

# **BAGAIMANAKAH PROFIL INDIVIDU YANG MEMANFAATKAN PERBANKAN DIGITAL DI INDONESIA?**

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## **Abstrak**

*Dengan menggunakan data survei dari World Bank Global Findex tahun 2014 yang melibatkan 1.000 orang responden di Indonesia, penelitian ini mengaplikasikan estimasi probit untuk memeriksa karakteristik individu seperti apakah yang sudah memanfaatkan perbankan digital (mobile money banking) di Indonesia. Temuan awal penelitian ini dengan signifikan menunjukkan bahwa di Indonesia, semakin tinggi pendidikan seorang individu, maka akan semakin besar peluang bagi individu tersebut untuk menggunakan atau memanfaatkan perbankan digital. Meskipun bukan profil individu yang signifikan mempengaruhi pemanfaatan perbankan digital, terdapat kecenderungan bahwa seorang wanita menurunkan peluang dalam memanfaatkan perbankan digital, artinya perbankan digital lebih banyak dimanfaatkan oleh kaum pria. Namun yang menarik adalah kaum wanita justru cenderung mempunyai peluang yang lebih tinggi untuk memiliki rekening di lembaga keuangan di Indonesia. Pembukaan rekening adalah tahapan mendasar agar masyarakat dapat memiliki akses menuju lembaga keuangan, sehingga hal ini menjadi penting dalam upaya memperluas kemampuan masyarakat Indonesia untuk mendapatkan akses keuangan dari lembaga keuangan resmi. Temuan lainnya adalah, terdapat kecenderungan bahwa makin lanjut usia seorang individu (hingga usia tertentu), makin tinggi kemungkinan untuk memiliki rekening pada lembaga keuangan, namun makin sedikit memanfaatkan perbankan digital. Penulis berharap temuan awal dari penelitian ini dapat membantu memberi gambaran maupun arah bagi pembuat kebijakan dalam merancang program keuangan inklusif yang mampu menyerap dan melibatkan lebih banyak lagi masyarakat Indonesia untuk memiliki akses terhadap lembaga keuangan.*

**Kata kunci:** Inklusi Keuangan, Perbankan Digital, Estimasi Probit.

## **WHICH INDIVIDUAL PROFILE FORMS THE UTILIZATION OF MOBILE MONEY BANKING IN INDONESIA?**

### **Abstract**

*Using data survey from 2014 World Bank Global Findex involving 1,000 respondents in Indonesia, this study applies probit estimation to examine such individual characteristics have already used mobile money banking in Indonesia. The preliminary findings of this study indicate that in Indonesia, the higher the education of an individual, the greater the chances for the individual to use or utilize mobile money banking. Although it is not a significant individual profile affecting the utilization of digital banking, there is tendency that a woman decreases the opportunities in utilizing mobile money banking, meaning that digital banking is more utilized by men. Interestingly, however, women tend to have a higher probability of having accounts in financial institutions in Indonesia. Opening an account is a fundamental step in order for the society to have more access to financial institutions, thus making it is important in expanding the ability of Indonesians to be*

*financially included. Another finding is there is a tendency that the older an individual (up to a certain age), the higher the chances of having an account with a financial institution, but the less leveraging the mobile money banking.*

**Keywords:** *financial inclusion, mobile money banking, probit estimation.*

## INTRODUCTION

The term of financial inclusion is increasingly emerging after the 2008 crisis. Residents outside of the developed countries are most affected by the crisis. More specifically, "low-income and irregular residents, living in remote areas, disabled people, workers with no official identity documents, and marginalized communities" (Bank of Indonesia 2017). This group called "unbanked" has a very large number. The 2010 Toronto Summit, preceded by the G20 Pittsburgh Summit 2009, highlighted the importance for the "unbanked" group to gain access to finance, so a financial inclusion program was born. With a financial inclusion program, communities, especially the "unbanked" group no longer have to rely on their personal financial capacity to grow or pursue economic opportunities, such as for education, business development, etc (Demirgüç-Kunt et al. 2008). For poor people also micro and small enterprises, this extra access for finance does matter in order to grow, even just for survive.

Financial inclusion begins with the opening and ownership of an account at a formal financial institution. This is the very fundamental level, in which it not only allows the owner to save money and obtain loans, but also the opportunity to gain payment services and insurance (Zins and Weill 2016, pp. 46). On wider perspectives, financial inclusion has bigger benefit as proposed by Demirgüç-Kunt et al. (2015), as follows.

"when people participate in the financial system, they are better able to start and expand businesses, invest in education, manage risk, and absorb financial shocks. Access to accounts and to savings and payment mechanisms increases savings, empowers women, and boosts productive

investment and consumption. Access to credit also has positive effects on consumption—as well as on employment status and income and on some aspects of mental health and outlook. The benefits go beyond individuals. Greater access to financial services for both individuals and firms may help reduce income inequality and accelerate economic growth (p. 2)."

The rapid technology development accompanied by the needs of the society who increasingly demands the speed and accuracy in conducting financial transactions, making the related parties, namely the bank as a financial service provider and the technology provider, working together to meet the needs of consumers as well as seize the opportunity to dominate the market. Today, it is very common for people to make financial transactions through their smart phone and no longer visit the bank branches where they will transact finances. In the midst of rapidly moving and demanding community movements within a short time, this can save time, effort and money. This technology which allows people to make financial transactions in "a relatively cheap, secure, and reliable manner" so-called mobile money banking and considered "a form of branchless banking" (Jack & Suri 2011, also Demirgüç-Kunt & Klapper 2013).

People utilize mobile money banking have to have an account which allows them to send or receive money, make a withdrawal, make payments, buy things, et cetera. But, mobile money accounts are not always connected to account at a financial institution. The providers are usually required to store total sums of the accounts in a bank. Customers are then charged a fee for the services from the account (Demirgüç-Kunt & Klapper 2013).

Although the Financial Services Authority (OJK – Otoritas Jasa Keuangan) states that Indonesian financial inclusion index has reached 67.82 percent in 2016 (Setiawan, 2017), but the LPEM UI research shows that financial inclusion program is not on target (Suryowati, 2017). According to the LPEM UI research team, more than 90 percent of users of financial inclusion program, called Layanan Keuangan Digital (LKD) and Laku Pandai, already have a bank account, where it should be intended to attract people who have not been touched by access to formal finance.

Research that attempts to combine financial inclusion programs with digital banking is still very rare, especially those take the research focus in Indonesia. This research tries to fill in the gaps to provide an initial and basic picture of the consumer profile that already utilizes digital banking in Indonesia. Initial research on the profile of individuals already involved in financial inclusion programs has been conducted by the same author. Further results can be viewed on request to Lisara (2017c). The author hopes this simple research can help policy makers and related parties in reforming financial inclusion programs to be more targeted so that the objectives of the program accelerated achieved and prosperity of the Indonesian people who aspired by all of Indonesian citizens to be realized. Regard to the data contained in the World Bank's 2014 Global Findex survey, we conduct probit estimation to find the determinant factors forming the utilization of mobile money banking in Indonesia.

## LITERATURE REVIEW

Below are some of previous researches that studied mobile money

banking. Among the limited study about mobile banking in Indonesia, this research trying to fill the gap of factors forming the utilization of mobile money banking in Indonesia. Tabel 1 presents the resume of those studies and their results.

## RESEARCH METHOD

Following Zins and Weill (2016), we conduct probit estimation to meet the research objective of factors forming the utilization of mobile money banking in Indonesia. The data and methods are presented below.

### Data

The World Bank's 2014 Global Findex conducted by Gallup Inc. which covers 150,000 people worldwide in 140 economies that be claimed representing 97 percent of the world's population. Indicators on financial inclusion are available at micro level which helps the author to fulfill the research objectives.

For Indonesia, a survey was conducted on 1,000 respondents using Bahasa Indo-nesia in selected random samples which capable of becoming nationally repre-sentative (World Bank 2015, p. 3). We complete the discussion with the determi-nant of the ownership of formal account (later named conventional banking) which is the author's former research (Lisara 2017c) to make a comparative analysis with current research.

Table 2 above presents the definition and descriptive statistics for indicator takes part as the dependent variable we use in the estimations. It is shown that Indonesian people using mobile money level is 1.8 percent, lower compared to 2 percent at the world level.

Table 1. Previous Studies Relate to Mobile Money Banking

No	Year	Researchers	Methods	Conclusions
1.	2014	Purwanegara, Apriningsih, and Andika	Combination of qualitative and quantitative approaches through perceived benefit and perceived risk.	“Regulation is significantly influence perceived risk and benefits. However, the results also showed that the regulation has larger impact to perceived benefits than perceived risk.”
2.	2014	Van der Boor, Oliveira and Veloso	In-depth historical analysis	“Shows that 85 percent of the innovations in mobile financial services originated in developing countries, due to the high levels of need and the existence of flexible platforms, in combination with increased access to information and communication technology.”
3.	2015	Baptista and Oliveira	Structural Equation Modelling (SEM)	“The most significant antecedents of behaviour intention is found to be performance expectancy, hedonic motivation, and habit. The most significant cultural moderators are collectivism, uncertainty avoidance, short term and power distance.”
4.	2015	Shaikh and Karjaluoto	Review of literature on m-banking adoption published from January 2005 to March 2014	“The mobile banking adoption literature is fragmented, revealing that compatibility (with lifestyle and device), perceived usefulness, and attitude are the most significant drivers of intentions to adopt mobile banking services in developed and developing countries.”
5.	2016	Zins and Weill	Probit	“Find that in Africa, being a man, richer, more educated and older favor financial inclusion with a higher influence of education and income. Mobile banking is driven by the same determinants than traditional banking.”
6.	2017	Alalwan, Dwivedi and Rana	Field survey questionnaire completed by 343 participants	“Behavioural intention in adoption of mobile banking by Jordanian bank customers is significantly and positively influenced by performance expectancy, effort expectancy, hedonic motivation, price value, and trust.”

Source: Compiled from various sources.

Table 2. Definition and Summary Statistics of Mobile Money Banking Variables for The Dependent Variable

Variable	ID	Name	Literal Question from the Survey Questionnaire	Obs	Mean
Mobile	V31	q14	“In the past 12 months, have you ever made a transaction with money from your account at a bank or another type of formal financial institution using a mobile phone? This can include using a mobile phone to make payments, buy things, or to send or receive money.”	1,000	0.018

Source:

- The IDs, names, and questions are taken from World Bank (2015, p. 11).
- World mean summaries are taken from Zins and Weill (2016), while Indonesian summaries are processed by STATA 13 and modified with Microsoft Excel 2010 by the author.

Table 3 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey, “In the past 12 months, have you ever made a transaction with money from your account at a bank or another type of formal financial insti-

tution using a mobile phone? This can include using a mobile phone to make payments, buy things, or to send or receive money (World Bank 2015, p. 11).” The respondents who answered “Yes” is only 18 persons of 1,000 Indonesian respondents. It means only 1.8

percent, very low level if compared to Africa which has reached 13 percent (Zins and Weill 2016). The lower level of using mobile money in Indonesia relates to Purwanegara et al. (2014, p. 153), which said that “mobile money banking user in Indonesia still has low perception of the regulation and government act that will help them if unexpected things happen. In addition, the lack of knowledge on the claiming and protection procedures may cause mobile money banking user to perceive that the law and regulation cannot fully protect them.

Table 4 presents the definition and descriptive statistics of the individual characteristics as the independent variables used in the model. Since the respondent education level data from the survey has 3 (three) classes (namely primary or less, completed secondary, and completed tertiary or more), we make 2 (two) dummy variables to accommodate those data to the model. The same reason applied in income level which are within-economy household income quintile. The completed explanatory variables mentioned are presented in Table 4.

Table 3. Frequency Distribution of The Utilization of Mobile Money Banking Variables

Respondents answers of “If has account: made a transaction using a mobile phone”	Freq.	Percent	Cum.
No (0)	982	98.20	98.20
Yes (1)	18	1.80	100.00
Total	1,000		100.00

Source: STATA 13 results with probit estimation

Table 4. Definition and Summary Statistics for the Individual Characteristics as the Independent Variables

Variable	Definition	Obs	Mean	Std. Dev.
Female – femdum	a dummy variable equals to one if the individual is a woman (female), zero otherwise	1,000	0.531	0.499
Age	age of individual in number of years	1,000	39.643	14.117
Secondary education – secdum	a dummy variable equals to one if the individual has completed secondary education, zero otherwise	1,000	0.628	0.484
Tertiary education – terdum	a dummy variable equals to one if the individual has completed tertiary education or more, zero otherwise	1,000	0.043	0.203
Income poorest 20% – poorest	a dummy variable equal to one if income is in the first income quintile, zero otherwise	1,000	0.171	0.377
Income second 20% – second	a dummy variable equal to one if income is in the second income quintile, zero otherwise	1,000	0.180	0.384
Income middle 20% – middle	a dummy variable equal to one if income is in the third income quintile, zero otherwise	1,000	0.249	0.433
Income fourth 20% – fourth	a dummy variable equal to one if income is in the fourth income quintile, zero otherwise	1,000	0.181	0.385

Source: The definitions are based on Zins and Weill (2016), the summary statistics are from Lisara (2017a)

## Probit Estimation

Probit estimation is conducted in order to fulfill this paper's research objectives. This is due to the variable used as dependent variable, namely the utilization of mobile money banking, has only two possibility answers (yes or no) in the data collected from the survey. We use Indonesian individual characteristics data gained in the survey, named age, education, gender, and income, as the explanatory variables, while the use of mobile money banking takes part as the dependent variables (Lisara 2017b).

$$\begin{aligned} Mobile_i = & \delta_1 + \delta_2 Age_i + \delta_3 Age_i^2 \\ & + \delta_4 SecDum_i \\ & + \delta_5 TerDum_i \\ & + \delta_6 Femdum_i \\ & + \delta_7 Poorest_i + \delta_8 Second_i \\ & + \delta_9 Middle_i + \delta_{10} Fourth_i \\ & + \varepsilon_i \end{aligned}$$

where the definition of each of variables are presented in Table 2 and Table 4 above.

## RESULT AND DISCUSSION

### Summarizing the Indonesian Individual Profiles

The 2014 World Bank Global Findex surveys are "conducted face to face in economies, where telephone coverage represents less than 80 percent of the population or is the customary metho-

dology (World Bank 2015, p. 3)." The real data considering gender has 2 (two) possible answers, 1 (one) if male and 2 (two) if female. In order to put it in the dummy variable, we have to recoding it without changing the meaning. The new variable named "femdum" is generated, which has also 2 (two) answers, 0 (zero) if male and 1 (one) if female.

Table 5 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey whether she is female. The respondents who answer "Yes" mean that she is a female. About 531 persons of 1,000 Indonesian respondents is a female and the rest are male.

Move to education level, the respondents have to answer the literal question of questionnaire in the World Bank survey, "What is your highest completed level of education? (World Bank 2015, p. 10)." The real data considering education has 4 (four) answers showing the level of the respondent's education, 1 (one) if "completed primary or less", 2 (two) if "secondary", 3 (three) if "completed tertiary or more", and finally 4 (four) if "(dk, donot know)". Since there are 3 (three) important answers, we have to generate 2 (two) dummy variables in order to put it in the model, named "secdum" and "terdum".

Table 5. Frequency Distribution of The Gender Profile Variable

Respondent is female	Freq.	Percent	Cum.
No (0)	469	46.90	46.90
Yes (1)	531	53.10	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 6. Frequency Distribution of The Secondary Education Level Variable

Respondent education level: completed secondary	Freq.	Percent	Cum.
No (0)	372	37.20	37.20
Yes (1)	628	62.80	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 6 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey whether one has completed secondary education level. The “secdum” is a dummy variable equals to one if the individual has completed secondary education, zero otherwise. About 62.8 percent of the respondents has completed the secondary level of education.

Table 7 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank whether one has completed tertiary education level or more. The “terdum” is a dummy variable equals to one if the individual has completed tertiary education or more, zero otherwise. It shows that only 4.3 percent of Indonesian respondents has completed tertiary education or more.

In income profile, the respondents have to answer the literal question of questionnaire in the World Bank survey, “What is your total monthly household income in [Rupiah], before taxes? Please include income from wages and salaries, remittances from family members living elsewhere, farming, and all other sources (World Bank 2015, p. 10).” The real data considering income has 5 (five) answers

showing the level of the respondent’s income quintile, i.e 1 (one) if “poorest 20 percent”, 2 (two) if “second 20 percent”, 3 (three) if “middle 20 percent”, 4 (four) if “fourth 20 percent” and finally 5 (five) if “richest 20 percent”. Since there are 5 (five) important answers, we have to generate 4 (four) dummy variables in order to put it in the model, named “poorest”, “second”, “middle”, and “fourth”.

In income profile, the respondents have to answer the literal question of questionnaire in the World Bank survey, “What is your total monthly household income in [Rupiah], before taxes? Please include income from wages and salaries, remittances from family members living elsewhere, farming, and all other sources (World Bank 2015, p. 10).” The real data considering income has 5 (five) answers showing the level of the respondent’s income quintile, i.e 1 (one) if “poorest 20 percent”, 2 (two) if “second 20 percent”, 3 (three) if “middle 20 percent”, 4 (four) if “fourth 20 percent” and finally 5 (five) if “richest 20 percent”. Since there are 5 (five) important answers, we have to generate 4 (four) dummy variables in order to put it in the model, named “poorest”, “second”, “middle”, and “fourth”.

Table 7. Frequency Distribution of The Tertiary or More Education Level Variable

<b>Respondent education level: completed tertiary or more</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
No (0)	957	95.70	95.70
Yes (1)	43	4.30	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 8. Frequency Distribution of The First Income Level Variable

<b>Respondents answers of “Within-economy household income quintile”: poorest 20%</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
No (0)	829	82.90	82.90
Yes (1)	171	17.10	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 9. Frequency Distribution of The Second Income Level Variable

<b>Respondents answers of “Within-economy household income quintile”: second 20%</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
No (0)	820	82.00	82.00
Yes (1)	180	18.00	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 8 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey considering their within-economy household first income quintile level. The “poorest” is a dummy variable equal to one if income is in the first income quintile, zero otherwise. There are 17.1 percent of 1,000 Indonesian respondents whose income are in the first income quintile level or considered as the poorest people.

Table 9 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey considering their within-economy household second income quintile level. The “second” is a dummy variable equal to one if income is in the second income quintile, zero otherwise. There are 18 percent of 1,000 Indonesian respondents whose income are in the second income quintile level.

Table 10 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey considering their within-economy household third income quintile level. The “middle” is a dummy variable equal to one if income is in the third income quintile, zero otherwise. There are 24.9 percent of 1,000 Indonesian respondents whose income are in the third income quintile level or considered as the middle income people.

Table 11 presents the frequency distribution of the respondent who answers the literal question of questionnaire in the World Bank survey considering their within-economy household fourth income quintile level. The “fourth” is a dummy variable equal to one if income is in the third income quintile, zero otherwise. There are 18.1 percent of 1,000 Indonesian respondents whose income are in the third income quintile level.

Table 10. Frequency Distribution of The Third Income Level Variable

<b>Respondents answers of “Within-economy household income quintile”: middle 20%</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
No (0)	751	75.10	75.10
Yes (1)	249	24.90	100.00
Total	1,000		100.00

Source: STATA 13 results by author

Table 11. Frequency Distribution of The Fourth Income Level Variable

<b>Respondents answer of “Within-economy household income quintile”: fourth 20%</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
No (0)	819	81.90	81.90
Yes (1)	181	18.10	100.00
Total	1,000		100.00

Source: STATA 13 results by author



## Discussion of The Results

With STATA 13 and probit estimation, we proceed the data from World Bank's 2014 Global Findex to examine the factors forming the utilization of mobile money banking in Indonesia. We present the results of estimated marginal effects of the probit estimation model in column 2 of Table 12.

Before continuing to the results discussion, as can be found in Lisara (2017c), having an account in formal financial institution is the best indicator in defining financial inclusion level in Indonesia. In addition, we complete future discussion with the factors forming the utilization of conventional banking services (by having a formal account) in column 3 of Table 12, taken from Lisara (2017c), the previous research of the same author. This be done to make a comparative analysis whether the mobile money banking is driven by the same factors with the conventional ones or not. Then, we find the complete comparative ingredients as shown in Table 12.

It is shown in Table 12 and be said in Lisara (2017c) that the probability of having an account in Indonesia has reached 38.1 percent, holding every variables are at their mean values. On the other hand, it is only 0.0498 percent the probability of utilizing mobile money banking in Indonesia, holding every variables are at their mean values. It means very huge obstacles for Indonesian people to use their smartphone in order to help them doing money transactions. It is also an enormous challenge for the related parties to make mobile money transaction close to and being part of Indonesian society's daily life. The author once again would like to make highlight and underline for the research results of Purwanegara et al. (2014), confirming the negative perceive of mobile money banking users in Indonesia because of "the lack of knowledge and distrust to regulator's regulation on the claiming and

protection procedures". Other researches should be conducted to find the evidences of this matter.

Interestingly, it tends to that in Indonesia, the mobile money banking driven by different factors than the conventional banking. The different sign in each of corresponding variables support this argument.

From this part, we wants to rewrite the results of Table 12 into some parts regarding each of individual profile factors. This be done in order to make the readers comfortable because tables are not separated with the text.

Although in general the factors determine the mobile money banking in Indonesia are in the different direction with the conventional banking, the significant results in education characteristic corresponds to mobile money banking has the same sign with the conventional one. The positive sign with greater value in estimated marginal effects of the probit estimation shows the greater probability for higher education level either to have an account in formal financial institution or utilize mobile money banking in Indonesia. The higher the education, the more positive the association for individual to have formal account, as shown in higher value of secondary to tertiary education's coefficient (from 25.3 percent to 71.9 percent). This means the higher the education, the greater probability of individual to have a formal account (Lisara 2017c). Similarly, the higher the education, the greater probability of individual to utilize mobile money banking, as shown in higher value of secondary to tertiary education's coefficient (from 16.6 percent to 17.5 percent). Then, it could be concluded that in Indonesia, the higher the education level of one individual, the greater the probability of utilizing mobile money banking. This result is in line with phenomenas happened in Africa, as be found in Zins and Weill (2016). In author

intuitive perspective, this result does make sense, since these highly educated individuals have the ability to operate the smartphone and at the same time understanding how to do the transactions.

This individual also tends to have vast movement during their activities, that is the presence of mobile money banking in their hands make their daily activities easier and more effective.

Table 12. The profile determine the utilization of mobile money banking in Indonesia.

Variables	Mobile account	Formal account
Age	-0.000245 (0.00122)	0.0150*** (0.00518)
Age_square	0.000 (0.000)	-0.000*** (0.000)
Female	-0.00125 (0.00816)	0.00578 (0.0279)
Secondary Education	0.166*** (0.0361)	0.253*** (0.0312)
Tertiary Education	0.175*** (0.0403)	0.719*** (0.0934)
Income – Poorest	-0.00583 (0.0145)	-0.277*** (0.0451)
Income – Second	-0.00872 (0.0141)	-0.208*** (0.0437)
Income – Middle	-0.00984 (0.0125)	-0.159*** (0.039)
Income – Fourth	0.00114 (0.0112)	-0.116*** (0.042)
Observations	1,000	1,000
Pseudo R <sup>2</sup>	0.0909	0.1550
Log likelihood	-81.956	-567.282
Predicted probabilities (at mean values)	0.000498	0.381

Source: STATA 13, modified result with Microsoft Excel 2010

Notes: Standard errors in parentheses

\*\*\* Significance at 1% level

\*\* Significance at 5% level

\* Significance at 10% level

Table 12a. The education factors determine the utilization of mobile money banking in Indonesia.

Variables	Mobile account	Formal account
Secondary Education	0.166*** (0.0361)	0.253*** (0.0312)
Tertiary Education	0.175*** (0.0403)	0.719*** (0.0934)

Source: STATA 13, modified result with Microsoft Excel 2010

Notes: Standard errors in parentheses

\*\*\* Significance at 1% level

\*\* Significance at 5% level

\* Significance at 10% level

Table 12b. The gender factor determine the utilization of mobile money banking in Indonesia.

Variables	Mobile account	Formal account
Female	-0.00125 (0.00816)	0.00578 (0.0279)

Source: STATA 13, modified result with Microsoft Excel 2010

Notes: Standard errors in parentheses

\*\*\* Significance at 1% level

\*\* Significance at 5% level

\* Significance at 10% level

Table 12c. The age factor determine the utilization of mobile money banking in Indonesia.

Variables	Mobile account	Formal account
Age	-0.000245 (0.00122)	0.0150*** (0.00518)
Age_square	0.000 (0.000)	-0.000*** (0.000)

Source: STATA 13, modified result with Microsoft Excel 2010

Notes: Standard errors in parentheses

\*\*\* Significance at 1% level

\*\* Significance at 5% level

\* Significance at 10% level

Next parts are the interpretation of each remaining individual characteristics. Although they do not show significant results and probably need further research even re-examination, we hope it provides initial overview of mobile money banking phenomena in Indonesian for the interested parties. The positive sign of estimated marginal effect of probit estimation in formal account column means that being a female has positive association with the formal account. The negative sign then means negative association. Since we use probit estimation, this association means probability. Therefore, those results can be read as being a woman increases the probability of having an account in formal financial institutions as much as 0.578 percent, but decreases the probability as much as 0.125 percent of using mobile money banking. The negative effect on female means positive

effect on male, so that the result also can be read as being a male increases the probability of utilizing mobile money banking as much as 0.578 percent.

The same way of reading the results in Table 12c, age characteristics has positive association with formal account, but negative association with the utilization of mobile money banking. It is then concluded that the older the person the greater the probability of significantly having a formal account (Lisara 2017c), but the less probability of utilizing mobile money banking. Age has a nonlinear relation with utilization of mobile money banking, with negative coefficient for "Age" and positive for "Age\_square". This can be read as older person is less likely to utilize mobile money banking, but after a certain age, the probability of utilizing mobile money banking rises.

Table 12d. The income factor determine the utilization of mobile money banking in Indonesia.

Variables	Mobile account	Formal account
Income – Poorest	-0.00583 (0.0145)	-0.277*** (0.0451)
Income – Second	-0.00872 (0.0141)	-0.208*** (0.0437)
Income – Middle	-0.00984 (0.0125)	-0.159*** (0.039)
Income – Fourth	0.00114 (0.0112)	-0.116*** (0.042)

Source: STATA 13, modified result with Microsoft Excel 2010

Notes: Standard errors in parentheses

\*\*\* Significance at 1% level

\*\* Significance at 5% level

\* Significance at 10% level

This research incapable and lack of evidence to explain the reasons behind those two phenomenas, since the lack of researches correspond to these issues. But, this can be positively accepted for other researchers, including the author, as blessing in disguise to challenge future researches. For income characteristic, the ownership of having a formal account (as the indicator of financial inclusion in conventional banking) shows negative sign but greater value of marginal effect for lower income (from -27.7 percent for the lowest income respectively to -11.6 percent for the highest income). This means, the obstacles for the lowest income to have formal account is greater than the other higher income level. The significancies of each income level enhancing the firmness of the result. Then, it can concluded that the probability of having an account in formal financial institutions is smaller for the poorest (Lisara 2017c).

On the contrary, the value of the marginal effects for the probit estimation in mobile money banking model do not make an assertive pattern. The lowest income to the third level income show negative sign with greater value for the higher income, which mean greater obstacles for higher income level to utilize mobile money banking, but then

followed by positive sign in the highest income level. In order to avoid missinterpretation of this special case, the author suggest further research or perhaps re-examination, since there are still no papers which can help the author explaining this phenomena.

From all of those findings, suggestions for regulators and interested parties are depend on who is the individual profile target. For instance, the result shown that being a woman decreases the probability of using mobile account, or in other word, being a man increases the probability of using mobile account. Hence, the suggestion is making strategies to attract more women to utilize mobile money banking and on the other hand is making more men are bounded and addicted to utilize mobile account.

The author once again would like to make highlight and underline for the research results of Purwanegara et al. (2014), confirming the negative perceive of mobile money banking users in Indonesia because of “the lack of knowledge and distrust to regulator’s regulation on the claiming and protection procedures”. Therefore, different approaches might needed to figure out the suggestions for solutions because of additional purpose. For example, the result shown that being a woman decreases the

probability of using mobile account, but increases the probability of having a formal account. It is also found that the older the person the greater probability of significantly having a formal account, but the less probability of using mobile account. The interested parties then have to map out certain program to break down the negative perceive above so that implicates women and older person to directly believe and find the benefits of mobile money banking. Other solutions can be found through the opposite parties, which are men and younger person, so that these classes are more in utilizing mobile money banking. Finally, both side could be worked out together in reforming acceleration program for financial inclusion in Indonesia.

## CONCLUSION

Mobile money banking in Indonesia has potential prospect and might be the way of performing financial transactions in the future. This paper attempts to examine factors determining the utilization of mobile money banking and make comparative analysis to the utilization of conventional banking services.

Using data survey from 2014 World Bank Global Findex involving 1,000 respondents in Indonesia, this study applies probit estimation to examine which individual characteristics have already used mobile money banking in Indonesia. The preliminary findings of this study indicate that in Indonesia, the higher the education of an individual, the greater the chances for the individual to use or utilize mobile money banking. Although it is not a significant individual profile affecting the utilization of digital banking, there is tendency that a woman decreases the opportunities in utilizing mobile money banking, meaning that digital banking is more utilized by men. Interestingly, however, women tend to have a higher probability of having

accounts in financial institutions in Indonesia. Opening an account is a fundamental step in order for the society to have more access to financial institutions, thus making it is important in expanding the ability of Indonesians to be financially included. Another finding is that there is a tendency that the older an individual (up to a certain age), the higher the chances of having an account with a financial institution, but the less leveraging the mobile money banking. The authors hope the preliminary findings of this study might help to illustrate and direct the policy makers in designing an financial inclusion program that is able to absorb and involve more and more Indonesians to have access to financial institutions.

Due to its early research concerning mobile money banking and financial inclusion in Indonesia, research limitations could be found everywhere in this paper, even it might require re-examination. On the other hands, this also means challenge for other researchers to fill the gap and make complementary results. For example, if we use micro data from Indonesian Family Life Survey (IFLS) or Statistics Indonesia (BPS–Badan Pusat Statistik) through regional census data all over Indonesia, we might find interesting results about mobile money banking determinant which not only cover Indonesian level, but also regional characteristics, so that we might find different cultural influence in the result of each regions. We can also use Enterprise Survey data from World Bank to examine the same research objective from the enterprises point of view. Qualitative research will be outstanding be done to get better and deeper understanding about this matter, after we get clearer picture about mobile money banking phenomena in Indonesia. We will gladly and open-mindedly accept constructive inputs for future improvement.

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