

The Use of Digital Financial Services and Business Performance Satisfaction in the Context of Female Entrepreneurship

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Abstract: The use of electronic resources to conduct payments is increasing. This scenario indicates the relevance of new studies to understand the determinants and the potential effects of Digital Financial Services (DFS) adoption. In this paper, we test the effect of DFS adoption on the satisfaction with business performance, considering a sample comprised of responses from entrepreneurs that are also mothers (momprenuers). The database includes 177 questionnaires that presented complete responses for the items analyzed in this paper; these questionnaires were collected during the period from April, 2020 to June, 2020 (which involves the COVID-19 related crisis). Using confirmatory factor analysis and structural equation model, the main results suggest that attitude towards Information and Communication Technologies has a positive effect on DFS adoption. Moreover, the use of DFS presented a positive effect on the satisfaction with business performance, which means that the use of technologies to make electronic payments, to manage business bank account, and to provide electronic payment alternative for customers can improve the business performance satisfaction of women entrepreneurs.

Keywords: E-payment; Performance; Momprenuers; Emerging Economies.

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1. Introduction

Mobile phone was originally a tool for communication, but nowadays it has many other functions (Dziwornu et al., 2018). Together with the Internet, cellphones also create opportunities for new businesses (Mivehchi, 2019), since they enable the use of many resources to achieve new customers, promote firm products, communicate with other firms and suppliers, pay bills, among others. This scenario indicates the relevance of Information and Communication Technologies (ICTs) to support businesses activities. Particularly, ICTs also have the potential to expand entrepreneur activities (Mivehchi, 2019).

The recent advancements of ICTs include the use of digital resources to deliver financial services. Innovative technologies such as Internet banking, mobile banking, and mobile payment are examples of Digital Financial Services - DFS (Rana et al., 2020). DFS can improve the level of efficiency in the banking sector, contributing also to the livelihoods and financial inclusion of women in developing countries (Rana et al., 2020; Dziwornu et al., 2018; Gichuki & Mulu-Mutuku, 2018).

In some regions, such as Saudi Arabia, some technological resources (i.e., online selling) are relatively new (McAdam et al., 2019). Even in such contexts, digital technology can facilitate entrepreneurial activities by women, for example, providing them with a safe space (McAdam et al., 2019). Considering that digital technologies can contribute to the businesses activities of women, the use of DFS can also be incorporated in the set of technologies used by female entrepreneurs, generating an alternative option for customers to make their payments.

This scenario indicates the relevance of new studies to understand the determinants and the potential effects of DFS adoption, particularly in the context of female entrepreneurship. Therefore, the main purpose of this paper is to **test the effect of DFS adoption on the satisfaction with business performance, considering a category of women entrepreneurs that are also mothers, known as mompreneurs**. The database includes 177 questionnaires that presented complete responses for the items analyzed in this paper. It is important to highlight that these questionnaires were exclusively answered by mompreneurs and that the responses were collected during the COVID-19 pandemic.

There are women who decide to pursue a full-time career (Griffiths & Moore, 2010), but this decision requires efforts to manage work and home responsibilities (Griffiths & Moore, 2010). In this context, we selected the category of mompreneurs to conduct the study considering their diverse tasks, challenges, related-stereotypes and business management responsibilities (Nel et al., 2010; Jean & Forbes, 2012; Manolova et al., 2020; Ayatakshi-Endow & Steele, 2021). Therefore, the use of Information Technology could represent an important tool to achieve customers, sell products and publicize services.

Many firms managed by women tend to be small and vulnerable to recession periods, such as the COVID-19 pandemic (Manolova et al., 2020). Moreover, still considering the COVID-19 pandemic scenario with the measures to reduce contagion (i.e., schools closed and children at home for longer periods of time), it requires more dedication by mompreneurs with childcare and household responsibilities (Ayatakshi-Endow & Steele, 2021; Manolova et al., 2020), a factor that

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can affect their businesses activities. In order to face the effects related to the suspension of business activities, many women entrepreneurs used digital technologies as a resource to maintain their sales (Sultan & Sultan, 2020). Considering that the data for hypotheses testing were collected during the COVID-19 pandemic, this study expands the literature by indicating the effects of DFS adoption on performance satisfaction during a crisis period and highlighting the benefits of ICTs resources in this scenario.

It is important to note that the agenda related to financial services also includes a debate regarding women financial inclusion. Previous research indicates that “women and men owners of new technology-based firms used different financing strategies, either through necessity or choice” (Robb & Coleman, 2010, p. 43). Therefore, initiatives to reduce gender gap in relation to financial services can stimulate egalitarian access to financial resources among men and women, generating new opportunities to improve development at a country level (Cabeza-García et al., 2019). Women entrepreneurs usually tend to be less aware in relation to ICTs benefits to the performance of businesses they manage (Orser et al., 2019). By showing the benefits that DFS can provide to women entrepreneurs, this research can increase awareness, especially among women, regarding the potential of ICTs use to improve business performance.

Women’s access to safe, easy, and affordable credit, and other financial services in emerging countries is recognized as a necessary condition for accelerating economic growth, reducing disparities in income, and reducing poverty. [...] Greater economic empowerment of women will have a positive effect on their entrepreneurial capacity, their investments, and their planning for the future (Cabeza-García et al., 2019, p. 6).

In the context of mompreneurship little is known about the impact of ICTs adoption. Although previous studies have already investigated DFS use by women entrepreneurs, to the best of our knowledge this study is the first to investigate the impacts of DFS usage specifically by mompreneurs.

2. Literature Review

Women entrepreneurs usually face many barriers related to cultural factors, limited access to financial services, low level of financial and technology literacy, among others (Cabeza-García et al., 2019; Ukanwa et al., 2018; Ameen & Willis, 2016; Ahmad & Arif, 2015). Besides these barriers, mompreneurs face additional challenges due to the need to balance their childcare and business related responsibilities, stereotypes, and limited networking opportunities (Jean & Forbes, 2012; Nel et al., 2010).

Several studies point that ICTs are important tools to overcome these challenges and barriers, by empowering women entrepreneurs mainly in developing countries (McAdam et al., 2019; Mivehchi, 2019; Dziwornu et al., 2018). McAdam et al., (2019) emphasize the emancipatory potential that digital technologies have been providing for women entrepreneurs in Saudi Arabia and Moyi (2019) suggests

that mobile technologies influence individuals’ decision toward self-employment, particularly among women.

During the COVID-19 pandemic, when women entrepreneurs’ ventures were strongly affected by lockdown and social distancing measures, Sultan and Sultan (2020) identified that digital marketing strategies through ICTs such as social media, e-mail and e-commerce platforms helped these women to maintain their businesses.

In addition to facilitate entrepreneurship, Mivehchi (2019) points out that ICTs and, more specifically, the Internet, have created new possibilities for economically involved agents to exchange information, products, and money. Furthermore, ICTs allow women to establish and run home-based business, being especially relevant to mompreneurs (Jean & Forbes, 2012). Mobile Financial Services (MFS), a subtype of Digital Financial Services (DFS), can be considered an essential tool to foster female entrepreneurship, by promoting women’s financial inclusion (Dziwornu et al., 2018). MFS are technologies that allow users to conduct financial transactions via mobile devices (Dziwornu et al., 2018).

Among other variables, Cabeza-García et al. (2019) tested the effect of credit card use by females on economic development, considering a cross-country study with 91 countries. The authors observed a positive correlation between credit card use and economic development, suggesting that alternatives related to female financial inclusion can trigger economic development (Cabeza-García et al., 2019).

Ezzahid and Elouaourti (2021) highlight the role that mobile banking can play in eliminating or alleviating the barriers of financial exclusion of women, older and rural people. Considering the crescent use of these type of technologies, Gichuki and Mulu-Mutuku (2018) investigated the factors related to the adoption of different categories of mobile money by women entrepreneurs in Kenya and identified that women’s control of firm finances and of decision making have a significant effect on adoption of mobile money services such as mobile payments and mobile banking. Another factors such as knowledge of MFS, trust, and information privacy were found to be drivers of MFS adoption by women entrepreneurs in Ghana (Dziwornu et al., 2018).

Despite the benefits that MSF technologies can provide to women entrepreneurs, previous research show that women are less likely to adopt these technologies than men. Kalinić et al. (2020), for example, identified significant differences between men and women in relation to m-payment acceptance. Women’s resistance in adopting MSF services is mainly due to greater risk perception (Kalinić et al., 2020; Hossain, 2019).

Lower digital skills are also barriers to ICTs adoption by women entrepreneurs that can be attenuated by entrepreneurship training interventions (Orser et al., 2019). Orser et al. (2019) suggest that women entrepreneurs tend to be less aware of the benefits of ICTs to business performance. Because of this, ICTs adoption is not considered in the top of the priority list of women entrepreneurs.

Previous studies show that ICTs can benefit women entrepreneurs. However, there are some challenges to be faced by these women to fully explore DFS resources and increase financial inclusion, especially in developing countries. Moreover, these challenges can present some additional particularities for the category of women entrepreneurs that are also mothers: the mompreneurs. We expect to contribute to the literature by conducting an analysis of DFS in the context of mompreneurs from a developing country (Brazil) during a crisis period (the COVID-19 related crisis). The next section presents the research model and the study hypotheses.

3. Research Model and Hypotheses

The quantitative model of this study considers three constructs that were developed based on previous research, as presented in the following paragraphs. The main dependent variable is performance satisfaction, that is expected to be explained by DFS adoption. Moreover, the quantitative model considers attitude as an antecedent of DFS adoption. We also included a control variable, called services, in order to investigate if the perception related to performance satisfaction differs between businesses of the service sector and businesses of the retail-related sector.

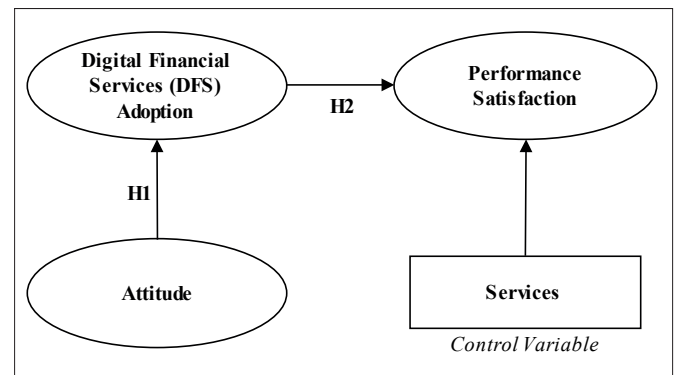
Attitude can be defined as an individual's beliefs, opinions and feelings about a given product or service (Park et al., 2019). Previous studies point that attitude is as crucial factor for technology adoption (Plewa et al., 2012; Park et al., 2019). Glavee-Geo et al. (2017) identified that attitude positively impacts the intention to adopt mobile banking services. Liébana-Cabanillas et al. (2014) also found that attitude has a positive and significant relationship with women's intention to adopt mobile payment. The findings of Rakshit et al. (2021) suggest that a positive attitude toward mobile apps has a positive effect on mobile-apps-based business adoption. Thus, we hypothesize that: H_1 - Attitude has a positive effect on Digital Financial Services adoption by mompreneurs.

Technology adoption is also recognized as a key factor to improve business performance (Orser et al., 2019; Benitez-Amado et al., 2010). Khanal and Mishra (2016), for example, found that the use of the Internet has a positive and significant effect on the financial performance of small agricultural business. Benitez-Amado et al. (2010) observed that investments in Information Technology resources positively influence firm performance. Charoensukmongkol and Sasatanun (2017) identified that social media use for CRM has a positive impact on business performance satisfaction of microentrepreneurs from Thailand.

During the COVID-19 pandemic, the study of Rakshit et al. (2021) identified that mobile apps adoption significantly improved Small and Medium-Sized business performance in terms of productivity, costs, relationship management, and market share. Additionally, the results of Horne et al. (2015) suggest a positive relation between the use of m-payment technologies to pay suppliers and business growth measured by income and the number of new employees. Thus, we hypothesize that: H_2 - The adoption of Digital Financial Services by

mompreneurs has a positive effect on business performance satisfaction. Figure 1 summarizes the quantitative model and the study hypotheses.

Figure 1: Research Model



4. Data and Method

4.1 Sample

The sample is exclusively comprised of responses from mompreneurs. The respondents are from the region of Triângulo Mineiro (State of Minas Gerais, Brazil). Data were collected through online questionnaires and the snowball technique (Biernacki & Waldorf, 1981), in order to achieve new respondents. The respondents were required to fill a questionnaire related to technology adoption and some demographic information. The participation was completely voluntary and anonymous. Moreover, before data collection, the research protocol and the research questionnaire were analyzed and approved by the Ethics Committee of the University where the authors develop their activities.

The responses were collected during the period from April, 2020 to June, 2020 (which involves the COVID-19 related crisis), and 192 responses were initially obtained. We excluded 2 questionnaires answered by women that do not have children; 10 questionnaires answered by women from cities outside the region of interest (Triângulo Mineiro); and 3 questionnaires that had missing values. Therefore, the final sample is comprised of 177 complete questionnaires. It is important to note that these questionnaires were developed considering previous research in the field (Zhou et al., 2010; Hsu et al., 2014; Charoensukmongkol & Sasatanun, 2017; Gichuki & Mulu-Mutuku, 2018). The main references for each construct are presented in Appendix A.

4.2 Convergent and Discriminant Analysis

Following Anderson and Gerbing (1988), we developed the quantitative analysis considering two stages. First, in the confirmatory factor analysis (CFA), we evaluated the convergent and discriminant validity, in order to access the convergence and internal consistence of each construct. Then, we tested the hypotheses using structural equation model (SEM). Table 1 presents the indexes related to the fit of the models.

Table 1: Adjustments of the Research Model

Statistics	CFA	SEM
Chi-Square	62.72	74.33
Deg. of Freedom	24	33
Chi-Square / D.F. Ratio	2.61	2.25
GFI	0.933	0.927
NFI	0.951	0.942
TLI	0.953	0.955
CFI	0.969	0.967
RMSEA	0.096	0.084
RMSEA (Low - 90)	0.067	0.059
RMSEA (High - 90)	0.125	0.110
N° Respondents	177	177

Notes: RMSEA represents the Root Mean Square Error of Approximation; GFI represents the Goodness of Fit Index; CFI represents the Comparative Fit Index; NFI represents the Normed Fit Index; TLI indicates the Tucker-Lewis coefficient.

According to the results of Table 1, the quantitative model presented good adjustments, since the indicators GFI, NFI, TLI and CFI were above 0.90 (Hair et al., 2014). Moreover, the RMSEA value, particularly the value of the lower bound, is below 0.08, and the ratio between the chi-square and the degrees of freedom is also below 3; together, these results suggest a good fit for the model. An equivalent result was observed for the SEM analysis (second column of values in Table 1). Table 2 contains the statistics related to the internal consistency of the constructs.

Table 2: Results for the Analysis of Internal Consistency

Constructs	C.A.	C.R.	A.V.E.
Attitude	0.921	0.929	0.816
Dig. Fin. Serv. (DFS)	0.884	0.893	0.736
Performance Satisfaction	0.881	0.885	0.722

Notes: C.A. represents the Cronbach's Alpha; C.R. represents the Composite Reliability; A.V.E. represents the Average Variance Extracted.

The values of Table 2 indicate that the three constructs presented good indexes in relation to convergence and internal consistence. In other words, the items of each one of these constructs are measuring similar aspects (the description of these items is available in Appendix A). Table 3 complements the analysis of Table 2 and indicates that the constructs are individual and measure different aspects, since the Root Square of the AVE for each construct is above the correlation among the pairs of the respective construct with the other constructs.

Table 3: Results for the Discriminant Analysis

Constructs	1. Attit.	2. DFS	3. Perf. Sat.
1. Attitude	0.903		
2. Dig. Fin. Serv. (DFS)	0.531	0.858	
3. Performance Satisfaction	0.177	0.240	0.850

Notes: the values in bold represent the Root Square of the AVE; the values below the bold line indicates the correlations between the constructs.

After analyzing the results from Table 1, Table 2 and Table 3, we can observe that the research model presented good indexes of adjustments, each construct measures an individual aspect and these constructs have internal consistency. These analyses indicate convergent and discriminant validity. Therefore, this research model is used to test the study hypotheses. It is also important to note that we also evaluated an eventual indirect effect of the construct *Attitude* on the construct *Performance Satisfaction*. This evaluation was carried out through a Bootstrap analysis with 1,000 Bootstrap samples.

5. Results

A descriptive analysis of the dataset indicates that the average age of the respondents is 43 years old. Moreover, 42.4% of the mompreneurs that answered the questionnaire have businesses in the service sector (57.6% are businesses of the retail-related sector). The descriptive analysis also shows that 85.9% of the respondents have one or two children. We conducted the hypotheses testing through the use of SEM. After evaluating the convergent and discriminant validity in the CFA stage (as presented in the previous section), we elaborated Table 4, that contains the main results in relation to the study hypotheses.

Table 4: Results for the Hypotheses Testing

Relationship	Estimate	Signif.
<i>Direct Effect</i>		
H1: Attitude ==> Dig. Fin. Serv. (DFS)	0.533	0.000 ***
H2: Dig. Fin. Serv. (DFS) ==> Performance Satisfaction	0.244	0.002 ***
<i>Indirect Effect</i>		
Attitude ==> Performance Satisfaction	0.130	0.003 ***
<i>Control Variable</i>		
Services ==> Performance Satisfaction	0.068	0.373

Notes: Services: represents a binary variable to indicate whether the business is related to the services sector (it receives 1 for businesses of the service sector and 0 for businesses of the retail-related sector); the indirect effect of the construct Attitude on the construct Performance Satisfaction was evaluated through a Bootstrap analysis with 1,000 Bootstrap samples. *significant at 10%; **significant at 5%; ***significant at 1%.

According to the results presented in Table 4, the effect of the variable attitude on the adoption of digital financial services was positive and statistically significant at 1%. This indicates that attitude represents an important variable to understand the DFS adoption among mompreneurs. This positive relationship is in line with H1 and is also in line with the arguments presented during the development of this hypothesis. Therefore, our empirical analysis reinforces that attitude is an important factor in the context of technology adoption (Park et al., 2019), including the technologies related to financial services. Previous research (Liébana-Cabanillas et al., 2014; Glavee-Geo et al., 2017) also found that attitude has a positive and significant relationship with women's intention to adopt mobile payment. Additionally, the variable attitude presented a positive, significant and indirect effect on performance satisfaction, suggesting that attitude has also indirect effects in the quantitative model that was evaluated.

The main results also indicate that the adoption of digital financial services has a positive and significant effect on satisfaction with business performance among mompreneurs, which supports H2. The construct used to represent DFS in this study is comprised of three items: use of ICTs to conduct payments related to the business, use of ICTs to manage the bank account of business, and the availability of electronic payment for customers. Therefore, the use of DFS to make payments of the firm and to receive payments from customers can contribute to the satisfaction with business performance. The positive effect of DFS on performance satisfaction is also in line with other studies (Benitez-Amado et al., 2010; Orser et al., 2019), reinforcing the benefits of technology for the firms.

In relation to the control variable (services), its effect was not statistically significant, suggesting that the perception about performance satisfaction is equivalent among the two groups (businesses of the service sector and businesses of the retail-related sector).

The results of this study has implications for the literature about financial inclusion, since there is a gender gap in relation to the access of formal financial services (Cabeza-García et al., 2019). Based on the results of this paper, we can observe that the adoption of DFS among mompreneurs can contribute to their performance satisfaction; therefore, initiatives to reduce the gender gap related to formal financial services can also present an effect on the economic development of female businesses at a country level. Sustainable economic development requires inclusive economic growth and, even indirectly, empowering women (Cabeza-García et al., 2019), so gender differences can be mitigated.

Economic empowerment of women can benefit their entrepreneurial capacity (Cabeza-García et al., 2019); our empirical results are also in line with this reasoning. The actions related to economic empowerment of women can consider training activities to increase the use of digital financial services, involving both payment of firm bills and alternatives to receive from customers. Moreover, in Brazil, providing electronic payment alternatives to customers can involve additional costs, and this activity requires and adequate planning by mompreneurs. The demand for planning activities in relation to the financial services is also in accordance with the promotion of financial literacy, highlighted by Cabeza-García et al. (2019).

6. Conclusion

The main purpose of this paper was to test the effect of DFS adoption on the satisfaction with business performance, considering a category of women entrepreneurs known as mompreneurs. The quantitative model was evaluated through the use of confirmatory factor analysis and the study hypotheses were tested using structural equation model. We obtained 177 complete questionnaires, exclusively answered by Brazilian mompreneurs from the region of Triângulo Mineiro (State of Minas Gerais).

We observed that attitude presented a positive, significant and direct effect on DFS adoption, as well as a positive, significant and indirect effect on business performance satisfaction among mompreneurs. Moreover, among the mompreneurs who participated in the research, those who presented higher levels of initiatives related to digital financial services tended to present higher levels of satisfaction with their businesses performance. This result suggests that the use of technologies to make electronic payments related to the business, to manage the bank account of the business, and to provide electronic payment alternative for customers can improve the business performance satisfaction among women entrepreneurs.

6.1 Implications

The main results of this paper have theoretical and practical implications. The COVID-19 pandemic generated difficulties for women entrepreneurs (Manolova et al., 2020), and the use of technological resources (such as digital financial services) seems to contribute to mitigate the negative effects from external crisis, as suggested by the empirical analysis of this paper. It is important to highlight that data were collected during the first months of the COVID-19 pandemic. Therefore, regarding the theoretical implications, this paper advances previous research that highlight the relevance of digital technologies to support female entrepreneurship (McAdam et al., 2019), since our results indicate that digital technologies can contribute to business performance satisfaction of mompreneurs during periods of crisis (in the case of this study, the COVID-19 related crisis).

ICTs, such as social network platforms, have an important role in the context of mompreneurship, contributing to business activities, especially considering the scenario related to the COVID-19 pandemic (Sultan & Sultan, 2020). Therefore, in relation to practical implications, our results also indicate that, during periods of lockdowns and stay-at-home orientations, digital financial services contributed to improve performance satisfaction among businesses owned by women. In this way, measures to increase the support for mompreneurs in using ICTs, particularly technologies that allow the implementation of DFS, can facilitate the management of their business.

Considering that the type and number of innovations can be increased by policy instruments that consider “female innovativeness” (Nählinder, 2010, p. 27), this study also has implications to support innovations, since mompreneurs can improve their businesses activities exploiting innovative ideas.

6.2 Limitation and Future Research

It is important to note that our database is comprised of responses obtained through the snowball sampling. Therefore, the results of this study are not necessarily generalizable. Moreover, the database of this study contains only responses from a particular category of female entrepreneurs: women entrepreneurs that are also mothers (mompreneurs). In this way, the relationship between DFS adoption and the satisfaction with business performance can be different considering the entire category of female entrepreneurs, and future studies can address this issue.

Further research can also analyze the effect of DFS on business performance satisfaction considering other groups of respondents (for example, investigating potential differences among male and female entrepreneurs in relation to DFS business performance). The adoption of DFS can also be different among countries with different levels of development and different cultures; therefore, new studies can test the relationship between DFS and business performance using data from other regions/countries. We also recommend for further research the inclusion of other variables as potential determinants and outcomes of DFS adoption among female entrepreneurs.

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Appendix A: Items of the Research Model and References

Attitude (main reference: Hsu et al., 2014)

Please, indicate your PERCEPTION about the following items:

AT1 - Using ICTs in my business is a good idea

AT2 - Using ICTs in my business is a wise idea

AT3 - I like to use ICTs in my business

Digital Financial Services (main references: Gichuki & Mulu-Mutuku, 2018; Zhou et al., 2010)

Please, indicate your PERCEPTION about the following items:

EP1 - I use ICTs to make electronic payments related to my business

EP2 - I use ICTs to manage the bank account that I use for my business

EP3 - In my business, customers can use electronic ways of payment

Performance Satisfaction (main reference: Charoensukmongkol & Sasatanun, 2017)

Please, evaluate your SATISFACTION LEVEL in relation to the PERFORMANCE OF YOUR BUSINESS considering the following indicators:

PS1 - Sales growth

PS2 - Profit

PS3 - Profit growth

Notes: these items were answered based on a Likert Scale, ranging from 1 - Strongly Disagree to 5 - Strongly Agree.