-2010 | Canada | Households | Fringe lender | 176 | No |
| Fungáčová and Weill (2015) | 2011 | China, Brazil, Russia, India | Households | Credit (formal) | 4,179 | ↓ |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | ↓ |
| Rao et al. (2015) | 2007-2010 | US | Households | Fringe lender | 10,800 | No |
| Corrado and Corrado (2015) | 2008-2010 | Multi-country* | Households | Credit (formal) | 25,000 | No |
| Klapper and Singer (2015) | 2011 | Multi-country† | Households | Credit (formal) | 38,000 | ↓ |
| Chen and Jin (2017) | 2011 | China | Households | Credit (formal) | 8,438 | ↓ |
| Kairiza et al. (2017) | 2012 | Zimbabwe | SME | Inclusion Index | 1,795 | ↓ |
| Lee and Kim (2017) | 2007-2013 | US | Households | Fringe lender | 16,915 | ↓ |
| Cull et al. (2018) | 2013 | China | Households | Credit (formal and informal) | 28,100 | ↓ |
| Shihadeh (2018) | 2014 | MENAP‡ | Households | Credit (formal) | 16,105 | ↓ |
| Xu et al. (2018) | 2012-2015 | China | SME | Credit (formal) | 617 | No |
| Karthick and Madheswaran (2018) | 2013 | India | Households | Credit (formal) | 31,162 | ↓ |
| Cozarenco and Szafarz (2018) | 2008-2012 | France | Households | Microcredit | 1,098 | No |
| Barik and Sharma (2019) | 2004-2017 | India | Households | Credit (formal) | N/A | ↓ |
| Xu et al. (2019) | 2015 | China | SME | Credit (formal) | 3,243 | No |
| Brown et al. (2019) | 1999-2015 | US | Households | Credit (formal) | 45,320 | No |
| Luan (2019) | 2017 | Vietnam | Farmer | Credit (formal) | 548 | No |
| Silong and Gadanakis (2019) | 2010-2011 | Nigeria | Farmer | Credit (formal) | 216 | No |
| Kim et al. (2019) | 2015 | US | Households | Credit (formal) | 24,001 | ↓ |

*Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia, Turkey

†Angola, Djibouti, Mauritania, Sudan, Benin, Egypt, Arab Republic, Mauritius, Swaziland, Botswana, Gabon, Morocco, Tanzania, Burkina Faso, Ghana, Mozambique, Togo, Burundi, Guinea, Niger, Tunisia, Cameroon, Kenya, Nigeria, Uganda, Chad, Lesotho, Rwanda, Zambia, Comoros, Liberia, Senegal, Zimbabwe, Congo, Malawi, Sierra Leone, Mali, South Africa

‡Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Yemen, Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia.

4.5 Race, Social Class and Disability

Economists have long been interested in studying racial prejudice and its economic consequences (see for example Becker, 1957; Arrow 1972, 1973; Donohue and Heckman, 1991; Card and Krueger, 1992; Wilson, 1996; Darity and Mason, 1998, among others). Empirical evidence from these studies shows that discrimination based on race is one of the key drivers of economic disparities. Racial inequalities in credit markets have been studied extensively in the US since the 1970s (see for instance Black et al., 1978; Schafer and Ladd, 1981; Benston and Horsky, 1992; Munnell et al., 1996; Tootell, 1996; Phillips-

Patrick and Rossi, 1996; Siskin and Cupingood, 1996), and these studies find that non-White households are less likely to be granted credit, offered less attractive terms for mortgages, pay higher interest rates and are more likely to be subject to predatory lending practices. In a similar vein social class, especially in countries where there are aboriginal peoples or caste systems, is often considered as an impediment to access various financial services.

We present our results regarding the relationship between race, social class and disability and access to formal credit in Table 9. We find a larger number of empirical studies in the category of race, including aboriginal populations in countries. Empirical evidence covered by the studies in our data unanimously find that racial background is a determinant of access to formal credit, and that non-Whites are disadvantaged. We find that almost two thirds of these studies are based on US data. Evidence shows that racial minorities are significantly more isolated from the mainstream financial credit (Stegman and Faris, 2005) and, in particular, black (African-American) households have much lower access to credit cards, and are more likely to anticipate and experience credit denials (Wyly, 2009; Charron-Chénier and Seamster, 2020). Excluded from the formal credit mechanisms, households from non-White backgrounds (Black, Latino and Asian) are more likely to meet their financing needs through high-cost payday lenders, pawn brokers, and rent-to-own stores in comparison to White households (Stegman and Faris, 2005; Lee and Kim, 2017; Kim et al., 2019; Faber, 2019; Dunham, 2019; Charron-Chénier, 2020; Charron-Chénier and Seamster, 2020). Overall, Black households are found to be facing the highest inequality in formal credit markets.

Evidence from the UK also shows that non-White households are less likely to have consumer credit compared to white households, and their intensity of borrowing is lower (Deku et al., 2015). Black households with low incomes are also less likely to have mortgages when compared to White households with similar characteristics (Kara and Molyneux, 2017). Bowles et al. (2011)

Table 9: Race, Social Class, Disability and Access to Credit

This table summarises the main findings of the literature that examines Race, Social Class and Disability as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an arrow for Race indicates that a non-white household is more likely to access to finance.

| Authors, date | Data | | | | | Race or Aboriginal | Social Class or Immigrants | Disabled |
|---------------------------------------|------------|---------|-------------------|-----------------------------------|-------------|-----------------------|----------------------------------|----------|
| | Period | Region | Level of Analysis | Product | Sample Size | | | |
| Stegman and Faris (2005) | 2000-2001 | US | Households | Credit (formal) | 1,501 | ↓ | | |
| Wyly (2009) | 2004, 2006 | US | Households | Mortgages | 17,400,000 | ↓ | | |
| Joassart-Marcelli and Stephens (2015) | 2000 | US | Households | Fringe lender (Payday loans etc.) | 1,120 | | ↓ | |
| Bowles et al. (2011) | 2009-2010 | Canada | Households | Fringe lender (Payday loans etc.) | 176 | ↓ | | |
| Beisland and Mersland (2012) | 2008 | Uganda | Households | Credit (formal) | 841 | | | ↓ |
| Labie et al. (2015) | 2008-2009 | Uganda | Households | Microcredit | 231 | | | ↓ |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | ↓ | | |
| Mishra and Tripathi (2017) | 2015 | India | Entrepreneurs | Credit (formal) | 230 | | ↓ | |
| Kara and Molyneux (2017) | 2003-2010 | UK | Households | Mortgages | 29,732 | ↓ | | |
| Lee and Kim (2017) | 2007-2013 | US | Households | Fringe lender (Payday loans etc.) | 16,915 | ↓ | | |
| Raj and Sasidharan (2018) | 2006-2007 | India | SME | Credit (formal) | 1,300,000 | | ↓ | |
| Martínez et al. (2019) | 2016 | Bolivia | Households | Credit (formal) | 70 | ↓ | | |
| Dunham (2019) | 2010 | US | Households | Fringe lender | 998 | ↓ | | |
| Faber (2019) | 2011-2015 | US | Households | Fringe lender (Payday loans etc.) | 50,809 | ↓ | | |
| Luan (2019) | 2017 | Vietnam | Farmer | Credit (formal) | 548 | | | ↓ |
| Rana and Viswanathan (2019) | 2011-2012 | India | Households | Microcredit | 41,215 | | | ↑ |
| Kim et al. (2019) | 2015 | US | Households | Credit (formal) | 24,001 | ↓ | | |
| Charron-Chénier (2020) | | US | Households | Fringe lender (Payday loans etc.) | | ↓ | | |
| Charron-Chénier and Seamster (2020) | 2016 | US | Households | Credit (formal) and fringe lender | 6,248 | ↓ | | |

argue that in Canada Aboriginal population face higher levels of credit exclusion and they are more likely to finance themselves from fringe finance institutions. For Bolivia, Martínez et al. (2019) find that a positive taste-based discrimination exists in credit lending for non-indigenous women compared with indigenous. Similarly, Luan (2019) finds that in Vietnam farmers from ethnic minorities are more likely to obtain smaller loans in comparison to Kinh ethnic majority.

We identify three articles, all examining Indian data, that study the impact of caste systems on access to credit. Raj and Sasidharan (2019) find that Scheduled Castes and Scheduled Tribes are socially excluded from the mainstream due to the persistence of caste and are much more likely to face barriers to credit access. Similarly, Mishra and Tripathi (2017) show that Tribal entrepreneurs face lack of finance for starting as well as growing their business. In contrast, Rana and Viswanathan (2019) find that microfinance programmes in India supports inclusiveness of economically disadvantaged and socially underprivileged, such as Dalit households.

Studies that investigate immigrants' ability to access formal finance is rare as we have only identified one article. Joassart-Marcelli and Stephens (2015) examines this issue in Boston (US) and find that Dominicans, Salvadorans, Haitians, and Vietnamese has limited access to formal banks loans combined with a disproportionate exposure to check cashers and pawn brokers. Finally, there is also research on disabled individuals based on Ugandan data. Labie et al. (2015) provides empirical evidence that loan officers are biased against disabled micro-entrepreneurs, which reduces their ability to access to formal loans. Within the disabled group, Beisland and Mersland (2012) finds that women and married individuals are more likely to access credit whereas farmers have less access to microcredit. Deaf people are found to be the most excluded when it comes to accessing credit.

In summary, evidence provided in this section shows that non-White individuals and people from ethnic minorities face inequality in accessing formal credit in many countries, particularly in the US. These segments of the society obtain required financing from fringe finance providers. Existing evidence, albeit limited to a handful of countries, are consistent across developed and developing countries. Caste system prevalent in India also disadvantages some households in accessing finance. Disabled individuals and immigrants may also be facing difficulty when obtaining formal finance but this evidence is drawn from two studies only.

Table 10: Household Size, Location, and Access to Credit

This table summarises the main findings of the literature that examines Household Size and Location as the determinants of Financial Inclusion. These measures may be proxied by different variables in each of these studies. Arrows indicate the direction of the relationship between the measures and financial inclusion. For example, an arrow for Households Size indicates that larger households are more likely to be access to finance.

| Authors, date | Data | | | | | Large Households | Location |
|---------------------------------|------------|--------------------|-------------------|-----------------------------------|-------------|------------------|----------|
| | Period | Region | Level of Analysis | Product | Sample Size | | |
| Aalbers (2007) | 2006 | Netherlands | Households | Mortgages | 30 | | ↓ |
| Simpson and Buckland (2009) | 1999-2005 | Canada | Households | Credit (formal) | 15,933 | ↓ | |
| Majumdar (2013) | 2011 | India | Households | Fringe lender | 20,753 | ↑ | |
| Deku et al. (2015) | 2001, 2009 | UK | Households | Credit (formal) | 58,642 | ↓ | |
| Corrado and Corrado (2015) | 2008-2010 | Multi-country* | Households | Credit (formal) | 25,000 | | ↓ |
| Islam and Simpson (2017) | 2005-2014 | Canada, Bangladesh | Households | Credit (formal) and fringe lender | 15,519 | ↓ | ↓ |
| Kairiza et al. (2017) | 2012 | Zimbabwe | SME | Inclusion Index | 1,795 | ↑ | |
| Cull et al. (2018) | 2013 | China | Households | Credit (formal and informal) | 28,100 | ↓ | |
| Karthick and Madheswaran (2018) | 2013 | India | Households | Credit (formal) | 31,162 | ↑ | |
| Dunham (2019) | 2010 | US | Households | Fringe lender | 998 | | ↓ |
| Brown et al. (2019) | 1999-2015 | US | Households | Credit (formal) | 45,320 | | ↓ |
| Luan (2019) | 2017 | Vietnam | Farmer | Credit (formal) | 548 | ↓ | |
| Silong and Gadanakis (2019) | 2010-2011 | Nigeria | Farmer | Credit (formal) | 216 | ↑ | |

* Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Macedonia, Montenegro, Romania, Serbia, Turkey

4.6 Household Size and Location

In this section we present our results for Household Size and Location. Household size is an attribute that is often employed in financial inclusion studies, generally as a control variable. It is difficult to interpret the casual relationship between household size and access to credit as this variable may be capturing different effects. For example, a larger household may indicate a poorer family where birth control is not adopted. However, it may also indicate wealth where people with higher incomes and wealth are more likely to have more children. Household size may also depend on the culture. Results, presented in Table 10, are inconclusive. A number of papers find that larger households are less likely

to access formal finance in Canada (Simpson and Buckland, 2009; Islam and Simpson, 2017), UK (Deku et al., 2015), Vietnam (Luan, 2019), Bangladesh (Islam and Simpson, 2017), and China (Cull et al., 2018). Conflicting empirical evidence are provided for India (Karthick and Madheswaran, 2018), Zimbabwe (Kairiza et al., 2017), and Nigeria (Silong and Gadanakis, 2019). At the same time two studies report that larger families are more likely to obtain credit from formal institutions as well as moneylenders (Majumdar, 2013; Kairiza et al., 2017). Cull et al. (2018) find that larger families rely on informal finance in China.

Household location is also identified as a possible disadvantage when accessing formal credit. Aalbers (2007) finds that households based in high-risk neighbourhoods in various cities in Netherlands are more likely to face place-based credit exclusion. Examining a set of countries in Eastern Europe, Corrado and Corrado (2015) find that population living in rural areas or deprived regions or localities are more likely to be excluded. Islam and Simpson (2017) find that region of residence are the key determinants of credit exclusion in Bangladesh and Canada. Dunham (2019) find that in the US, check cashing outlets are more prevalent than banks in areas where the there is a higher than average population density. Brown et al. (2019) show that growing-up in a financially developed area improves access to finance in the future. Accordingly, they show that individuals from financially underdeveloped Native American reservations enter consumer credit markets later, and upon reaching adulthood, have lower credit scores and more delinquent accounts. These identified effects are found to be long-lived and slowly disappear after the individuals move to more financially developed areas. Overall, location of the household may matter in accessing credit.

5 Discussion and Conclusion

Financial inclusion in general, and access to credit in particular, may play a key role in achieving the UN's SDGs in eliminating poverty, reducing hunger, achieving good health and well-being, fostering education, reducing gender inequality, providing clean water and energy, promoting full employment and innovation. However, some segments of the society are less privileged in accessing formal credit products, both in developed and developing countries, which makes this useful intermediary tool obsolete in achieving SDGs. In this paper, by reviewing the recent global empirical evidence in a systematic manner, we investigated the segments of the society that are more likely to be excluded from formal credit markets due to their demographic or socio-economic characteristics.

We identify four attributes that significantly determine households' access to credit. These are education and financial literacy, income and wealth, gender, and ethnic background and social class. Households who are less educated and/or financially literate, have lower income and less wealth, and are from minority ethnic backgrounds, face barriers in accessing credit from mainstream institutions in developed and developing countries alike. In addition, in many developing countries women are more likely to be deprived from formal credit. Evidence on gender inequality in some large economies, such as the US and China, is inconclusive. There is some evidence, based on a small number of empirical papers, that disabled people and immigrants are also facing credit exclusion. We do not find any consistent evidence regarding household size and age as a determinant factor of credit exclusion, with the exception of India where younger adults are more likely to be excluded. Our findings also highlight that excluded segments of the society resort to fringe finance institutions, which typically provide high-cost short-term credit that is unapt for medium- and long-term investment.

We believe our findings have potential to inform policymakers whether more and differentiated efforts should be devoted by the UN, national governments and other international organisations to different segments of the society in achieving SDGs. Globally, improving financial literacy should be in the agenda of every country as it seems to be an imperative factor in reducing inequalities in accessing credit and, therefore, accomplishing SDGs by providing more financing opportunities for households to smooth their income, insure against risks, and invest in better housing and further education and training. Financial literacy education should start at early ages.

In fact, Organisation for Economic Co-operation and Development (OECD), with its 65-member countries, has launched the work on national strategies for financial education in 2009 which aims to integrate financial education into curriculum in primary and secondary education (OECD, 2105). Such agenda should be taken up globally in all countries for increasing financial literacy.

Establishing lending programmes which may facilitate poorer households' (with lower income or less wealth) access to credit should be a global priority, and can potentially be achieved through setting up microfinance programmes. Even though the empirical evidence is inconclusive on the effectiveness of microfinance as a tool for reducing poverty, research provides clear guidance on the remedies that may make microfinance work. It is evident that microfinance institutions are less likely to achieve poverty reduction if they operate in a profit-orientated model and governance based on shareholder value maximisation. Hence, not-for-profit microfinance models, avoiding financialization of microcredit, should be encouraged to be established, both in developing and developed countries, supported by governments and development agencies. It is also suggested that commercial institutions with strong social missions, supported by government subsidies, could be an alternative to serve the financially excluded in the society (Cull et al., 2009). Regulation can also be an option where authorities could push mainstream commercial banks to lend to poorer areas on a minimum profit basis, to do their fair share to contribute to sustainable development goals. For example, in the US Office of the Comptroller of the Currency (OCC) proposes to modernise Community Reinvestment Act Regulations (first introduced in 1977) that are "intended to increase bank activity in low- and moderate-income communities where there is significant need for credit and greater access to banking services" (OCC, 2019). Another policy implication here is that credit products needs to be supplemented with other flexible financial products (such as savings and insurance) to help poor to adjust to their changing economic circumstances (Collins et al. 2009; Duvendack et al., 2011).

Reducing gender inequality is an explicitly defined goal in SDG 5. Access to finance could empower women in asserting their economic power and have more bargaining power, potentially reducing inequalities. However, the evidence shows that women in developing countries are already facing disparities in accessing credit. Hence, providing mechanisms for women to access finance should be a priority for developing country governments as well as international organisation. The World Bank Group has been working together with a number of developing

countries in projects to achieve this goal (Isaac, 2014). Recent empirical evidence we gathered shows that these efforts should be intensified to achieve SDGs.

Race and ethnic background disadvantages individuals in credit markets, even in developed countries such as the US and the UK where discrimination based on race is unlawful.¹¹ However, bank regulation does not seem to be sufficient in tackling such inequalities. It is, therefore, evident that there is a need for other mechanisms to be designed by developed and developing country governments, with the support of supranational institutions, for mitigating these inequalities in credit markets. Achieving SDGs across the globe would require policies that promote integration of ethnic minorities, often representing more deprived segments of societies in many countries.

It is often voiced that universal as well as multi-stakeholder partnership is paramount to share and mobilise expertise, knowledge, technology and financial resources for achieving SDGs in every country. Our research has shown that there is a disparity in sharing of financial sources in many countries, especially through credit often extended by private commercial banks which are key institutions in the financial system. Banks are certainly aware of the importance of sustainable development and often showcase their efforts through CSR reports. However, a common criticism of such reports is that they often serve as tools for business profitability (Frankental, 2001; Banerjee, 2008;). Supporting these arguments from a broader perspective, our findings indicate that banks' engagement with the implementation of SDGs, particularly on reducing inequalities, is weak. This raises the question whether they are doing enough on the field to help achieving SDGs. Banks have to increase their efforts in reaching those in need of finance to eliminate poverty, create jobs, and reduce race and gender inequalities. As pointed out by the literature (Biermann et al., 2017; Bowen et al., 2017), the voluntary nature of the SDGs and nebulosity of institutions' moral and ethical obligations may be a challenge also in engaging the financial sector in achieving the SDGs, and, perhaps, through incentives and regulation, the involvement of these key institutions needs to be secured.

Recent empirical research has certainly enhanced our understanding of credit exclusion. However, there are still large gaps and our survey findings also highlight the shortcomings in the

¹¹ In the US the Equal Credit Opportunity Act of 1974 requires banks (and other formal creditor institutions) to evaluate candidates on creditworthiness alone, rather than other factors such as race, colour, religion, national origin, or sex. In the UK Race Relations Act 1968 prevents discrimination on the grounds of race.

empirical literature. First, evidence focusing on some of the major economies is either non-existent (such as Japan, Australia, Netherlands, and other developed European economies) or very minimal (such as the UK, France, German, Italy and Spain). Similarly, there is a lack of evidence from major developing countries in South America (such as Brazil), South East Asia (such as Indonesia and Malaysia), North Africa, Central Asian countries and Russia. Second, having access to mortgages is rarely examined in this context. This is a significant omission of the literature given that a house is often the largest purchase households make throughout their life.

Our analysis also shows that we have very limited knowledge on immigrants' ability to access formal credit markets. This is surprising given that the pace of immigration has been increasing globally, especially to Europe and other developed economies. Immigrants may be particularly vulnerable to exclusion as they tend to be in poverty and have low incomes, especially when they try to establish a new life in a country. Hence, it is vital to understand their circumstances in terms of access to formal credit. Fourth, research related to disabled people is almost non-existent. Given the estimation that around 15% of the global population, roughly one billion people, has some form of disability (WHO, 2011), it is imperative to learn more about the difficulties they are facing in accessing credit. Fifth, studies examining the impact of racial background on access to finance is inadequate. For example, some western European countries (such as the UK, France, Germany and Netherlands) has large minorities from different racial and ethnic backgrounds, yet there is a dearth of research. Given that ethnic minorities face significant impediments in accessing credit in other developed countries, there should be more research directed to minorities elsewhere to elucidate their case.

Achieving SDGs by 2030 requires a multi-stakeholder approach, where banks and other financial services companies play a key role through inclusive finance; therefore, their engagement with the process is paramount as they can significantly influence its implementation, due to their crucial role in the economy, especially in providing access to credit. In this respect, our findings are timely as in 2019 185 banks, representing more than a third of the global banking industry, became signatories of *The Principles for Responsible Banking*, a unique framework under UN Environment Programme's Finance Initiative for ensuring that banks' strategy and practice align with the vision society has set out for its future in the SDG. We hope that our research informs the direction to be taken by banks, governments, international organisations and policy makers in achieving SDG through providing fairer access to credit.

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