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Chaikal Nuryakin
Prani Sastiono
Faradina Alifia Maizar
Pyan Amin
Nanda Puspita
Wahyu Pramono
Christine Tjen

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Institute for Economic and Social Research
Faculty of Economics and Business
Universitas Indonesia (LPEM-FEB UI)

Salemba Raya 4, Salemba UI Campus Jakarta, Indonesia 10430
Phone : +62-21-3143177
Fax : +62-21-31934310
Email : lpem@lpem-feui.org
Web : www.lpem.org

Toward Higher Financial Inclusion Rate: Service Quality, Costs of Access, and Awareness

Chaikal Nuryakin^{1*}, Prani Sastiono¹, Faradina Alifia Maizar¹, Pyan Amin¹, Nanda Puspita¹, Wahyu Pramono¹, & Christine Tjen¹

Abstract

The inclusion level of DFS and *Laku Pandai* (inclusion of access or use of services) have reached 28% and 43%. Nevertheless, when we define the inclusion by account ownership (inclusion of banking account), the inclusion rates drop to 5% and 25%. The lack of awareness of DFS and *Laku Pandai* is still considered as the major obstacle to broaden the access of financial services through agents. *Laku Pandai* appears more reliable in improving financial service access for the poor and people in remote areas as it may provide a more efficient access (in term of cost, distance, and time of transport) and perceived by users to provide better service quality than other formal financial services they have experienced thus far. On the other hand, DFS services seems to be more attractive toward more educated and higher income segment of society. Nevertheless, the cost of access of DFS is not much different from the cost of access of banks and other formal financial services while the quality is perceived to be less by its users. Furthermore, the efficiency of both DFS and *Laku Pandai* could be much improved since there is a significant overcharging in their service fees. On the account ownership, there is an indication that DFS is not a preferable financial access for people who are excluded from formal financial services while it is for *Laku Pandai*. The regression results also show that users of both DFS and *Laku Pandai* need time to open or to register an account, possibly due to time needed to build in trust in the agents. Another factor that is important in determining whether user is to open an account is the (perceived) cost. Therefore, the aforementioned service fee overcharging should be taken seriously to improve rate of opening or registering account.

JEL Classification: G28; G21

Keywords

LKD — *Laku Pandai* — Digital Inclusion

¹ *Institute for Economic and Social Research, Faculty of Economics and Business, Universitas Indonesia (LPEM- FEBUI), Jakarta*

* **Corresponding author:** Institute for Economic and Social Research (LPEM) Universitas Indonesia. UI – Salemba Campus, Salemba Raya St., No. 4, Jakarta, 10430, Indonesia. Email: chaikall@gmail.com.

1. Introduction

There have been extensive research confirming the positive impact of financial inclusion on several development indicators in developing countries. Financial inclusion has been known to have positive impact not only on growth (Sarma & Pais, 2011), but also on growth inclusion and regional parity (Hannig & Jansen, 2010). It also enables poor people to save and invest in productive activities such as education and entrepreneur activities which allow them to escape poverty trap Demirgüç-Kunt & Klapper, 2013). This is especially true for poor women who are usually the most disadvantaged in the community (Swamy, 2014). Financial inclusion is even known to contribute to a country's financial stability (Han & Melecky, 2013).

There are several ways in which financial inclusion can be defined. Financial inclusion may mean use of financial services (World Bank, 2008). Some other studies such as Global Financial Index focuses more on ownership and use an account at a formal financial institution (Demirgüç-Kunt & Klapper, 2013). More refined index considers not only the ownership of a formal account, but also the active use of the services in recent time.

Despite its benefit, financial inclusion remains a challenge in Indonesia. Although there have been pilot programs in the past to spur microfinance, 6% of the world's unbanked

population is located in Indonesia with only India and China have more proportion of world's unbanked population. Comparing to its peers in the region, Indonesia also has the lowest percentage of people above age 15 who has a bank account (World Bank, 2014).

In 2014, in order to improve financial inclusion and to simplify and expand financial services in Indonesia, Bank Indonesia (BI) and the Financial Services Authority (OJK) launched two different forms of branchless banking: Digital Financial Services (DFS) and Smart Act branchless banking service for financial inclusion named *Laku Pandai*. DFS is simply a registered electronic money that can be facilitated either through mobile phones or the web, which is not happened in the physical office but through agents as the third parties. DFS targets are unbanked and underbanked societies, in accordance with financial inclusion targets. While *Laku Pandai* is a simple financial product provision through a third party, i.e. agents using information technology for communities that have not reached financial services.

Since the launch of DFS by means of Bank Indonesia Regulation (PBI) Number 11/12/PBI/2009, 13 April 2009, the amount of electronic money in circulation rose more than 29 times from about 3 million electronic money cards in 2009 to more than 90 million cards in 2017 or an average increase in the number of accounts by 60% per annum. On the other hand, OJK runs *Laku Pandai* in 2014

under the regulation of *Otoritas Jasa Keuangan* Number 19/POJK.03/2014 with an increase in the number of customers more than 11 times from its original or 1.012.9% in percentage between September 2015 and September 2017.¹

The significant increase of DFS and *Laku Pandai* users one of which is due to the increasing role of agents. DFS agents increased from 37 million per 100 thousand adult population in 2015 to 107 million per 100 thousand adult population in 2017, or an increase of 189.2%. In the meantime, the agents of *Laku Pandai* increased by more than 22-fold between September 2015 and September 2017 or increased from approximately 19,400 agents in September 2015 to approximately 428 thousand agents in September 2017.

There are many factors that determines use of financial services and account ownership. Using cross-country data from *Global Financial Index Database*, Allen et al. (2016) found that richer, more educated, older, urban, employed, married or separated individuals are more likely to own an account. Demirgüç-Kunt & Klapper (2013) using cross country data and Fungáčová & Weill (2015) using data from China also found similar results. Moreover, they also found that there was a gender gap in financial inclusion. Also, characteristics of financial institutions might affect financial inclusion as well. Poor quality of services, such as lack of security, and high costs of using of services and transportation costs might lead to reduction in financial inclusion (Allen et al., 2016).

Financial inclusion through DFS and *Laku Pandai* have become topics of concern to the public as well as policy makers in Indonesia. The Government of Indonesia has set the target of 75% financial inclusion rate in 2019. Therefore, there have been several numbers of studies toward both users and agents which conducted by various institutions in Indonesia in this topic. We try to extend those studies by looking at financial inclusion more thoroughly by exploring different indicators of financial inclusion; namely service use and account ownership. Also, we will investigate the determinants of each proxy of financial inclusion using logistic regression which haven't been done before using Indonesia data. The second part of this paper will explain the sample selection method and empirical approach for the data analysis. The third part will contain the findings from the study and the fourth part will conclude.

2. Methodology

2.1 Sample Selection

Area Selection

To answer our research question, 10 provinces were selected as survey area. Furthermore, on average, two districts in each province was selected. Provinces and districts were selected based on the distribution of users and agents. Regions with highest number of users and agents were selected in order to maximize the coverage of the study. Data on user distribution come from data published by Bank Indonesia and OJK while data on agents was from authors' previous survey on agents. This process selected 10 provinces and

22 municipalities/cities as survey targets. The figure below shows the area covered in the survey.

Respondent Selection

To find respondents, enumerators visited agents stationed by providers in each selected area. For each selected agent in the study area, 4 DFS or *Laku Pandai* Users and 2 non-users were selected for interview. Non-users mentioned consisting those who use financial services from banks, non-banks (cooperatives, pawnshops, etc.), non-formal (social gathering/arisan), and those who have no access (non-users of financial services). Respondents interviewed in this survey amounted to 1,038 respondents consisting of:

- 233 persons of DFS users;
- 448 persons of the *Laku Pandai* users;
- 357 persons of non-users.

2.2 Data Analysis

2.2.1 Descriptive Statistics

To present our findings, we will show the features of DFS and *Laku Pandai* in terms their inclusion function, their subjective quality, and costs using descriptive statistics. Tables and graphs will be provided to help understands the data easier.

2.2.2 Empirical Model to Estimate Determinants of Inclusion

Following the framework used in Zins & Weill (2016) the empirical model below will be used to estimates the determinants of DFS and *Laku Pandai* use.

$$USE_i = \beta_0 + \delta X_i + \varepsilon_i \quad (1)$$

where USE_i is a dummy variable which is equal to 1 if someone is an DFS user (*Laku Pandai* user) and zero otherwise. X_i is a matrix containing socio-demographic variables such as gender and education and income variables that might affect someone's decision to be an DFS or *Laku Pandai* use.

In Indonesia, it is possible for someone to use an DFS service for small transactions without registering for an account. There are also cases where people use *Laku Pandai* service without having an account. Meanwhile, globally accepted indicator for financial inclusion is account ownership (Demirguc-Kunt et al., 2015). Therefore, we extend the model to find out the determinants of account ownership for DFS and *Laku Pandai* user. The empirical model is:

$$Account_i = \beta_0 + \delta X_i + \gamma Z_i + \varepsilon_i \quad (2)$$

where $Account_i$ is a dummy variable which is equal to 1 if someone if an DFS user (*Laku Pandai* user) owned an account and zero otherwise. Z_i is a matrix containing user characteristics, subjective quality variables such as user perception of the customer service, speed, and security provided by DFS (*Laku Pandai*), and costs variables. The complete set of explanatory variables and its definition will be provided in Appendix. Both models were estimated using logistic regression.

¹Quarterly statistics data of *Laku Pandai* available from June 2015 to September 2017.

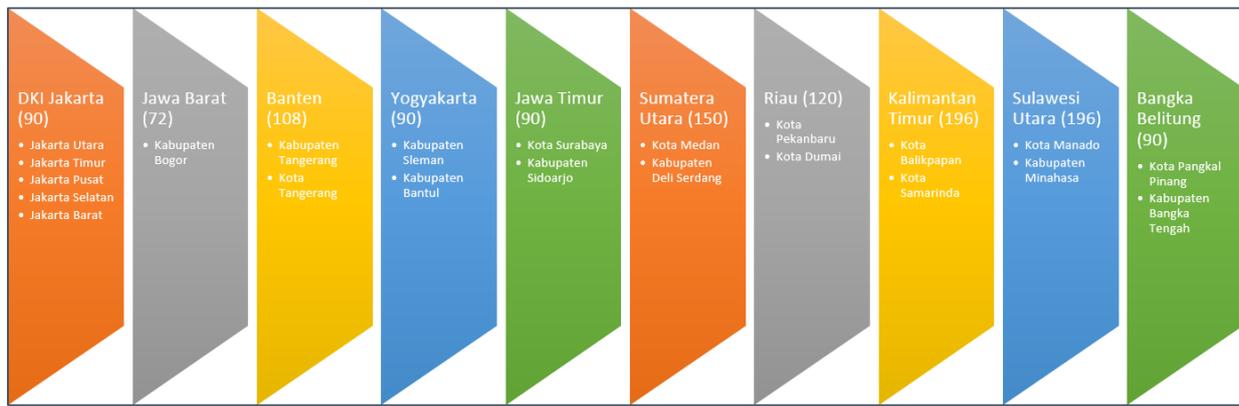


Figure 1. Survey Area

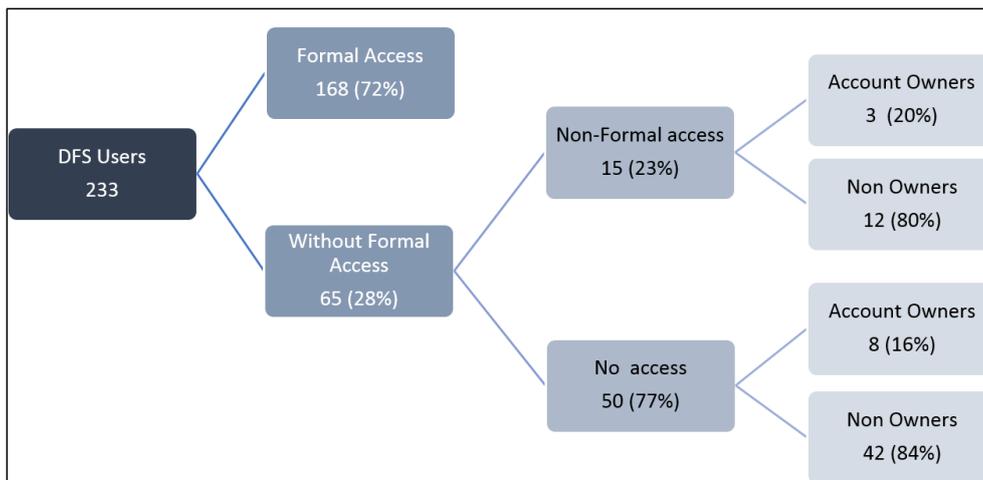


Figure 2. Classification of DFS User

3. Findings

3.1 Degree of Inclusion

Usage and Account Ownership

Figure 2 shows the classification of DFS users. Out of 233 DFS users, 65 people have no access to formal financial services prior to using DFS services. Therefore, the inclusion rate from usage is around 28%. These people were either using non-formal services such as from loan-sharks or relatives or using no financial services at all. Out of this type of users only around 16%–20% of them owned a formal account which brings financial inclusion rate to around 5% when we defined it as account ownership.

Figure 3 shows the classification of *Laku Pandai* users. The inclusion rate from usage is relatively high which is around 43%. Out of users who have no access to formal financial services prior to using *Laku Pandai* services around 55%–60% of them owned a formal account which brings financial inclusion rate to around 25% when we defined it as account ownership.

Users Characteristics

Table 1 below presents the characteristics of DFS and *Laku Pandai* users. Most of the *Laku Pandai* and DFS users are female. About 61% (54%) of *Laku Pandai* users (LKD) are female. The *Laku Pandai* users have lower education and income levels than DFS users on the average. In general, they are also older and have lower Internet access than DFS

users.

Barriers to Inclusion

Figure 4 shows the reasons why non-user were not using services provided by DFS. More than 80% mentioned that they were not aware of DFS services. Out of non-users who were aware of DFS services, less than 20% pointed out price as the reasons why they did not use DFS services. This implies that barriers are mainly in the form of non-price barriers.

The similar pattern persists when we see the barriers for *Laku Pandai* use. Awareness of the program and non-price barriers remains the main reasons why people do not use these financial services as shown in Figure 4.

Table 2 provides the classification of potential barriers for *Laku Pandai* users to own an account. The most frequent reasons that emerged was that users did not think that it was necessary to own an account. The second most frequent reason was that agent did not provide banking account registration services. Only 8% of the respondents pointed out affordability (price) as the reason why they did not own an account.

3.2 Service Quality

The Figure 6 depicts the subjective quality of DFS compared to other financial institutions. In general, the quality of DFS is still below than bank and non-bank financial services and slightly better than the quality of non-formal financial

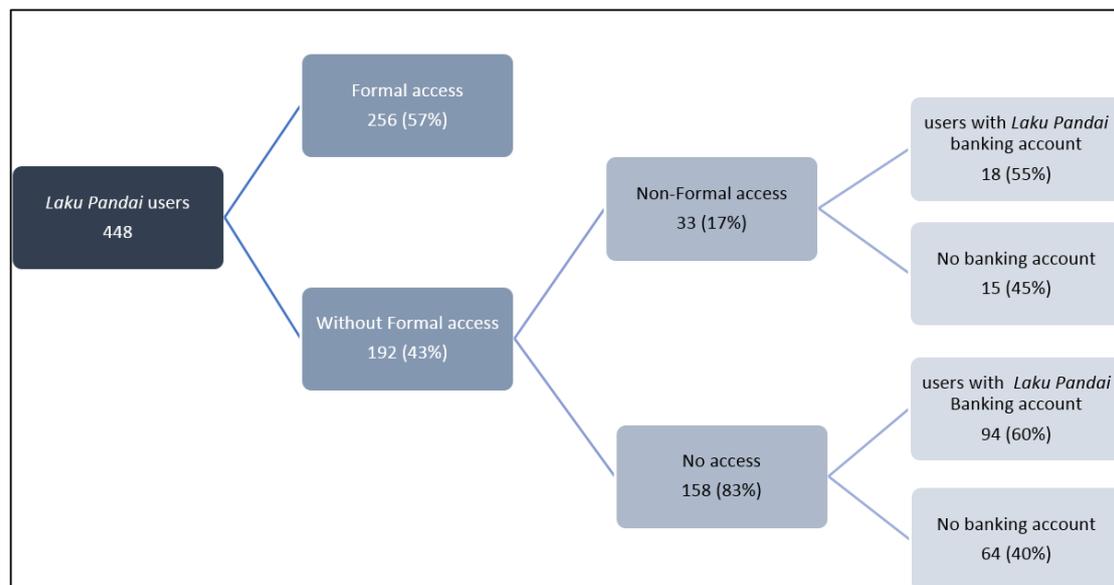


Figure 3. Classification Laku Pandai Users

Table 1. User Characteristics

Demography	Laku Pandai	DFS
Sex	61% Female	54% Female
Education	53% High School Grad, 16% Junior high school grad	50% High School Grad, 38% Bachelor
Age	60% between the ages of 26–45	60% between the ages of 21–35
Income	65% below 2 million	52% above 2 million
Internet access	62%	85%
Financial literacy	86%	93%

Table 2. Barriers to Account Ownership

No.	Reasons os Laku Pandai users	Non-Formal access	No access	Total
1	Already have a banking account	0	7	7
2	Agent does not provide banking account registration services	1	22	23
3	Unnecessary	13	39	52
4	Does not have ID Card	0	1	1
5	Cannot afford the initial balance	2	6	8
6	Complicated registration	0	1	1
7	Others	0	5	5

services in some aspect. The quality of DFS is still considered lower when compared to banks by the majority of DFS users as well as bank users (Panel 1). DFS is also considered lower when compared with non-bank formal institutions, except for its speed (Panel 2). As it seen from service and success factors, DFS is better than non-formal institutions. Convenience is the main advantages of non-formal financial services compared to DFS (Panel 3).

Similarly, Figure 7 depicts the subjective quality of *Laku Pandai*. In general, the quality of *Laku Pandai* services are better than non-bank financial services and non-formal finance services. But, it still below the quality of bank's financial services. Judging from the factors of customer service, the success of transactions, security, and costs, the respondents assess the services of banks to be better than *Laku Pandai*. The speed of the services is the only advantages provided by *Laku Pandai* compared to the Banks (Panel 1). *Laku Pandai* is superior in all aspects when compared with non-bank formal financial institutions (Panel 2). *Laku Pandai* excels in almost all aspects especially in terms of security and cost. However, non-formal services are considered to be better in terms of convenience (Panel 3). This

explains why people often still prefer to use non-formal services to services provided by banks, DFS, *Laku Pandai*, and other formal financial services.

3.3 Costs of Access

Transportation Costs and Queuing Time

Table 3 presents the transportation cost and queuing time for each type of financial institution. It showed the cost, distance, and time of transport for *Laku Pandai* is lower than other formal financial institutions, while for DFS access is not much different from the others. The table also shows the costs of access for non-formal financial services is comparatively the lowest one. People can just borrow money or save money to their neighbors and relatives who live nearby personally.

Service Costs and Costs Awareness

Table 4 depicts the official and the median of actual service costs for financial services provided by DFS. It shows that the median of actual service costs are still below the rate regulated by Bank Indonesia for all services except for top up. Nevertheless around 19%–46% of users still pay

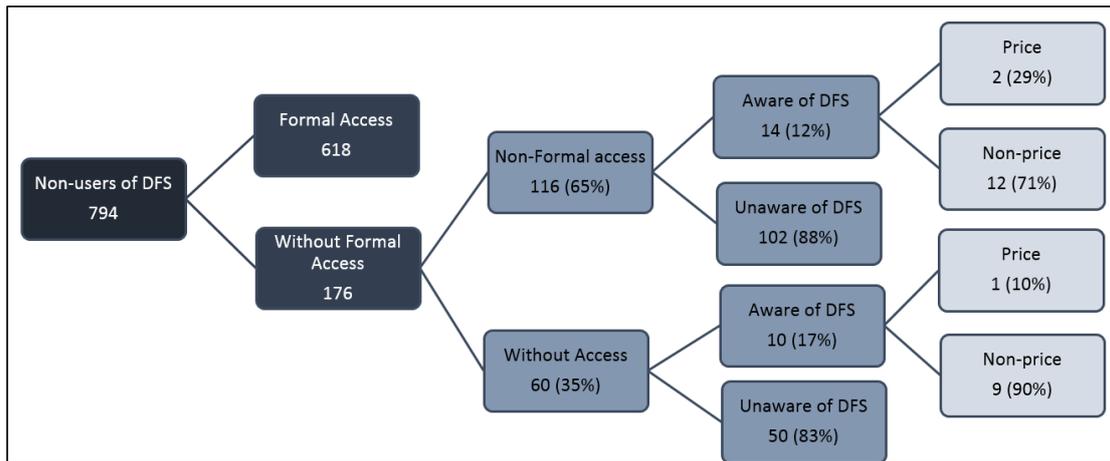


Figure 4. Barriers to DFS Use

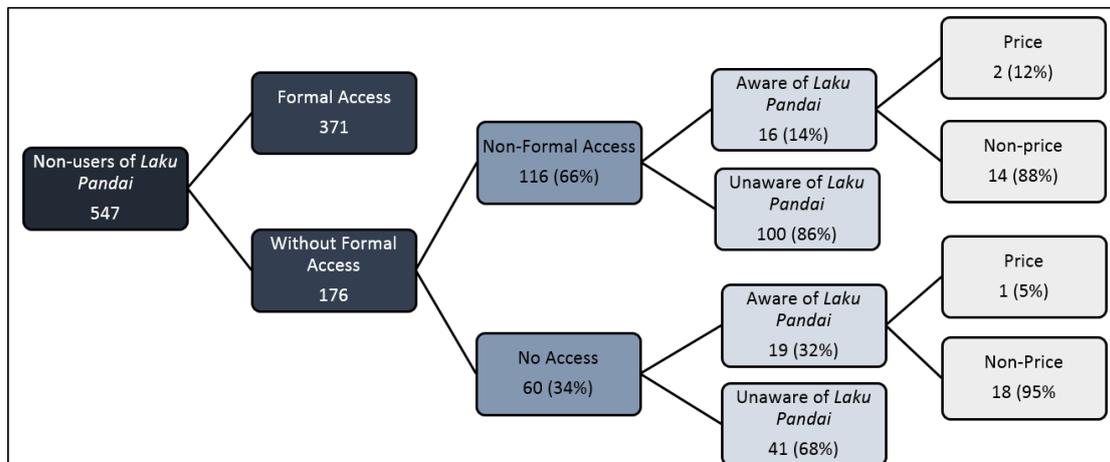


Figure 5. Barriers to Laku Pandai Use

Table 3. Transportation Costs and Queuing Time

No.	Respondents	Distance (m)		Time (menit)		Cost (Rp)		Waiting Time	
		Median	N	Median	N	Median	N	Median	N
1	Bank	1,800	524	15	515	5,000	530	15	535
2	Non-bank	1,000	96	15	97	3,000	97	5	101
3	Non-formal	20	285	3	279	0	285	3	287
4	Laku Pandai	500	475	10	469	0	477	5	482
5	DFS	1,000	234	15	230	5,000	236	5	240

above the official costs/fee depending on the type of services. Moreover, 26%–42% of service users were unaware of the official costs/fees of the services they used.

Table 5 depicts the official and the median of actual service costs for financial services provided by *Laku Pandai*. It shows that the median of actual service costs are still within the rate regulated by Bank Indonesia for all services. Around 7%–26% of users still pay above the official costs/fee depending on the type of services. Moreover, 9%–24% of service users were unaware of the official costs/fees of the services they used. Although it seems that the overcharges and awareness problem in *Laku Pandai* services are less severe compared to DFS it still needs attention from the governments and service providers to make sure that the problem does not become worse. It is important since costs overcharge might reduce financial inclusion based on previous studies.

3.4 Determinants of Financial Service Use

Table 6 presents the determinants of DFS and *Laku Pandai* use. Column [1] and column [4] shows socio-demographic factors that might be linked to service use. Column [2] and column [5] displays how level of income and the average monthly amount of money household sent out might affect service use. Column [3] and column [6] presents the determinant of DFS and *Laku Pandai* use when we limit our analysis to only include people who don't already have prior access to formal financial services. This is relevant since the degree of financial inclusion will only increase when such people begin to use formal financial services and own a formal account.

The results show that higher educational level is associated with higher probability of using DFS services although we found no effect of education when we limit our analysis to only include people who don't already have prior access to formal financial services. In contrasts, lower income lev-

Table 4. DFS Service Costs and Costs Awareness

Type of Services	Official cost of Agents Various Medium*	Actual cost (Median)	Unaware	Paying > The highest official cost	Total Respondents
Top up	Free-1500	2000	42%	46%	139
Transfer	Free-6500	5000	26%	22%	23
Withdrawal	Free-5000	3000	31%	23%	13
Payment	Free-2500	2000	38%	19%	189

Table 5. *Laku Pandai* Service Costs and Costs Awareness

Type of Services	Official cost of Agents Various Medium*	Actual cost (Median)	Unaware	Paying > The highest official cost	Total Respondents
Savings	Free-1000	0	18%	22%	175
Transfer	Free-6500	5000	10%	25%	182
Withdrawal	Free-7500	4000	9%	7%	97
Payment	2000-2500	2500	24%	26%	196

els are negatively related to the probability of being an DFS user since the base value for income level is the 4th quartile. The effect is persistent even when we limit our analysis to people without access to financial services. Also, being in urban area is weakly associated with higher probability of being an DFS user although the effect is gone when we control for income levels and transfer. We found no evidence that gender, age, marital status, number of household members, and amount of transfer have an effect on probability of being an DFS user.

Results in column [4] to column [6] show that *Laku Pandai* users tend to be married and live in rural area. Evidence on the relationship between income and probability of being a *Laku Pandai* user is weak, but it seems that *Laku Pandai* users tend to be in lower income brackets, e.g. in 2nd and 3rd quartile, than 4th quartile. We also found no differences in gender, age, number of household members, education level, and amount of transfer between non-*Laku Pandai* and *Laku Pandai* users.

These results suggest that both programs are user inclusive in terms of gender, age, number of household members, and transfer. Nevertheless, *Laku Pandai* is more user inclusive towards segment of society who are already married, living in rural area, and having lower level education and level of income. Meanwhile DFS services are more attractive for people with higher education and income level.

3.5 Determinants of Account Ownership

In Indonesia, there are many cases where people just use financial services without owning a formal or registered account. Meanwhile, measurement of financial inclusion in *Global Financial Index* was based on the ownership of formal account. Thus, we run regressions on determinants of account ownership both for DFS users and *Laku Pandai* users because we want to know the factors that affect users of DFS and *Laku Pandai* services to register as formal account owner.

Another issue, to increase financial inclusion means that Indonesia needs to have new financial account owner. Those people are people who have not yet owned formal financial account (e.g. bank account or cooperatives memberships). Therefore, we also run regression on determinants of account ownership for users who prior to using *Laku Pandai* services did not already have a formal financial account. We cannot run the regression for DFS users who formerly did

not have formal account since the sample size is too small.

Table 7 presents the determinants of DFS account ownership after controlling socio-demographic factors and income and transfers. We found that DFS users who do not already have a formal financial account such as bank accounts are less likely to own an account either. Also, the longer the user use DFS services the more likely he/she to register for an account although the effect vanishes when we control for costs as well as subjective quality of DFS. Users who give high score for security aspect of DFS are also more likely to be an DFS account owner. However, users' perceptions of other quality aspects of DFS services have no impact on users' decision to register for an account. Users who are aware (possess information) of the costs of each DFS service are also more likely to register for an account. Last, transportation costs and users' perception on costs of services (whether a service is cheap or expensive) seemed to have no effect on DFS users' decision to own an account.

Table 8 presents the determinants of *Laku Pandai* account ownership. Contrary to the results for DFS, *Laku Pandai* users who do not have prior access to formal financial services are more likely to own a *Laku Pandai* account. It means *Laku Pandai* is more effective in increasing financial inclusion. Similar to DFS results, the longer someone becomes a *Laku Pandai* user the more likely he/she to own an account. We found the same result when we limit our sample to only include users who do not have prior access to formal financial services. Peculiar result emerged when we include variables that capture subjective quality. *Laku Pandai* users who gave high score for speed and transaction success are less likely to become a *Laku Pandai* account owner. Unlike the results for DFS, users who perceived *Laku Pandai* services as cheap are more likely to own an account. The higher the transport costs must be bore by the user to reach an agent the more likely he/she becomes an account owner. This implies people who are more likely to open a *Laku Pandai* account are usually located quite far from the agents, probably in remote area. It is also possibly why the peculiar estimates for quality emerge. In remote area, speed and transaction success might still be a challenge. Awareness about service fees has no relationship with account ownership.

The results imply that *Laku Pandai* efforts to reach out to people who live far from the agents contribute to its success

Table 6. Determinants of DFS and *Laku Pandai* Use

	DFS			LP		
	All	No Formal Access		All	No Formal Access	
	userDFS	userDFS	userDFS	userLP	userLP	userLP
	[1]	[2]	[3]	[4]	[5]	[6]
Socio-Demography						
female	-0.231 (0.159)	-0.275 (0.163)	-0.402 (0.314)	0.094 (0.130)	0.102 (0.132)	-0.097 (0.218)
age	-0.015 (0.009)	-0.014 (0.009)	-0.017 (0.015)	-0.006 (0.007)	-0.007 (0.007)	-0.006 (0.010)
married	-0.273 (0.190)	-0.372 (0.196)	-0.107 (0.359)	0.455** (0.165)	0.458** (0.166)	0.510* (0.264)
hh member	-0.011 (0.056)	-0.093 (0.063)	-0.135 (0.111)	0.046 (0.049)	0.054 (0.051)	-0.006 (0.074)
highschool	1.223*** (0.296)	1.018*** (0.297)	0.905* (0.412)	-0.178 (0.163)	-0.195 (0.168)	-0.238 (0.230)
university	0.875*** (0.170)	0.530** (0.185)	0.767 (0.482)	-0.307 (0.164)	-0.24 (0.173)	-0.839 (0.458)
urban	0.420* (0.201)	0.166 (0.204)	-0.217 (0.324)	-0.299* (0.144)	-0.346* (0.150)	-0.417* (0.221)
Income and Transfers						
quartile1		-1.428*** (0.320)	-1.967*** (0.508)		-0.118 (0.214)	-0.326 (0.342)
quartile2		-1.023*** (0.218)	-1.839*** (0.404)		0.410* (0.172)	0.218 (0.297)
quartile3		-0.652** (0.226)	-1.319** (0.415)		0.311 (0.194)	0.698* (0.334)
transfer out		0.109 (0.252)	0.068 (0.560)		0.059 (0.212)	0.181 (0.426)
Pseudo R2	0,072	0,094	0,120	0,021	0,029	0,044
N	1034	1034	432	1034	1034	432

Table 7. Determinants of DFS Account Ownership

	Account DFS	Account DFS	Account DFS
	[1]	[2]	[3]
User Characteristics			
non formal	-1.176** (0.431)	-1.192** (0.433)	-1.321** (0.491)
time as user	0.032* (0.014)	0.034* (0.015)	0.027 (0.017)
Subjective Quality			
service		-0.257 (0.569)	-0.089 (0.667)
speed		-0.321 (0.582)	-0.217 (0.580)
transaction success		-0.180 (0.508)	-0.130 (0.532)
security		0.898 (0.499)	1.102* (0.559)
ease		0.484 (0.499)	0.437 (0.566)
Costs			
cost perception (cheap=1, 0 otherwise)			-0.655 (0.470)
transport costs			0.001 (0.008)
costs awareness			1.111** (0.429)
Adjusted R2	0.18	0.196	0.228
N	225	225	218

in getting then to register for an account. However, both service providers and agents must be careful in setting their fees since these people are sensitive to level of fee. On the other hand, decision of DFS users to be an account owner is not affected by how high or low the fees are. However, it is important for them to know how much exactly the fees are. DFS users who feel that they have access to the information

are more likely to become an account owner.

4. Conclusion

The inclusion level of DFS and *Laku Pandai* (inclusion of access or use of services) have reached 28% and 43%. Nevertheless, when we define the inclusion by account own-

Table 8. Determinants of *Laku Pandai* Account Ownership

	Whole Sample		No Formal Access	
	Account LP [1]	Account LP [2]	Account LP [3]	Account LP [4]
User Characteristics				
non formal	0.733** (0.247)	0.779** (0.260)	0.779** (0.290)	
time as user	0.059*** (0.011)	0.055*** (0.011)	0.058*** (0.015)	0.094*** (0.029)
Subjective Quality				
service		-0.319 (0.332)	-0.663 (0.399)	-0.894 (0.625)
speed		-1.032** (0.364)	-1.125** (0.396)	-1.198 (0.700)
transaction success		-0.749* (0.380)	-1.045* (0.417)	-1.309* (0.641)
security		0.328 (0.362)	0.405 (0.397)	0.857 (0.593)
ease		-0.06 (0.311)	-0.24 (0.335)	-0.672 (0.587)
Costs				
cost perception (cheap =1, 0 otherwise)			1.207*** (0.316)	1.307** (0.481)
transport costs			0.050*** (0.008)	0.050*** (0.012)
costs awareness			-0.13 (0.385)	1.117 (0.763)
Pseudo R2	0.177	0.243	0.363	0.434
N	436	436	428	182

ership (inclusion of banking account), the inclusion rates drop to 5% and 25%. The lack of awareness of DFS and *Laku Pandai* is still considered as the major obstacle to broaden the access of financial services through agents.

Laku Pandai appears more reliable in improving financial service access for the poor and people in remote areas as it may provide a more efficient access (in term of cost, distance, and time of transport) and perceived by users to provide better service quality than other formal financial services they have experienced thus far. On the other hand, DFS services seems to be more attractive toward more educated and higher income segment of society. Nevertheless, the cost of access of DFS is not much different from the cost of access of banks and other formal financial services while the quality is perceived to be less by its users. Furthermore, the efficiency of both DFS and *Laku Pandai* could be much improved since there is a significant overcharging in their service fees.

On the account ownership, there is an indication that DFS is not a preferable financial access for people who are excluded from formal financial services while it is for *Laku Pandai*. The regression results also show that users of both DFS and *Laku Pandai* need time to open or to register an account, possibly due to time needed to build in trust in the agents. Another factor that is important in determining whether user is to open an account is the (perceived) cost. Therefore, the aforementioned service fee overcharging should be taken seriously to improve rate of opening or registering account.

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Figure 6. Subjective Quality of DFS

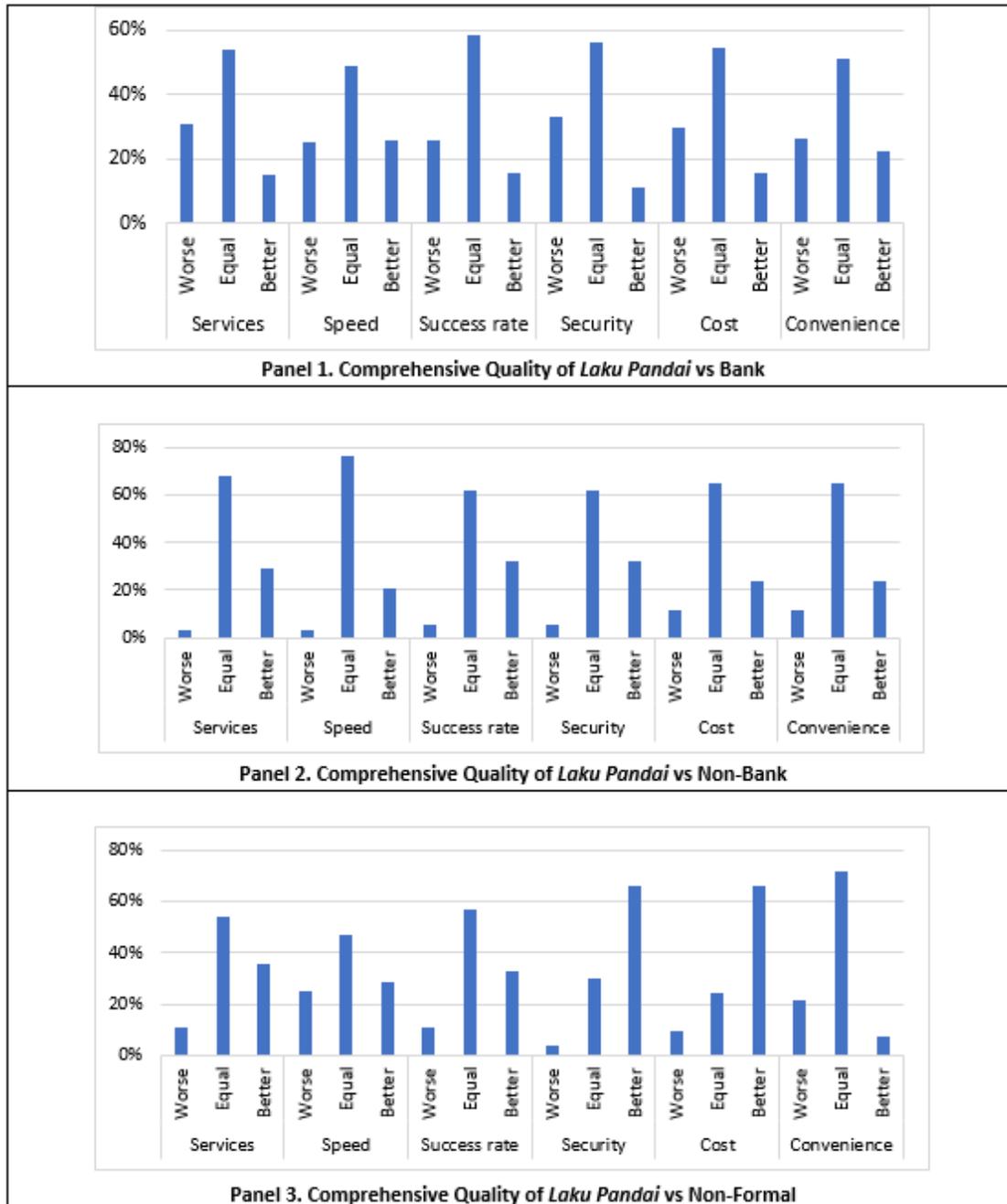


Figure 7. Subjective Quality of *Laku Pandai*

Appendix

Table A1. Variable Definition

Variable	Definition
Dependent Variables	
USE_DFS	Binary variable which is equal to 1 if respondent has ever used DFS service (regardless of ownership) and zero otherwise
USE_LakuPandai	Binary variable which is equal to 1 if respondent has ever used <i>Laku Pandai</i> service (regardless of ownership) and zero otherwise
Socio -Demographic	
female	Binary variable which is equal to 1 if respondent is female and zero otherwise
age	Age of respondent (in years)
married	Binary variable which is equal to 1 if respondent is married and zero otherwise
hh member	Number of household members including head of household
highschool	Binary variable which is equal to 1 if respondent finishes high school education or higher and zero otherwise
uni	Binary variable which is equal to 1 if respondent earns diploma/bachelor degree or higher and zero otherwise
urban	Binary variable which is equal to 1 if respondent lives in urban area (<i>Kota</i>) and zero otherwise
Income and Transfers	
quartile1	Binary variable which is equal to 1 if respondent's income is in the first income quartile (poorest 25%) and zero otherwise
quartile2	Binary variable which is equal to 1 if respondent's income is in the second income quartile (second 25%) and zero otherwise
quartile3	Binary variable which is equal to 1 if respondent's income is in the third income quartile (third 25%) and zero otherwise
quartile4	Binary variable which is equal to 1 if respondent's income is in the fourth income quartile (richest 25%) and zero otherwise (base)
transfer'out	The amount of money sent out by households (in thousand rupiahs)
User Characteristics	
non formal	Binary variable which is equal to 1 if respondent has no other access to formal financial services except through DFS/ <i>Laku Pandai</i> and zero if he/she does.
time as user	Variable indicating amount of time respondent has been a user of DFS or <i>Laku Pandai</i> (in months)
Subjective Quality	
service	User perception of DFS/ <i>Laku Pandai</i> customer service quality, it takes the value of 1 if it is perceived as good to extremely good and zero otherwise.
speed	User perception of DFS/ <i>Laku Pandai</i> speed of services, it takes the value of 1 if it is perceived as good to extremely good and zero otherwise.
transaction success	User perception of DFS/ <i>Laku Pandai</i> transaction success, it takes the value of 1 if it is perceived as good to extremely good and zero otherwise.
security	User perception of DFS/ <i>Laku Pandai</i> security of transactions, it takes the value of 1 if it is perceived as good to extremely good and zero otherwise.
ease	User perception of DFS/ <i>Laku Pandai</i> ease for use, it takes the value of 1 if it is perceived as good to extremely good and zero otherwise.
Costs	
cost perception	User perception of DFS/ <i>Laku Pandai</i> services costs, it takes the value of 1 if it is perceived as good to extremely good (cheap) and zero otherwise.
transport costs	Costs borne by users to the nearest service point/agent of DFS and <i>Laku Pandai</i>
costs awareness	Binary variable which is equal to 1 if DFS or <i>Laku Pandai</i> user knows the costs of financial services that he/she uses and zero otherwise

Gedung LPEM FEB UI
Jl. Salemba Raya No. 4, Jakarta 10430
Phone : +62-21 3143177 ext. 621/623;
Fax : +62-21 3907235/31934310
Web : <http://www.lpem.org/category/publikasi/workingppers/>

