

Evaluating Productivity of Microfinance Institutions Evidence from Palestine and Jordan

*Md. Sohel Rana**, *Md. Aslam Mia***, *Izlin Binti Ismail****, *Mohd Nazari Bin Ismail**

Abstract: *Microfinance institutions (MFIs) have been recognized to eradicate poverty through the provision of financial services to the poor in war-torn Palestine and Jordan. To continuously provide banking and financial support to the poor, MFIs need to achieve sustainability by attaining sufficient productivity for long-term economic viability. Hence, this study evaluates the productivity of 13 MFIs in Palestine and Jordan by employing the Malmquist Productivity Index with five years data from 2007 to 2011. The microfinance industry observed overall 2.6% Total Factor Productivity (TFP) progress per annum and the decomposition of TFP revealed that the productivity progress was mainly due to progress in technological change. The result also showed a slight decline in the scale efficiency of MFIs. Overall, Palestinian MFIs seem to perform better than Jordanian MFIs.*

Key Terms: *Total Factor Productivity, Technological Change, Technical Efficiency Change, Microfinance Palestine and Jordan*

Work with Department of Business Policy and Strategy, Faculty of Business and Accountancy, University of Malaya, Kuala Lumpur, Malaysia; **Is a Senior Lecturer (Assistant Professor) with the School of Management (SOM), Universiti Sains Malaysia (USM), 11800 USM, Pulau Penang, Malaysia;. *Works with the Department of Finance and Banking, Faculty of Business and Accountancy, University of Malaya, Kuala Lumpur, Malaysia. The authors can be contacted at aslammia@usm.my*

Introduction

Microfinance institutions (MFIs) offer a wide range of financial services, especially to the poor. The microfinance industry was initiated in Bangladesh by Professor Yunus in 1976 (Mia, 2016: 21). With worldwide recognition for alleviating poverty, microfinance has since grown exponentially throughout the world and earned Professor Yunus the Nobel Peace Prize in 2006. Among other services, those who are poor can now access need-based financial services including credit, savings, fund transfer, insurance, etc.

There is a general consensus on the effect of microfinance on various aspects of development (e.g. poverty, women empowerment and self-employment), and it can be inferred that microfinance has promising effects on socio-economic development in poor countries. Moreover, academicians and practitioners in most developing countries are consistently striving towards making microfinance work for the poor as part of their development agenda. In line with this, it is important for MFIs to attain operational sustainability in order

to ensure financial and non-financial services are available to the poor. The institutionalist approach asserts that MFIs should generate enough revenue to cover their operating expenses and financial cost; at the same time, MFIs must focus on poverty alleviation (Morduch, 2000: 617; Woller, Dunford, & Woodworth, 1999: 29). Therefore, to achieve the double bottom-line objectives, it is important for MFIs to be productive. Evaluating productivity would reveal how effectively an MFI is utilizing its resources (e.g. employees and operating expenses) to achieve its dual objectives, compared to its peers in the industry (Mia and Chandran, 2016: 505; Mia and Soltane, 2016: 32; Tahir and Tahrim, 2015: 25; Wijesiri and Meoli, 2015: 115, Bassem, 2014: 182; Gebremichael and Rani, 2012: 105). MFIs must gain long-term sustainability which depends on their capabilities to allocate resources through efficient management and stand steadfast in the competitive economic landscape.

The main objective of this study is to evaluate the productivity of MFIs in two countries, namely Palestine and Jordan, which are often neglected in

the existing literature. Apart from that, the microfinance industries in these two countries have recently witnessed rapid development conjoined with numerous challenges. This study contributes in several ways to the existing literature: first, it investigates the differences in productivity of MFIs in Palestine and Jordan; second, it decomposes productivity scores to understand the productivity progress or regress of MFIs; third, it evaluates the strengths and weaknesses of MFIs so as to generate policy recommendations.

The rest of the study is structured as follows: Section 2 briefly discusses the recent literature on the productivity of MFIs; Section 3 elaborates on methodology, selection of variables and data; Section 4 discusses the empirical findings; and Section 5 concludes the study with policy implications, limitations and policy recommendations.

An Overview of the Microfinance Industry in Palestine and Jordan

Palestine is a country occupied by Israel and its development activities are restricted. According to the Palestinian Central Bureau of Statistics (2017), the average total poverty rate in Palestine was 28.15% in 2010. Additionally, the World Bank (2017) report showed that the unemployment rate in Palestinian territory remained 27% in 2016, of which 42% was represented by Gaza and 18% by West Bank. Besides, youth employment in Gaza is alarmingly high (58%). As a result of this huge number of people facing poverty as well as unemployment, the role of microfinance in Palestine is very significant to promote self-employment.

Microfinance was first introduced in the 1980s to the occupied Palestinian territories (Dodeen 2013; Rana, Ismail, & Ismail, 2017: 177). However, only 23% of the poor are served with various financial and non-financial services by microfinance institutions (MFIs) (Sanabel, 2012). As a result of the restrictive policies implemented by the Israeli government on the transportation of people and goods, many Palestinians are now leaning towards self-employment activities. Thus, there is a high demand for microfinance services in Palestine. For example, a report published by FATEN, Planet

Finance (2011)¹ demonstrates that the demand for microfinance in Palestine was estimated to be between 150,000 and 190,000 Palestinian households. In addition, it was also estimated that 96,000 households demand small- and medium-sized credit and a further 200,000 households demand small savings accounts and money transfer services (Sanabel, 2012).

The microfinance sector in Palestine consists of thirteen MFIs carrying various legal statuses, such as NGOs (FATEN, ACAD, ASALA, UNRWAP, etc.) and commercial banks (Al Rafah Bank), among others. The thirteen MFIs are active or associate members of the Palestinian Network for Small and Micro Finance (Sharakeh), and only eight MFIs report their data to the Microfinance Information eXchange (MIX) on a regular basis. Up till December 2010, the total microfinance clientele in Palestine numbered 43,143 and the two largest MFIs, namely FATEN and UNRWA, served a combination of over 27,000 clients, which represents around 50% of the microfinance market (in terms of the number of active borrowers). These two Palestinian MFIs also receive significant amounts of foreign donations, as well as technical assistance from various partners (Sanabel, 2012).

In terms of legal aspects, Dodeen (2013) claimed that there are no explicit laws to regulate the microfinance sector in Palestine. For example, there are no standardized definitions of the terms 'small credit' and 'microcredit' in the context of Palestine. In Palestine, the economically active poor and low-income individuals have not been defined as target groups due to the concept of social inclusion. Previously, the Palestinian National Authority provided the only legislative framework, and it was focused on regulating the activities of the institutions rather than on promoting the interests of the poor. Furthermore, previous research also showed that most of these MFIs were initially registered as non-profit organizations, but they have tended to focus more on profitability in the recent years. Therefore, the Palestine Monetary Authority (PMA) has assigned relevant institutions and departments to license, monitor and supervise MFIs regardless of their legal status, based on the Banking Law which has been implemented since 2010. All

¹Planet Finance, FATEN rating report, March 2011, http://admin.faten.org/userfiles/file/PlanetRating_FATEN_2011_pdf.PDF

existing NGOs are required to become companies (either for-profit or non-profit) (Sanabel, 2012).

The microfinance market in Jordan is slightly different from the microfinance market in Palestine. Jordanian microfinance has a long history, starting with the first credit program in 1959 by the Agricultural Credit Corporation. As of late, several MFIs have been providing services to the poor people in Jordan. Among them, five are registered as non-profit organizations and three are commercial companies whose operations focus solely on microfinance. In addition to this, there is one commercial bank (Cairo Amman Bank, CAB), one donor agency United Nations Relief and Works Agency (UNRWA) and one government agency (Development Employment Fund) which also provide microcredit and small credit facilities (Ministry of Planning and International Cooperation, 2012).

The report of the ministry also revealed that between the years 2006 and 2010, the annual outreach growth rate was 28% (in term of clients) and the number of active borrowers increased substantially from 76,830 to 203,579 during the same period. Gross Loan Portfolio was 111.6 million Jordanian dinars (USD 157.4 million approx.) and female entrepreneurs comprised 71% of all the clients. The microfinance industry in Jordan has been growing rapidly after the involvement of various actors, including commercial banks, to provide small-scale loan services to the poor.

A Review on Productivity of MFIs

As of late, microfinance researchers have been interested in evaluating the productivity and efficiency of MFIs. A productive MFI can ensure a balance between the dual missions of MFIs. It would be able to ensure maximum outreach with better service to the poor, as well as achieve sustainability amid intense competition. Therefore, most MFIs strive to achieve higher productivity and efficiency in their operations. Several studies have been conducted to reflect the significance of productivity of MFIs in this area (Babu & Kulshreshtha, 2014: 165; Bassem, 2014: 182; Gebremichael & Rani, 2012: 105; Mia & Ben Soltane, 2016: 32; Mia & Chandran, 2016: 505; Wijesiri & Meoli, 2015: 115).

It is very important for MFIs to monitor their own productivity status. That is, whether they are progressing, regressing or remaining stagnant. Productivity evaluations of MFIs yield a clear

picture of their performance, which they can utilize to formulate specific policies and strategies from the institutional perspective. The productivity and efficiency of a sector can be evaluated in parametric ways (Stochastic Frontier Analysis – SFA, Thick Frontier Analysis – TFA, and Distribution Free Analysis – DFA) or non-parametric ways (Data Envelopment Analysis – DEA and Free Disposal Hull – FDH). The methodology depends entirely on the context of the study. The econometric concepts are widely used in parametric approaches whereas Linear programming methods are used in non-parametric approaches. However, the SFA and DEA approaches are frequently used in microfinance to analyse productivity and efficiency.

Mia and Soltane (2016: 32) investigated the productivity of 50 South Asian MFIs by employing the Malmquist Productivity Index and using panel data covering 2007 to 2012. They found that annual average productivity increased by 2.1% due to change in technical efficiency. They also have found that the productivity of South Asian MFIs is largely affected by financial, economic and institutional factors. Bassem (2014) conducted studies on MENA countries using total factor productivity (TFP) during the period of 2006 to 2011 with a sample size of 33. The author found TFP changes of 4.9 percent due to technical efficiency changes. Furthermore, Mia and Chandran (2016: 505) have found that the productivity of MFIs in Bangladesh was improved due to better management practice and technical efficiency changes. The output indicators were split into financial and social outreach, and it was found that both productivity dimensions exhibited annual growth rates of 3.9% and 5% respectively from 2007 till 2012. The study further indicated that productivity growth is hindered by lack of comprehensive saving products, absence of innovative financial products and deficiency in technology-based services in the MFIs.

Similarly, Grabremichael and Rani (2012: 105) conducted a study on Ethiopian MFIs from 2004 to 2009 and found an average TFP growth of 3.8%. Wijesiri and Meoli (2015: 115), however, found otherwise. Their observation shows that technological change (TC) is the main factor for the annual productivity improvement of 7% for Kenyan MFIs. Therefore, it can be inferred that TC-based productivity growth is higher than managerial efficiency-driven productivity growth.

A study by Twaha and Rashid (2012) on Indian MFIs have showed that the number of active borrowers had a positive effect on productivity whereas average loan size had an adverse impact on productivity. Wijesiri and Meoly (2015: 115) have found positive effects of initial efficiency and financial performance on the productivity of MFIs.

Methodology

It is important to know the state of a firm (an MFI, in our case) by evaluating its productivity, so that the firm can enhance its performance through the utilization of limited resources in an efficient manner (Isik & Hassan, 2003: 1363).

The Malmquist Productivity Index (MPI)

Since the DEA's debut in 1978, there has been tremendous growth both in its modelling and application in various sectors. The Malmquist Productivity Index (MPI) is an extension of the DEA which is frequently used to evaluate the productivity of formal and non-formal financial institutions. This approach is appropriate for non-governmental organizations (NGOs) (Charnes, Cooper, & Rhodes, 1978: 429). Three basic features of the MPI make this method superior to other methods. Firstly, specific price information is not necessary for the inputs and outputs. Secondly, certain behavioural assumptions regarding profit maximization and cost minimization are relaxed by the MPI. Finally, a better index decomposition facilitates the search for sources of productivity change.

Decomposition of TFP is divided into two parts, namely, Technical Efficiency Change (TEC) and Technological Change (TC). TEC reflects the ability of a firm to either use minimum levels of inputs to produce a given level of outputs or produce the same level of outputs by using fewer inputs. On the other hand, TC represents the process by which an optimum combination of inputs and outputs is achieved through better technology and capital equipment in the production process (Chandran & Pandiyan, 2008: 655). Technology refers to the usage of information and communication technology, but Mia and Chandran (2016: 505) have pointed that the emergence of innovative microfinance products and cost-cutting delivery methods are also treated as technology. An improvement in TC is considered a shift in the best practice frontier, whereas an improvement in TEC depicts a process of 'catch-up'.

Due to the inherent outreach objective of MFIs, this study uses an output-oriented MPI that identifies equi-proportionate increases of the output, subject to a given level of inputs. This study uses the MPI approach of (Färe, Grosskopf, Norris, & Zhang, 1994: 66). To conserve space, this study does not provide a detailed discussion of the empirical method; however, a detailed discussion can be found in (Mia & Soltane, 2016: 32).

We have used VRS and a direct output-oriented command to estimate MPI. Basharat, Hudon, and Nawaz (2015) have used a similar approach to estimate the impact of efficiency on interest rates in microfinance. There are certain reasons for choosing an output-oriented CRS or input-oriented VRS or CRS. Firstly, one of the main objectives of MFIs is to increase their outreach by extending financial services to the poor. The more loans provided to the poor, the more revenue an MFI earns, which ultimately enhances financial sustainability. Secondly, as a sector, microfinance is still underdeveloped in most countries and thus MFIs have limited financial and human resources to invest in their operations. Hence, considering an imperfect economic environment and other market determinants, output-oriented production models along with VRS are most appropriate for the production analysis of the microfinance sector.

Selection of Input-Output and Determinants of Productivity

It is prerequisite to determine inputs and outputs to measure the productivity of MFIs. However, the selection of input and output varies based on how the sector is classified. We have chosen two outputs and two inputs commonly used in studies on efficiency and productivity in microfinance (Bassem, 2014: 182; Gutierrez-Nieto, Serrano-Cinca, & Molinero, 2007: 131). Total number of staff (personnel, including loan and administrative officers) has been selected as an input under the production approach and operating expenses has been selected under intermediation. Both financial sustainability and social outreach are taken into account while choosing outputs. Out of the two outputs, financial revenue/assets (FINR) reflect the ability of an MFI to cover total cost for long-term sustainability. The number of active clients represents social outreach as MFIs provide services to both male and female (Twaha & Rashid, 2012). Lastly, average loan size, which reflects the depth of social outreach, has also been considered as an

output (Louis, Seret, & Baesens, 2013: 197; Mia & Chandran, 2016: 505; Piot-Lepetit & Nzongang, 2014: 319; Quayes, 2012: 3421). Table 1 shows the definitions of inputs and outputs used in this study.

Table 1: Definitions of Inputs and Outputs

Classification	Name	Definition	Type	Unit
Input	Operating Expense/ Loan Portfolio (OPEX)	Operating Expense over Average Gross Loan Portfolio	Continuous	Ratio
	Personnel (PER)	Total Number of Staffs including Administrative and Number of Loan Officers	Continuous	Number of Personnel
Output	Financial Revenue (FINRE)	Revenue from Portfolio and from Other Financial Assets Over Total Assets	Continuous	Ratio
	Average Loan (AVL)	Average Loan Balance Over Per Borrower	Continuous	Ratio
	Number of Active Clients (CL)	The number of individuals or entities who currently have outstanding loan balances with the MFI.	Continuous	Number of Persons

Data

This study uses secondary data sources from the Microfinance Information Exchange, widely known as the MixMarket (www.mixmarket.org) dataset which provides analyses of risks and opportunities of the global microfinance market. At present, MixMarket is the only reliable international source for microfinance data; moreover, it contains information regarding MFIs’ financial and social outreach. MFIs around the world voluntarily report their financial statements and balance sheets to MixMarket. The statements provided by the MFIs are mostly audited and regarded as reliable (Quayes, 2012: 3421, 2015: 1909). Most research studies have used the MixMarket database to evaluate efficiency, productivity and mission drift of the microfinance sector (Hartarska & Nadolnyak, 2007: 1207; Hartarska, Shen, & Mersland, 2013: 118; Hermes, Lensink, & Meesters, 2011: 938; Hisako, 2009: 2628). The main constraint of the MixMarket dataset is that the list of MFIs is incomplete.

Data of MFIs from Palestine and Jordan have been obtained for this study. A few MFIs have been excluded because of missing or unreported data. The panel set includes thirteen MFIs from both countries. The study period is from 2007 to 2011 (5 years). For the conventional Malmquist method, it is necessary that all the inputs and outputs are observed within the selected years and that the value

is non-negative. The sample size in this study is optimum considering all these factors. Moreover, according to Golani (1989: 237), “the data envelopment analysis (DEA) provides a means of assessing relative efficiencies of decision-making units (DMUs) with minimum prior assumptions on input output relations in these units. Such relative efficiencies can be evaluated among a group of single periods or in a sequence of period.”

Results and Discussion

Table 2 presents the descriptive statistics of the variables. This study includes small to large MFIs as measured by the number of active borrowers. The maximum number of active clients in the sample is 63,651 and the maximum average loan size is USD 14,152.

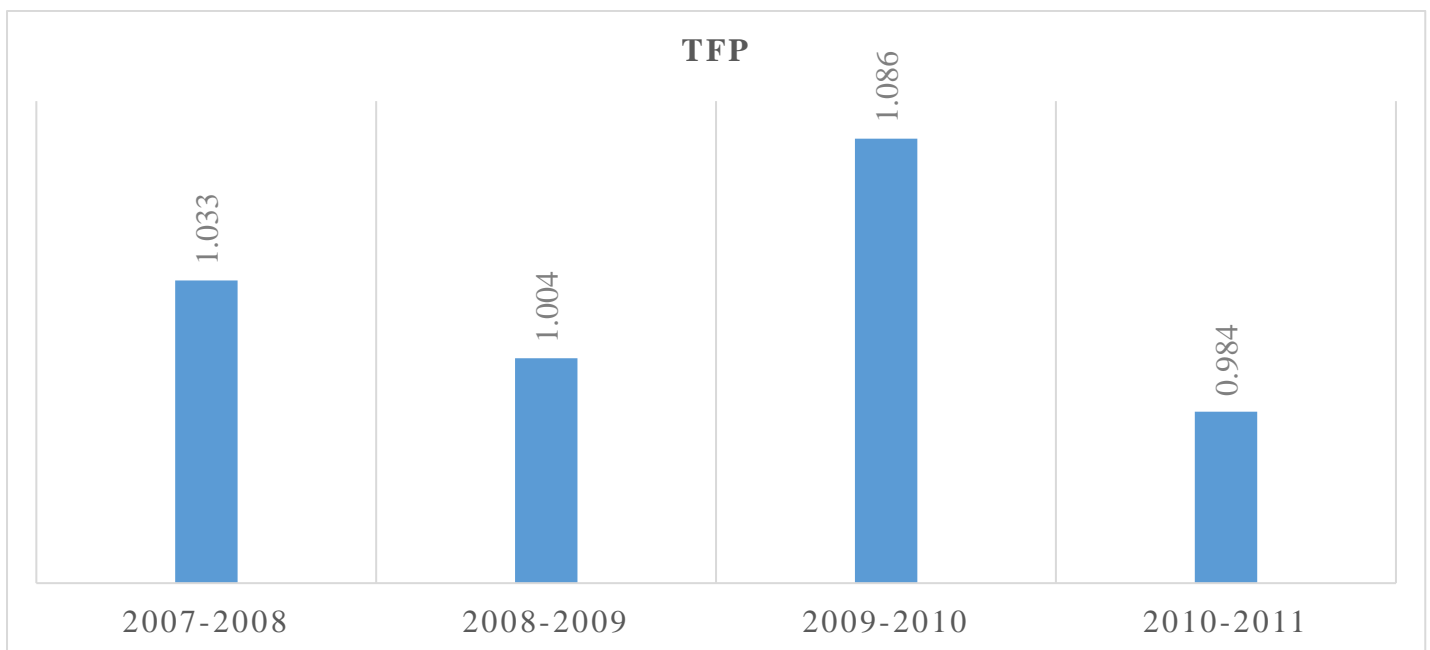
Data analysis was carried out with the computer program for DEA (DEAP 2.1) which was developed by (Coelli, 1996). The estimated TFP is presented in Figure 1. TFP values greater than 1 indicate growth while values less than 1 indicate a decline in productivity. The value of 1 indicates stagnation in productivity. The average productivity of MFIs in both countries increase 2.6% annually during the year 2007 till 2011. This productivity progress corroborates the findings of (Mia and Ben Soltane, 2016: 32).

Table 2: Descriptive Statistics.

Variable	Obs	Descriptive statistics			
		Mean	Std. Dev.	Min	Max
<u>Output</u>					
CL	65	14736.510	15549.460	860	63651
AVL	65	1927.138	2462.605	264	14152
FINR	65	0.210	0.129	0.019	0.687
<u>Input</u>					
OPEX	65	0.152	0.097	0.002	0.496
PER	65	99	67	18	317

Source: Authors

Figure 1: Overall Trend of TFP Changes and Mean in MFIs in Palestine and Jordan.



From the bar chart above, the study finds that the highest TFP was in 2009-2010. The TFP for the MFIs were all above 1 except in 2010-2011. This is because the microfinance sector experienced uncertainty from 2007 to 2009 due to several unrests and disputes from Palestinian and Israeli occupation. In 2009-2010, the socio-political condition in Palestine was relatively stable and TFP started to

increase. Subsequently, in 2011, conflict arose again in Gaza due to the unlawful blockade and more pressure for two state solution came in 2011 which disrupted the operations of NGOs and aid organization in Palestine (Infoplease, 2019; Global Policy Forum, 2019). Consequently, TFP fell below 1.

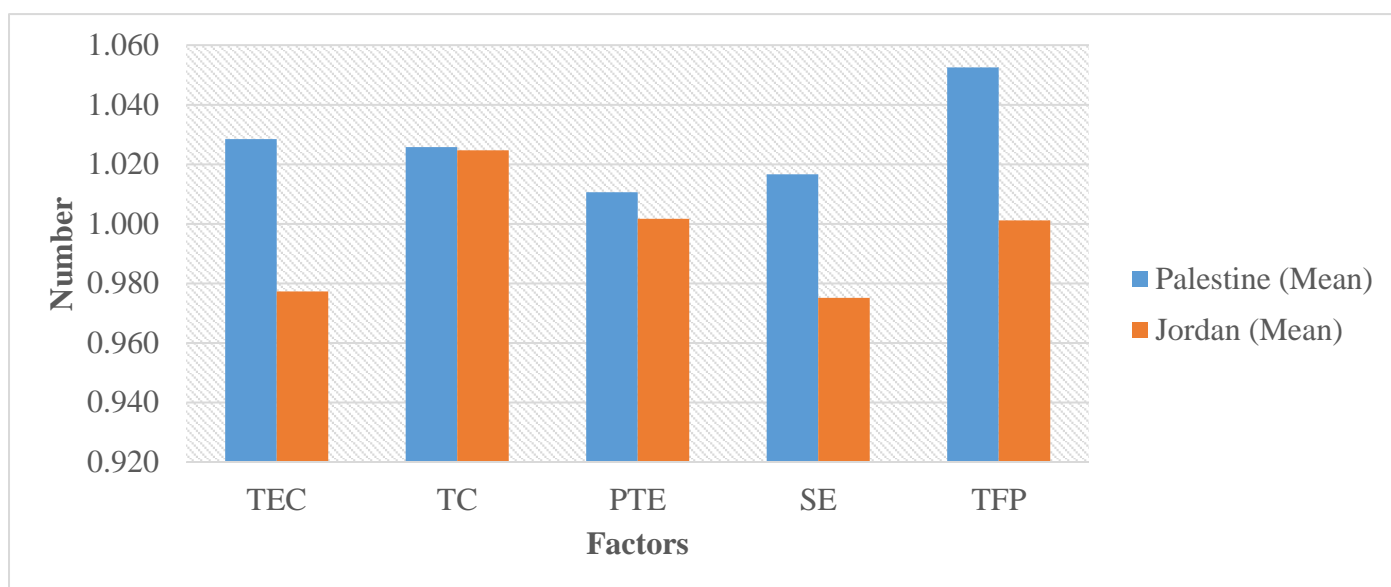
Table 3: Decomposition of Overall TFP Changes (Palestine and Jordan).

Year	TEC	TC	PTE	SE	TFP
2007-2008	1.015	1.017	1.014	1.001	1.033
2008-2009	0.948	1.059	1.044	0.908	1.004
2009-2010	1.056	1.028	0.907	1.164	1.086
2010-2011	0.993	0.991	1.065	0.933	0.984
Mean	1.003	1.024	1.006	0.997	1.026

The decomposition results reported in Table 3 suggest that overall progress can mainly be attributed to technological change. The findings of our study are similar to that of (Wijesiri and Meoli, 2015: 115). They have found that TC is the main factor for an annual productivity increase of 7% for Kenyan MFIs. This implies that MFIs in Palestine and Jordan utilize new and innovative products in their operations. This may be driven by the availability of funding from foreign donors, adverse political challenges and the public perception

towards loans and interest rates in Palestine and Jordan. Meanwhile, scale efficiency generated a positive impact towards technical efficiency change. Between the two countries, Palestine MFIs had better productivity than Jordanian MFIs. In Palestine, FATEN (Palestine for Credit and Development or Grameen Jamil) and Al Rafah Bank confirmed highest average productivity rates of 18.2% and 16.3% respectively. In Jordan, the DEF (Development and Employment Fund) reported that the productivity rate was 12.4%.

Figure 2: Comparison of Various Components of TFP between Palestine and Jordan.



From Figure 2, it is apparent that the Palestine microfinance sector is performing better than the Jordanian microfinance sector in all components of TFP. In terms of TEC, the microfinance sector in Palestine scores well above the microfinance sector in Jordan. TC and PTE remain almost identical in both the countries. Palestinian MFIs perform below Jordanian MFIs in SE. Nevertheless, in

terms of the overall TFP, the Palestinian microfinance sector outperforms the Jordanian microfinance sector. The better performance of the Palestinian microfinance sector may be due to the fact that it has deemed immensely important by foreign donors. Overall productivity of all MFIs in our sample is reported in Table 4.

Table 4: Average Total Factor Productivity of All MFIs in Palestine and Jordan (2007-2012).

MFIs	Country	TEC	TC	PTE	SE	TFP
ACAD	Palestine	0.944	1.051	0.951	0.993	0.993
Al Rafah Bank	Palestine	1.000	1.163	1.000	1.000	1.163
ASALA	Palestine	0.950	1.024	0.956	0.993	0.972
FATEN	Palestine	1.185	0.998	1.133	1.046	1.182
PARC	Palestine	1.000	1.022	1.000	1.000	1.022
Ryada	Palestine	1.019	0.977	1.015	1.004	0.996
UNRWA	Palestine	1.101	0.945	1.019	1.080	1.040

Alwatani	Jordan	1.041	0.978	1.052	0.989	1.018
DEF	Jordan	1.000	1.124	1.000	1.000	1.124
FINCA - JOR	Jordan	0.987	1.006	1.000	0.987	0.993
MEMCC	Jordan	0.972	0.995	0.982	0.989	0.967
MFW	Jordan	0.941	1.022	1.000	0.941	0.961
Tamweelcom	Jordan	0.923	1.023	0.976	0.945	0.944
Mean		1.003	1.024	1.006	0.997	1.026

From the above table 4, it is evident that MFIs operating in the Palestinian territory have outperformed the MFIs in Jordan. The TFP scores in Palestinian MFIs have been comparatively better than those of TFP scores in Jordanian MFIs. Consequently, it can be inferred that the level of productivity of MFIs in Palestine is relatively higher than the Jordanian MFIs. Among the MFIs operating in Palestine, TFP scores have been estimated more than 1 in the following MFIs namely Al Rafah Bank, FATEN, PARC, UNRWA. Whereas, the other MFIs' TFP lies just near to 1 which is also a good sign for improvement of their operational productivity. Meanwhile, MFIs in Jordan have been struggling to improve their TFP except Alwatani and DEF.

Conclusion, Recommendation and Future Research

This study analysed thirteen MFIs in Palestine and Jordan from 2007 to 2011. Results show that average productivity progress was 2.6%. This increase is mainly attributed to TC. On the other hand, TEC remained almost stagnant (TEC = 1.003). Therefore, it can be inferred that microfinance productivity increased because the MFIs in Palestine and Jordan offer innovative products to clients. In Palestine, MFIs needed to rely on various innovative loan products since Palestine encounters many socio-economic challenges regarding availability of foreign funds, political conflicts and overall public perception concerning taking microfinance loans and paying interest. To further stimulate productivity, MFIs in these two countries should enhance the capability of their manpower through

training, workshops and field visits to countries with successful microfinance sectors. Other countries may also learn from these two countries about their technological progress in microfinance operations, especially as there has been technological regress in countries like Bangladesh and other south Asian countries.

The productivity evaluation undertaken in this study provides new avenues for both researchers and practitioners. The findings also provide important policy prescriptions that highlight sustainability through enhancing productivity. To enhance the overall sectorial productivity, the microfinance industries in Palestine and Jordan could emulate the operational strategies of the benchmark MFIs (Al Rafah) through the appropriate institutions.

Despite providing an empirical assessment on the productivity of MFIs in Palestine and Jordan, this study has its limitations. First, the study has only examined a small sample size with a relatively narrow time period. Future studies could extend the analysis by incorporating more MFIs in the sample, given that the data are available. Secondly, the study followed a single stage production process in estimating the productivity of MFIs. Future research could extend the analysis to multiple stages of production. Nonetheless, due to the unavailability of data, it was necessary to merge MFI data from both countries into a single production function. Finally, it should be noted that the limitations identified above do not detract the significance of the study; rather, it indicates opportunities and directions for future research in microfinance.

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References

- Babu, M. M., and Kulshreshtha, P. 2014. Productivity Change and Technical Efficiency in Indian Microfinance Institutions. *Studies in Microeconomics*, 2(2), 165-200.
- Basharat, B., Hudon, M., and Nawaz, A. 2015. Does efficiency lead to lower prices? A new perspective from microfinance interest rates. *Strategic Change*, 24(1), 49-66.
- Bassem, B. S. 2014. Total factor productivity change of MENA microfinance institutions: A Malmquist productivity index approach. *Economic Modelling*, 39, 182-189.

- Chandran, V. G. R., and Pandiyan, V. 2008. Technical efficiency and technological change in Malaysian service industries. *Applied Economics Letters*, 15(8), 655-657.
- Charnes, A., Cooper, W. W., and Rhodes, E. 1978. Measuring the efficiency of decision making units. *European journal of operational research*, 2(6), 429-444.
- Coelli, T. J. 1996. A Guide to DEAP Version 2.1: A data envelopment analysis (computer) program. *Center for Efficiency and Productivity Analysis. University of New England. Working paper*, 96(08).
- Dodeen, M. 2013. *Microfinance in Palestine: The Legal Framework and the Enforcement of Contracts*. Retrieved from Ramallah: www.mas.ps
- Färe, R., Grosskopf, S., Norris, M., & Zhang, Z. 1994. Productivity growth, technical progress, and efficiency change in industrialized countries. *The American Economic Review*, 66-83.
- Gebremichael, B. Z., and Rani, D. L. 2012. Total factor productivity change of ethiopian microfinance institutions (mfis): A malmquist productivity index approach (mpi). *European Journal of Business and Management*, 4(3), 105-114.
- Global Policy Forum 2019, General Analysis on Israel, Palestine and the Occupied Territories, source online, <https://www.globalpolicy.org/security-council/index-of-countries-on-the-security-council-agenda/israel-palestine-and-the-occupied-territories/38298.html>.
- Golany, B. and Roll, Y., 1989. An application procedure for DEA. *Omega*, 17(3), pp.237-250.
- Gutierrez-Nieto, B., Serrano-Cinca, C., and Molinero, C. M. 2007. Microfinance institutions and efficiency. *Omega*, 35(2), 131-142.
- Hartarska, V., and Nadolnyak, D. 2007. Do regulated microfinance institutions achieve better sustainability and outreach? Cross-country evidence. *Applied Economics*, 39(10), 1207-1222.
- Hartarska, V., Shen, X., and Mersland, R. 2013. Scale economies and input price elasticities in microfinance institutions. *Journal of Banking & Finance*, 37(1), 118-131.
- Hermes, N., Lensink, R., and Meesters, A. 2011. Outreach and efficiency of microfinance institutions. *World Development*, 39(6), 938-948.
- Hisako, K. 2009. Competition and wide outreach of microfinance institutions. *Economics Bulletin*, 29(4), 2628-2639.
- Infoplease 2019, The Israeli-Palestinian Conflict, 2011–Present, source online, <https://www.infoplease.com/history/world/the-israeli-palestinian-conflict-2011-present>.
- Isik, I., and Hassan, M. K. 2003. Efficiency, ownership and market structure, corporate control and governance in the Turkish banking industry. *Journal of Business Finance & Accounting*, 30(9-10), 1363-1421.
- Louis, P., Seret, A., and Baesens, B. 2013. Financial efficiency and social impact of microfinance institutions using self-organizing maps. *World Development*, 46, 197-210.
- Mia, M. A. 2016. Microfinance Institutions and Legal Status: An Overview of the Microfinance Sector in Bangladesh. *Journal of Asian Finance, Economics and Business*, 3(2), 21-31.
- Mia, M. A., and Ben Soltane, B. I. 2016. Productivity and its determinants in microfinance institutions (MFIs): Evidence from South Asian countries. *Economic Analysis and Policy*, 51, 32-45. doi:<http://dx.doi.org/10.1016/j.eap.2016.05.003>
- Mia, M. A., and Chandran, V. G. R. 2016. Measuring Financial and Social Outreach Productivity of Microfinance Institutions in Bangladesh. *Social Indicators Research*, 127(2), 505-527. doi:10.1007/s11205-015-0979-5
- Ministry of Planning and International Cooperation. 2012. *Jordan Microfinance Market Study*. Jordan.
- Morduch, J. 2000. The microfinance schism. *World Development*, 28(4), 617-629.
- Palestinian Central Bureau of Statistics. 2017. *Palestine in Figures 2016*. Retrieved from Ramallah, Palestine: www.pcbs.gov.ps/Downloads/book2261.pdf
- Piot-Lepetit, I., and Nzongang, J. 2014. Financial sustainability and poverty outreach within a network of village banks in Cameroon: A multi-DEA approach. *European journal of operational research*, 234(1), 319-330.
- Quayes, S. 2012. Depth of outreach and financial sustainability of microfinance institutions. *Applied Economics*, 44(26), 3421-3433.
- Quayes, S. 2015. Outreach and performance of microfinance institutions: a panel analysis. *Applied Economics*, 47(18), 1909-1925.
- Rana, M. S., Ismail, I., and Ismail, M. N. 2017. Challenges and Prospects of Integrated Model of Islamic Micro-finance in Palestine *Moving Towards an Equitable Society* (pp. 177-198): University of Malaya Press.
- Sanabel. 2012. *Islamic Microfinance Case Study Arab Center for Agricultural Development (ACAD)*. Paper presented at the Islamic Microfinance Conference, Saudi Arabia.
- Tahir, I.M. and Tahrim, S.N.C., 2015. Efficiency and productivity analysis of microfinance institutions in Cambodia: A DEA approach. *International Review of Business Research Papers*, 11(1), pp.25-42.
- Twaha, K., and Rashid, A. 2012. Exploring the determinants of the productivity of microfinance institutions in India. *Munich Personal RePEc Archive*. Retrieved from <http://mpra.ub.uni-muenchen.de/45715/>
- Wijesiri, M., and Meoli, M. 2015. Productivity change of microfinance institutions in Kenya: A bootstrap Malmquist approach. *Journal of Retailing and Consumer Services*, 25, 115-121.
- Woller, G., Dunford, C., and Woodworth, W. 1999. Where to microfinance. *International Journal of Economic Development*, 1(1), 29-64.
- World Bank. 2017. The World Bank In West Bank and Gaza. Retrieved from <http://www.worldbank.org/en/country/westbankandgaza/overview>