

The use of fintech in microfinance: the fight against poverty globally and in Egypt

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Abstract: *Microfinance has long been seen as a remedy for global poverty, although it has had mixed success, as the literature demonstrates. While poverty remains, with the introduction of digital technology and the relaxation, in many areas, of the regulations controlling banking following the financial crisis of 2008, innovations in the financial services sector, known as fintech, could have a significant impact. This article examines the research literature on the topic and provides a case study from Egypt before making recommendations on policy change, and how fintech and microfinance might develop if they are to have an impact on poverty both globally and within Egypt.*

Keywords: fintech, microfinance, poverty elimination, global, Egypt

Introduction

ON 23 JANUARY 2018 at the World Economic Forum meeting in Davos, the Prime Minister of Canada, Justin Trudeau, said ‘The pace of change has never been this fast, but it will never be this slow again’ (Dimble and Mubarak, 2019). Whether he was factually correct, the world is certainly changing extremely rapidly and since 1990 more than 1.2 billion people have risen out of extreme poverty, though 9.2 per cent of the world (circa 850 million people) still survives on US\$1.9 a day or less. While the reasons for this decline have resulted largely from economic growth, it is noticeable that the rate of decline has slowed considerably in recent years and the rates of extreme poverty remain stubbornly high in countries that are experiencing low economic growth rates and/or conflict and political upheaval. Additionally, as a result of the current pandemic and global recession, the World Bank has forecast that over 1.4 per cent of the world’s population will fall back into extreme poverty, while in a press release dated October 2020, its President, David Malpass, stated that ‘in order to reverse this serious setback to development progress and poverty reduction, countries will need to prepare for a different economy post-COVID by allowing capital, labour, skills and innovation to move into new businesses and sectors’ (Ashan, 2020). Traditionally, microfinance and, more recently, fintech have been and are being seen as a key solution to the problem and the means to bring about the changes Malpass is suggesting.

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Microfinance, the supply of financial services to those not able to engage with traditional banks, has been around since at least the 1970s, whereas fintech is a more recent development. Based on the application of information technology and the growth of digital data systems, fintech enables the extension of microcredit to sectors of the population that were previously inaccessible. In its present form, fintech emerged with the widespread adoption of mobile phones that coincided with the global financial crisis of 2008. In many countries, the strict regulations controlling the financial service sector were relaxed somewhat and new online services emerged, complementing, and often challenging, traditional services. Although early in their development, such new institutions are believed to have the potential to positively impact the microfinance industry.

What follows is a consideration of the use of fintech in microfinance and the potential of microfinance and fintech to alleviate global poverty.

Microfinance

According to the UN, 'Microfinance is the supply of financial services to poor and low-income households and their micro-enterprises. Microfinance comprises of several financial tools such as savings, credit, leasing, insurance and cash transfer' (FAO, 2005). Essentially it is the provision of banking services to those disadvantaged sectors of society that would have difficulty accessing them normally.

Although there is considerable debate over the ability of microfinance to solve the global poverty crisis (Matsangou, 2016), a study of 800 respondents in Egypt (El-Hadidi, 2018a) found that 'Microfinance had a positive impact on the household income of women borrowers who spent three years in the scheme', while a study of 2884 respondents in Ghana (Annim, 2018) similarly found that the poverty reduction effects of microcredit interventions were greatest at the household level, particularly in rural areas. However, in their extensive study of the impact of microfinance, Murdoch and Haley (2002) contend that while microfinance has proved to be effective in reducing poverty it has not penetrated extensively the poorest sectors of society. They conclude, however, that it can benefit the poorest groups without damaging the financial stability of the lending institution and that the institutions whose mission is to reduce poverty are usually the most successful in reaching them. Targeting has been found to be necessary but, even then, there is a tendency for mission creep and for institutions to refocus on the wealthier segments. However, concluding her research on microfinance in Egypt, El-Hadidi (2018b) suggests that 'The major role of Microfinance institutions in developing economies like Egypt is in promoting entrepreneurship development. Microfinance institutions and their activities go a long way in the determination of the pattern and level of economic activities and development in the Egyptian economy.'

Although the microcredit industry exceeds \$100 bn and is growing, according to Meager (2019) the average impact of these loans is small and in order to improve the lives of the poorest households it may be necessary to seek alternative approaches. Indeed, the author suggests that credit and access to finance may

not be the most important constraint, and, even if it is, solving one constraint is unlikely to be enough to solve the poverty problem. Rather, the author suggests, there might be other constraining factors that need to be addressed, such as education, healthcare, infrastructure, and roads, and that a package of support is needed. This point is taken further by Banerjee and Jackson (2017) who found in Bangladesh that microfinance led to increasing levels of indebtedness among already impoverished communities and exacerbated economic, social, and environmental vulnerabilities. Accordingly, they concluded their study of the impact of microfinance with the Keynesian type proposal that 'Better social and economic outcomes could be achieved if social investment was directed at initiatives aimed at reducing risk and vulnerability such as building hospitals or schools, investing in building and supporting local businesses to provide employment and a steady income all year round ...'

This conclusion is supported by the research of Dimble and Mubarak (2019) of the London School of Economics' International Growth Centre. They conclude that the traditional microfinance model has had limited impact on the income and productivity of borrowers and advise that there is a need to adapt and relax aspects of the traditional model in order to improve the effectiveness of the loans and increase the benefits to the borrowers. In particular, they suggest that 'using community networks to identify productive borrowers and lending for activities beyond entrepreneurship, such as supporting migration during "lean seasons" can lead to substantial welfare gains'.

Financial technology (fintech)

According to Schueffel (2016) there is no consensus about what the term fintech means. Accordingly, he uses semantic analysis to review 200 scholarly articles referencing the term and concludes that 'Fintech is a new financial industry that applies technology to improve financial activities' (ibid.: 45). In essence, it is the use of modern technology to enable financial service operations to provide automated and improved financial services. As a result, the traditional, established banks are having to adjust the way they operate and are in danger of becoming increasingly displaced by new fintech start-ups that operate flexibly and fast, providing new services in response to changing demands.

In a highly influential article published in the journal *Science*, Suri and Jack (2016) present the results of their research into the impact of the Kenyan mobile money system, M-PESA. On the basis of their findings they estimated that some 194,000 Kenyan households (2 per cent) were lifted out of poverty by the M-PESA system and that some 185,000 women were able to switch from agriculture into business or retail as a result of it. This led them to conclude that mobile money has 'increased the efficiency of the allocation of consumption over time while allowing a more efficient allocation of labor, resulting in a meaningful reduction of poverty in Kenya'. However, Bateman et al. (2019) recognize that fintech has the potential to liberate enormous value, but reject the findings of Suri and Jack claiming that the research is flawed and has 'helped to catalyse into existence a largely false narrative

surrounding the power of the fin-tech industry to advance the cause of poverty reduction and sustainability’.

However, research by Dan and Vu (2020) in Vietnam found that ‘Fintech had enabled microfinance institutions to achieve targeted growth through expanding geographical inclusion/scale, enhancing product supply/provision, aiding customer understanding and improving operational efficiency’. Similarly, the research of Apiah-Otoo and Song (2021) in China concluded that fintech had reduced poverty and complemented economic growth and financial development. This led them to recommend that policy makers should support the development of fintech by promoting investment in the internet and mobile internet infrastructures; encouraging partnerships among public, private, and civil society sectors to stimulate investment in the internet; strengthening the cyber security of fintech platforms ensuring customer privacy; and deepening fintech and ICT education.

Microfinance and fintech

The application of fintech to microfinance is at an early stage in its development having been first introduced in a significant way in Kenya in 2007 by the country’s largest mobile operator, Safaricom. Launched as M-PESA, it provided a new platform for making payments and transfers at no extra cost. This was a very considerable departure from the way traditional telecoms companies had operated, charging inordinate fees for moving or depositing money around the world. Within three years M-PESA had 10 million customers, testimony to the market demand for the service.

The phenomenal success of M-PESA not only expedited the global application of fintech to microfinance but created numerous problems for providers in other countries as it was found that merely replicating the Kenyan initiative did not necessarily lead to a similar response with respect to the take up of digital financial services. As Amer et al. (2018) have recognized, ‘Meeting the needs of the local consumers, whatever they may be, is the key requirement for providing DFS (Digital Financial Services) – and this is not the starting point for many of the people designing DFS products’.

Outcomes

The potential of linking fintech and microfinance is considerable, particularly in determining the products that are needed and the use of algorithms for credit scoring, enabling those who previously could not obtain loans to gain access to them. With the application of fintech, the processing of applications is much faster than previously, usually no longer than a day or two, as the whole process is done online. This increases the processing capacity of the lenders and enables them to issue loans to those who, for whatever reason, require them urgently. Also, as the technology is more transparent than previously, applicants can track the process of their applications and the lender can gain immediate, accurate access to ‘Big Data’

information on the applicant. Not only has this further contributed to the speeding up of the process but it has enabled lenders to reach the 2.5 billion adults that do not have access to traditional banking services or are considered to be too big a credit risk. The key to this development has been the possession and use of a smartphone by almost half (48.3 per cent) of the world's population and while the ownership and use of such devices is lowest in the poorest and developing economies, it is expected that the market will continue to grow as some 98 per cent of those people born after 1990 have a mobile phone at their disposal.

However, fintech is unlikely to solve the global poverty problem based on the microfinance model. While it does permit microfinance institutions to reach far more people living below the poverty line in hard-to-reach locations, it does little to alleviate their poverty. The model requires them to start their own business, but very few of these ventures grow into thriving enterprises that employ people. Rather they are often little more than an opportunity for the founder to eke out a meagre wage.

At the same time, it is claimed that the high interest rate charges often imposed by the lenders exacerbate rather than ameliorate the poverty of the poor, with interest charges of up to 75 and 100 per cent having been recorded. The lenders claim that the high interest rates are justified given the small amounts loaned and the costs of servicing people in remote localities. However, in 2007 Mohammad Yunus made the point that 'microcredit was created to fight the money lender, not to become the money lender'. He said this in the context of Banco Compartamos, a Mexican microcredit bank, which had had an initial public offering of its shares and had been charging annual interest rates on its loans of 100 per cent. According to a report in *The Economist* dated 16 May 2013, Compartamos then commissioned three pieces of research, one of which found that, while there was no clear evidence that microcredit helped people escape from poverty, those who had borrowed money with an interest rate of 100 per cent were not found to be poorer. The research also found that microcredit empowered female borrowers by giving them control over a significantly larger number of household decisions.

Policies

Microfinance. The adoption of microfinance to start a new venture can be daunting, not least because the formalization of a new business requires recipients to adhere to national and regional regulations, including the payment of taxes. This can be off-putting for many potential borrowers. As Ajzen (1991) recognized in 'The theory of planned behaviour', however, people will start a business if they have enough information, sufficient support and encouragement, and believe that public opinion is favourable. Hence policies are often required to:

- Promote the take-up of microfinance by creating a more 'self-employment friendly environment'. This might include, for example, government emphasizing the importance of self-employment and micro enterprises to the economy.

- Bridge the gap between unemployment and employment. This includes measures to:
 - Raise awareness of the self-employment option.
 - Reduce the legal, financial, and bureaucratic barriers to self-employment.
 - Improve the environment for micro enterprise through, for example, the provision of online or telephone business advice.
 - Encourage people into work by moving those that are dependent on state benefits and the welfare system into self-employment. This might include, as in Ireland, income support on a decreasing scale for a given period.
 - Create favourable legal frameworks that protect the applicant such as limiting the rate of interest that can be charged for microcredit.
 - Enhance access to mainstream financial institutions, through the introduction of such instruments as loan guarantees and tax incentives to banks.
 - Ensure the long-term operation of microfinance providers through the provision of public and private funding to complement the self-generated income derived from the loans.

While microfinance is important in bringing the unemployed into employment by helping create an environment where self-employment is perceived as a feasible alternative to employment, it should not be seen as a tool of relevance only for poor countries or the poor and socially excluded. Apart from it being a tool to change and enhance the traditional forms of banking, it is a laboratory in which new instruments can be trialled and tested, and policy might encourage, for example:

- the use of microcredit for a broader range of purposes;
- loan durations to be extended and interest rates to be lowered;
- local intermediaries to become involved in identifying suitable borrowers and targeting products better.

Fintech. The challenge for policy is that it should enable innovation and maximize the benefits of fintech, but at the same time it should protect the financial system and minimize potential risks to it. As Carse (1999) recognized, 'An internet-based bank is faced with the same types of banking risk as its traditional counterparts. In some ways, the internet may heighten these risks.' Accordingly, policy has focused heavily on regulation.

In a 2019 study on the responses to fintech undertaken by financial authorities in 31 countries, Ehrentraud et al. (2020) acknowledge that the financial authorities have resorted to a variety of ways when responding to fintech but that it 'has not changed the core mission of financial regulators', which is to ensure the financial system is safe and secure. As a consequence, most fintech activities are regulated either via new, dedicated regimes or existing regulations. However, such regulations can discourage innovation which most authorities are concerned not to do. As a result, public policies have been, and are continuing to be developed in order to create a digital infrastructure that will enable the provision of such online services. These have included the creation of national broadband networks, the development of digital identities, the interoperability of networks, and data protection and

cyber security frameworks, together with initiatives that facilitate the adoption of innovations, such as innovation hubs, regulatory ‘sandboxes’ (security systems), and innovation accelerators. To steer innovation in an appropriate direction requires resources and timely information which means that financial authorities are having to collaborate with other third-party public agencies, such as those responsible for consumer protection, competition, financial inclusion, cyber security, and data protection. This not only requires coordination but increased security as does the dependency on third parties in order to keep up with the changes in technology and the emergence of new business models.

Case Study: fintech and microfinance in Egypt

Egypt’s population is estimated at over 100 million people of which some 29.7 per cent are living in poverty. It covers an area of 1.01 million km² and has a rural population of some 57 million, with 20 per cent of the 32 million workers engaged in agriculture, 30 per cent in industry, 50 per cent in services, and 5.7 percent unemployed. No more than 15 per cent of Egyptians have bank accounts and some 67 per cent of the people rely on cash. In contrast, the Ministry of Communications and Information Technology claims that, in 2020, 98.8 per cent of Egyptian households and 95 per cent of individuals owned and used mobile phones. Of these, some two-thirds reportedly used smartphones.

Mistrust of banks is ideal for the growth and spread of both microfinance and fintech. Indeed, microfinance in Egypt, which took hold in a 1990 experiment funded by USAID, had 3.2 million beneficiaries in 2020 and a portfolio of EGP 26 bn (US\$1.7 bn). However, only 13 of the country’s 40 banks offer microfinance services, although there are 11 institutions in the non-banking sector offering such services via 999 outlets.

While research suggests that microfinance in Egypt does not alleviate poverty to the extent that perhaps it was envisaged originally, it reveals that it does help to empower women (Nisser and Ayedh, 2017; El-Hadidi, 2016), contribute to household incomes (Irhoumah et al., 2020; El-Hadidi, 2018a), impact on entrepreneurial productivity (El-Hadidi, 2018b), and sustain the growth of micro, small, and medium enterprises (Farghly et al., 2018). Also, it has been shown that ‘the poor are willing to pay a premium to have continued access to simple, quick and uncollateralized credit’ (Iqbal and Riad, 2004: 3). Over the years, therefore, the provision of microfinance has increased in importance and not only has the government upgraded the microfinance law of 2014 (no 141) but introduced a new microfinancing programme.

On 11 October 2020, Law No. 201 of 2020 received Presidential approval in an attempt to support the national and informal industrial economy. It did this by raising the funding limit for medium, small, and microenterprises from EGP 100,000 to 300,000 (\$6,600 to \$20,000) and encouraging NGOs and other bodies to engage in the activity by adopting new and flexible mechanisms that reflect the needs of industry. Furthermore, the law provides effective safeguards and guarantees to operators and, in an attempt to benefit the national economy,

permits them to deal with people who have not traditionally been eligible to deal directly with banks.

The new microfinance programme, Nano Finance, is intended to formalize the informal sector (valued at circa \$154 bn or 40 per cent of GDP) by financially empowering economically marginalized people and improving their living conditions. Loans of up to a maximum of \$190 are made available to small farmers, the self-employed, and young people to empower them and promote financial inclusion. The loans, which are to be repaid over a period of 3 months, have to be insured against non-repayment. The programme, which has been operating internationally (Musari and Simanjuntak, 2016), is heavily dependent on digital technologies and has its own policies, procedures, and algorithms, thereby addressing the issue of replication recognized by Amer et al. (2018) and referred to above.

Fintech was launched in Egypt in 2008 when Ashraf Sabry left his paid corporate employment and set up Fawry, which is now Egypt's leading digital transformation and e-payment platform offering financial services to both consumers and businesses. Since then, Fawry has grown rapidly and now performs some 3,069 million financial operations a day through more than 225,000 locations. Similarly, the sector has also grown, especially since 2018, as a result of government initiatives (e.g. the launch of the Fintech Egypt Platform and Fintech Hub as well as a fintech regulatory sandbox), private investment (e.g. Shehab Marzban's Camel Ventures and Mohamed Okasha's \$25 m fund), and the increased involvement of the corporate sector (e.g. EFG Hermes' valU and Pharos Holding's Kashat).

In addition to such direct initiatives, the Egyptian Government has recognized the need for financial inclusion and, as part of its reform of the banking system, it is introducing initiatives to support and promote it. The introduction in April 2019 of Law No. 18 on cashless payments was intended not just as a first move towards a cashless economy but to encourage greater adoption of banking services in the country. At the same time, both the Central Bank of Egypt and the financial regulatory authorities are developing fintech laws, launching sandboxes, and creating sovereign funds to close the gap of early-stage investments in fintech start-ups. As a result, according to Stuart Davis, a partner in the London-based consultancy firm Latham and Watkins, a comprehensive regulatory regime is being created covering payment systems and fintech that 'should help to foster growth and innovation in these important areas' (quoted in Santosdiaz, 2020).

As Adam (2021) has noted, the fintech sector in Egypt is new and expanding rapidly but 'In comparison with the successful Indian experience, the digital financial ecosystem in Egypt is facing a major shortfall'. Perhaps not surprisingly, therefore, an analysis of the World Bank's 2017 Global Fintech data by Hussein (2020) revealed that despite the measures introduced by the Egyptian Government since 2010 and the high internet and mobile phone penetration in Egypt, the country still has the lowest rank of financial inclusion among the Arab and African states. This leads the author to make six policy recommendations; namely, the government should:

- Build a vibrant more dynamic network of agents to deliver the digital financial product.

- Enable e-KYC (Know Your Customer) to onboard and verify customers more easily.
- Ensure payment systems are interconnected and interoperable.
- Encourage the banks to promote financial literacy and consumer protection.
- Provide a stable internet provision, cybersecurity, and privacy protection service.
- Complete the G2P (government to person) payment system.

Recommendations

Generic

While both microfinance and fintech are significant innovations in their own right, when combined they are even more potent in the fight against global poverty and financial inaccessibility. Hence, policy makers and practitioners need to ensure the two systems work together in order to obtain the optimum returns for the benefit of all parties – the providers, the recipients, society, and the planet. However, it needs to be recognized that poverty is not caused solely by the lack of access to money. Other factors are important, and one of the biggest obstacles is education in general and the lack of financial education in particular. Apart from needing to understand not just the capabilities of the new mobile technology and how to use it, consumers need to appreciate at least the basic principles of financial management. Over time the former problem will be resolved as users become more familiar with the technology and its capability, but the latter problem will require positive intervention. In addition to financial literacy not being a core part of the school curriculum in most educational systems, there are an estimated 620 million children of school age who are not attending school. More schools are required, particularly in the poorer countries, and families need to be able to afford to have their children educated, while courses in financial management and self-employment (entrepreneurship) need to be introduced in order to help break the poverty cycle.

This would suggest that the microfinance institutions and fintech companies need to broaden their concept away from the narrow focus on business start-up loans to addressing the broader issues impacting poverty such as education, health, and clean water and sanitation, as is happening in some contexts. In accordance with systems thinking, solving one aspect of the problem does not necessarily resolve the problem as it can create others and/or be affected by them. For example, providing schools with relevant courses and teachers will not solve the problem of poverty if families cannot afford to send their children to them or if the sanitary conditions, especially for girls and young women, are not conducive to their attendance. Loans for schooling may also have to be made available and improved sanitation facilities provided. This will require the microfinance and fintech companies to rethink their remit and roles and to explore opportunities for partnerships with other agencies that are addressing the issue.

Country-specific: Egypt

Apart from the recommendations of Hussein (2020), fintech and microfinance institutions will need to overcome the mistrust of banks and financial

institutions inherent in the Egyptian culture. One way of doing this might be to introduce awards and quality standards and to celebrate and publicize achievements. This would include awards for the best customer achievement, thereby providing role models for the poor and unbanked and demonstrating what may be achieved. Also, as noted above, it is recommended that fintech and microfinance providers in Egypt should broaden their remit if they are to address the issue of poverty in the country. They need to see themselves not only as financial service providers but as contributors to community development, addressing the economic, environmental, human, and social needs of the communities in which their clients are located.

The business model for their development already exists in Egypt. To address the problem of poverty and unemployment in the country the late Professor Ibrahim Abouleish (1937–2017) created SEKEM. This is not just a successful international business venture but a comprehensive, holistic, successful community that promotes sustainable agriculture and enables employees and farmers to improve their living conditions, health, education, and quality of life. It provides cultural, educational, and training facilities which include the first university in the Middle East and North Africa region, Heliopolis, to have sustainability as its goal.

This venture, which is based on equitable business and social responsibility, employs 2,000 people and supports a network of 3,000 farmers. In 2003, it was a recipient of the Right Livelihood Award (also known as the Alternative Nobel Prize) from the King and Queen of Sweden. This recognized the creation of a business model that provides a practical and exemplary solution to the problem of poverty and the sustainability challenges of the 21st century. As the award citation acknowledged:

Sekem (Egypt) shows how a modern business can combine profitability and engagement in world markets with a humanistic and spiritual approach to people and respect for the natural environment. The Jury sees SEKEM as a business model for the 21st century in which commercial success is integrated with and promotes the social and cultural development of society through the ‘economics of love’.

SEKEM could not have achieved all that it did without caring for the wellbeing and educational development of its employees, and so with fintech and microfinance. Neither will succeed in resolving the poverty problem without addressing the broader needs of their customers, and the factors that contribute to their poverty. In all probability, the financial institutions will not have the resources and expertise to do so, in which case they will have to form partnerships as has happened in Kenya, where the Helix Institute for Digital Finance was founded in 2013 as a public–private sector partnership. Should this not occur, government policy might be needed to encourage, if not require, partnerships to be formed particularly with the country’s higher education institutions. As technology transfer between academia and industry is not the norm in Egypt, government intervention will probably be needed, thereby creating triple helix institutions (Etzkowitz, 2003) comprising government–industry–academia to help develop

and strengthen performance in the modern, global knowledge-based economy. As recognized by El-Hadidi and Kirby (2019), this will require, in all probability, that universities ‘incorporate the “Third mission” into their core activities, making it a strategic objective’ while ‘industry also needs to be encouraged/incentivised to enter into collaboration with the country’s universities’. This is not something unique to Egypt (Rasmussen and Rice, 2012) and the AUC Venture Lab, now in its ninth year, demonstrates the sort of collaboration that is needed (Kamel and Ismail, 2013). Though it focuses on technology start-ups, it aims to foster a thriving ‘ecosystem of innovation, education and responsible business’ in order ‘to transform Egypt-based startups into commercially viable ventures’. Similarly, the 13 Villages project of Heliopolis University provides an opportunity for the students and academic staff of the university to transfer their knowledge and expertise to the villages in order to help improve the living conditions of those living there, create job opportunities, and reduce poverty. If government policy were to encourage fintech and microfinance institutions to collaborate with academic initiatives such as this, the outcome could be a very powerful intervention and a potent antidote to poverty.

Conclusions

As the Nobel Prize awarded to Mohammad Yunus signifies, microfinance has been a significant development in the fight against global poverty. However, it is estimated that between 3.5 and 4.2 billion people remain in poverty and some 1.5 to 2.5 billion people do not have access to adequate food (Hickel, 2016). Much more needs to be achieved and while the impact of fintech will undoubtedly enable microfinance institutions to access sectors of society that were previously not accessed, it needs to be recognized that these ‘are powerful tools but not silver bullets. It will be up to practitioners and policy makers to ensure that Fintech results in benefits beyond financial inclusion to have a meaningful impact on the lives of those who move from “excluded” to Fintech enable “included”’ (Jones, 2018).

On the basis of the evidence provided here, it would seem that like any new 21st-century venture addressing the sustainability challenge or an aspect of it, microfinance and fintech companies will need to adopt a more holistic approach to the problem of poverty than has been the case to date. Indeed, they will need to address what Elkington (1999) has termed the ‘Triple Bottom Line’ of people, planet, and profit. Ever since the 1970 pronouncement of Friedman, the predominant philosophy of business has been its responsibility to its shareholders and to profit maximization. While this thinking has influenced management for much of the last 50 years or so, if not longer, it is beginning to be challenged. Particularly as a result of the COVID-19 pandemic there is emerging concern for a more sharing society (Ashan, 2020), coupled with increased concern for the environment and the need for sustainability management (Williams et al., 2017). None of this is entirely new and it is worth noting that what Friedman (1970) actually said was that business is about ‘making as much money as possible while

conforming to the basic rules of society both those embodied in law and those embodied in ethical custom’.

Out of this thinking has emerged a new approach to enterprise that is based on systems thinking and the principle of harmony. Given the interconnectivity of the system, any attempt to alter the status of one of the component elements will, in accordance with the theory of general systems (Von Bertalanffy, 2015), impact on all other interconnected elements. This systemic approach has been termed ‘Harmonious Entrepreneurship’ (<https://harmonious-entrepreneurship.org/>) as it harmonizes or integrates the previously separate economic, eco, human, and social approaches to entrepreneurship, as demonstrated in the SEKEM business model.

Rather than just focusing on loans and credit finance to help eliminate poverty, therefore, both fintech and microfinance need to take a broader, systemic approach to the problem and recognize that its causes are multiple and complex. As Philip and Rayhan (2004) have shown, poverty is not just associated with the lack of employment opportunities and low pay, but with education, environment, food, health, sanitation, and so on. They are interconnected and this means that to be successful, programmes need to ‘adopt a multidisciplinary solution designing approach to tackle these multifaceted problems’.

Only when the component elements constituting the problem are aligned and in harmony will entropy be reduced and/or eliminated and the problem of poverty resolved. This suggests that for fintech and microfinance to succeed, a more harmonious, holistic solution is required for, as the ancient Chinese philosopher Xun Zi (310–235 BC) observed, ‘when harmony prevails all things under the sun will flourish’.

Until then, ‘as long as poverty, injustice and gross inequality persist in our world, none of us can truly rest’ (speech by Nelson Mandela, 3 February 2005).

References

- Adam, H. (2021) ‘Fintech and entrepreneurship boosting in developing countries: a comparative study of India and Egypt’. In M.A. Abdalmuttaleb and M. Al-Sartawi (eds), *The Big Data-Driven Digital Economy: Artificial and Computational Intelligence*, pp. 141–56, Springer.
- Ajzen, I. (1991) ‘The theory of planned behaviour’, *Organisational Behaviour and Human Decision Processes* 50: 179–211 <[https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)>.
- Amer, D.W., Barberis, J. and Buckley, R.P. (2018) ‘The evolution of fintech: a new post-crisis paradigm’, *Georgetown Journal of International Law* 47(4): 1271–319.
- Annim, S.K. (2018) ‘Outreach and the poverty reducing effect of microfinance in Ghana’, *Enterprise Development and Microfinance* 29(2): 145–71 <<https://doi.org/10.3362/1755-1986.17-00020>>.
- Apiah-Otoo, I. and Song, N. (2021) ‘The impact of fintech on poverty reduction: evidence from China’, *Sustainability* 13: 5225 <<https://doi.org/10.3390/su13095225>>.
- Ashan, M. (2020) ‘Entrepreneurship and ethics in the sharing economy: a critical perspective’, *Journal of Business Ethics* 161(10): 19–33 <<https://doi.org/10.1007/s10551-018-3975-2>>.

Banerjee, S.B. and Jackson, L. (2017) 'Microfinance and the business of poverty reduction: critical perspectives from rural Bangladesh', *Human Relations* 70(1): 63–91 <<https://doi.org/10.1177/0018726716640865>>.

Bateman, M., Duvendack, M. and Loubere, N. (2019) 'Is fin-tech the new panacea for poverty alleviation and local development? Contesting Suri and Jack's M-Pesa findings published in *Science*', *Review of African Political Economy* 46(161): 480–95 <<https://doi.org/10.1080/03056244.2019.1614552>>.

Carse, D. (1999) 'Keynote speech: the regulatory framework of e-banking', presented at the *Symposium on Applied R&D: Enhancing Global Competitiveness in the Next Millennium*, 8 October 1999 [pdf] <<https://www.bis.org/review/r991012c.pdf>> [accessed 28 February 2022].

Dan, T.T. and Vu, H.Q. (2020) 'Fintech in microfinance: a new direction for microfinance institutions in Vietnam', *Journal of Business Economics and Environmental Studies* 10(3): 13–22 <<https://doi.org/10.13106/jbees.2020.vol10.no3.13>>.

Dimble, V. and Mubarak, A.M. (2019) *Saving Microfinance through Innovative Lending*, Growth Brief, 13 March, International Growth Centre, London.

Ehrentraud, J., Ocampo, D.G., Garzoni, L. and Piccolo, M. (2020) *Policy Responses to Fintech: A Cross-country Overview*, Financial Stability Institute FSI Insights on Policy Implementation No. 23, Bank for International Settlements, Basel, Switzerland.

El-Hadidi, H. (2016) 'Microfinance and its role in women empowerment', *Arab Journal of Administration* 36(4): 377–92 <<https://doi.org/10.21608/aja.2016.17865>>.

El-Hadidi, H. (2018a) 'The impact of microfinance on poverty reduction in Egypt: an empirical study', *Enterprise Development and Microfinance* 29(2): 172–81 <<https://doi.org/10.3362/1755-1986.16-00033>>.

El-Hadidi, H. (2018b) 'Impact of micro finance on entrepreneurial development: the case of Egypt', *International Journal of Business and Social Science* 9(9): 68–76 <<https://doi.org/10.30845/ijbss.v9n9p7>>.

El-Hadidi, H. and Kirby, D.A. (2019) *University Technology Transfer in a Factor-driven Economy: Egypt*, Lambert Academic Publishing, Chisinau, Moldova.

Elkington, J. (1999) *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*, Capstone, Oxford.

Etzkowitz, H. (2003) 'Innovation in innovation: the triple helix of university-industry-government relations', *Social Science Information* 42(2): 151–60 <<https://doi.org/10.1177/05390184030423002>>.

Farghly, B., Saleh, A., Yousef, A. and Barry, A.A. (2018) 'The impact of microfinance on sustainable growth of micro, small and medium enterprises (MSMEs): an empirical study on Egypt', *The Business and Management Review* 9(4): 420–30.

Friedman, M. (1970) 'The social and ethical responsibility of business is to increase its profits', *New York Times*, 13 September.

Hickel, J. (2016) 'The true extent of global poverty and hunger: questioning the good news narrative of the Millennium Development Goals', *Third World Quarterly* 37(5): 749–67 <<https://doi.org/10.1080/01436597.2015.1109439>>.

Hussein, H. (2020) 'The impact of financial technology on financial inclusion: the case of Egypt', *IOSR Journal of Economics and Finance* 11(6): 35–51.

Iqbal, F. and Riad, N. (2004) 'Commercial microfinance in Egypt: the case of the National Bank for Development', paper presented at the *Scaling Up Poverty Reduction: A Global Learning Process and Conference, Shanghai, 25–27 May 2004*.

Irhoumah, A.H., Ayedh, A.M. and Echchabi, A. (2020) 'Determinants of microfinance factors affecting women's empowerment: evidence from Egypt', *FWU Journal of Social Sciences* 14(4): 1–11 <<https://doi.org/10.51709/FW12721>>.

Jones, L. (2018) 'Guest editorial: poverty reduction in the fintech age', *Enterprise Development and Microfinance* 29(2): 99–102 <<https://doi.org/10.3362/1755-1986.2018.29-2.ED>>.

Kamel, S. and Ismail, A. (2013) 'EIP@AUC: a case study of a university-centred entrepreneurship eco-system in Egypt', paper presented at the *ICIE 2013 International Conference on Innovation and Entrepreneurship, Amman, Jordan, 4–5 March 2013*.

Meager, R. (2019) 'Understanding the average impact of microcredit', *Micro Economic Insights*, 17 July [online] <<https://microeconomicinsights.org/understanding-the-average-impact-of-microcredit/>> [accessed 28 February 2022].

Murdoch, J. and Haley, B. (2002) *Analysis of the Effects of Microfinance on Poverty Reduction*, NYU Wagner Working Paper No. 1014, New York University.

Nisser, A.H.I. and Ayedh, A.M.A. (2017) 'Microfinance and women's empowerment in Egypt', *International Journal of Business and Economic Affairs* 2(1): 52–8 <<https://doi.org/10.24088/IJBEA-2017-21007>>.

Philip, D. and Rayhan, M.I. (2004) *Vulnerability and Poverty: What Are the Causes and How Are they Related?* Centre for Development Research, Universitat Bonn.

Rasmussen, E. and Rice, M.P. (2012) 'A framework for government support mechanisms aimed at enhancing university technology transfer: the Norwegian case', *International Journal of Technology Transfer and Commercialisation* 11(1/2): 1–25 <<https://doi.org/10.1504/IJTTC.2012.043934>>.

Santosdiaz, R. (2020) 'Egypt's new banking laws', *The Fintech Times*, 11 October [online] <<https://thefintechtimes.com/egypts-new-banking-laws/>> [accessed 28 February 2022].

Schueffel, P. (2016) 'Taming the beast: a scientific definition of fintech', *Journal of Innovation Management* 4(4): 32–54 <https://doi.org/10.24840/2183-0606_004.004_0004>.

Suri, T. and Jack, W. (2016) 'The long run poverty and gender impacts of mobile money', *Science* 354(6317): 1288–92 <<https://doi.org/10.1126/science.aah5309>>.

Von Bertalanffy, L. (2015) *General Systems Theory: Foundations, Development, Applications*, George Braziller, New York.

Williams, A., Kennedy, S., Philippine, F. and Whitman, G. (2017) 'System thinking: a review of sustainability management research', *Journal of Cleaner Production* 148: 866–81 <<https://doi.org/10.1016/j.jclepro.2017.02.002>>.