Financial Technology and Demographic Factors on Welfare Analysis

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Abstract

Financial technology is very useful in facilitating financial transactions worldwide. It was created to make getting funds and managing finances easier, which can improve people's welfare. However, it also poses a threat in the form of loans from financial technology lending companies that are not licensed and illegally operate so that customers can be bound by huge interest rates and terrorized by debt collectors. Therefore, this study aims to analyze literacy about financial technology and demographic factors that affect welfare. The analysis results show that most respondents are still ignorant or do not understand the benefits of fin-tech for improving their welfare, and the respondents' welfare is only affected by age. Although 92% of respondents have savings, these savings do not use fin-tech. Fin-tech is still seen as something that plunges like a shark loan trap, so most respondents still avoid fin-tech for their financial management. Respondents still do not use fin-tech optimally and urgently need education and socialization related to fin-tech.

Keywords: financial technology, welfare, demographic factors

1. INTRODUCTION

Financial technology is very useful in facilitating financial transactions worldwide. It was created to make getting funds and managing finances easier, which can improve people's welfare. However, it also poses a threat in the form of loans from financial technology lending companies that are not licensed and illegally operate so that customers can be bound by huge interest rates and terrorized by debt collectors. Therefore, this study aims to analyze literacy about financial technology and demographic factors that affect interest. The analysis results show that most respondents are still ignorant or do not understand the benefits of fin-tech for improving their welfare, and the respondents' welfare is only affected by age. Although 92% of respondents have savings, these savings do not use fin-tech. Fin-tech has been seen as something that plunges like a shark loan trap, so most respondents still avoid fin-tech for their financial management. Respondents still do not use fin-tech optimally and urgently need education and socialization related to fin-tech.

Welfare is the main goal of economic activities carried out by the people. Social, economic, and demographic are the factors that greatly affect welfare. Various kinds of social, economic, and cultural factors also determine people's welfare. In addition, natural events such as COVID-19 are also sure to affect people's economic behavior, which also impacts their welfare.

The COVID-19 pandemic has forced rapid changes in various sectors of life. People are indirectly forced to follow technological developments. The technology development in the economic sector, specifically finance (Fin-tech), is growing very fast and massive, especially during the COVID-19 pandemic. From urban to rural communities, they are familiar with electronic money and online payment systems.

Financial technology is very useful in facilitating financial transactions worldwide. However, it also contains threats in the form of loans from financial technology lending companies that are not licensed and illegally operate so that customers can be bound by huge interest rates from loan sharks under the guise of online loans and then be terrorized by debt collectors. Borrowers should understand that the list of illegal fin-tech lending companies can be found on the official website of the Financial Services Authority (Keuangan, 2021).

Financial technology (fin-tech) is a component of Indonesia's digital economy. According to the e-Conomy SEA 2021 report, Indonesia managed to record $44 billion in gross merchandise value (GMV) from e-commerce, on-demand, online travel, and fin-tech sectors. According to analysts, the COVID-19 pandemic has accelerated fin-tech growth in the region. Fin-tech lending is still on a fast growth path from year to year. As of September 2020, there were Rp 128.7 trillion in loan distribution, involving 29.2 million borrower accounts and 681 thou-

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sand investor accounts. Users of Java still dominate the majority of transactions (Singapore, 2020).

Borrowers should also understand the data that may be shared with others, including confidential data, because of financial technology misuse by hackers who hack financial accounts and passwords to break into financial accounts in cyberspace. Financial technology users should understand the things that can and should not be shared in cyberspace. Following Kominfo Regulation Number 20 of 2016 concerning Personal Data, it states that consumer data must be stored, kept confidential, and may not be circulated or published without the data owner's knowledge.

Financial technology was created to make getting funds and managing finances easier so people's welfare could be improved. Therefore, this study aims to analyze literacy about financial technology and demographic factors that affect welfare. Optimal use of financial technology should be able to encourage people's welfare, following the Sustainable Development Goals (SDGs), which is a global agenda with the spirit that all parties must enjoy the positive impacts of development without anyone being left behind. The spirit of sustainable development within the framework of the SDGs is in line with the national development goal of providing welfare for all Indonesian people (BPS, 2020).

The financial technology that continues to develop will support the achievement of the three targets of the 2015-2019 Indonesian Financial Services Sector Master Plan:

1. Contributive: Optimizing the role of the FSS in supporting the acceleration of national economic growth.

2. Stable: Keeping the financial system stable as the foundation for long-term development.

3. Inclusive: opening access to finance to improve people's welfare (OJK, 2019).

With that, this research is very important to be carried out in 2021.

These research objectives are to analyze how demographic factors and financial technology affect welfare. This research is critical because it can encourage economic activity by sharing information about financial technology, which is rapidly developing and has the potential to improve community welfare.

2. LITERATURE REVIEW

2.1. Financial Technology

Financial technology (FinTech) is the result of a combination of financial services and technology that changes the business model from conventional to moderate, which initially had to pay face-to-face and carry a certain amount of cash, but is now able to make long-distance transactions by making simple payments that can be made in a matter of seconds (BI, 2016). Financial technology appears to be in line with changes in people's lifestyles, currently dominated by information technology users who demand a fast-paced life. With financial technology, problems in transactions and payments, such as not having time

to look for goods in shopping places, going to banks/ATMs to transfer funds, and being reluctant to visit places because of unpleasant services can be minimized. In other words, financial technology helps transactions and payment systems be more efficient and economical while still being effective. The legal basis for implementing financial technology in the payment system in Indonesia is as follows:

- Bank Indonesia Regulation No. 18/40/PBI/2016 concerning the Implementation of Payment Transaction Processing

- Bank Indonesia Circular Letter No. 18/22/DKSP regarding the Implementation of Digital Financial Services.

- Bank Indonesia Regulation No. 18/17/PBI/2016 Concerning Electronic Money.

For consumers, financial technology provides the better service, more choices, and lower price. For financial technology players (product or service traders), financial technology provides benefits:

- Simplify the transaction chain.

- Reducing operational and capital costs

- Information flow is being frozen.

For a country, financial technology provides benefits:

- encouraging the transmission of economic policy.

- increase the speed of money circulation to improve the people's economy.

In Indonesia, financial technology has contributed to the National Strategy for Financial Inclusion (Strategi Nasional Keuangan Inklusif-SKNI). Financial technology has changed the payment system in society and has helped start-up companies reduce their initial high capital and operating costs. In this case, financial technology can replace the role of formal financial institutions such as banks. In terms of payment systems, financial technology plays a role in:

- Providing a market for business actors,

- Become a tool for payment, settlement, and clearing

- Helping to make investments more efficient

- Mitigation of risks from conventional payment systems

- Help those in need to save, borrow funds, and invest in capital.

The strong flow of technology in the payment system encourages Bank Indonesia, as the central bank of the Republic of Indonesia, to ensure that payment traffic that has been penetrated by technology continues to run in an orderly and safe manner and supports the pillars of achieving the vision and mission of Bank Indonesia.

Bank Indonesia maintains order in payment traffic related to financial technology with the following efforts:

1. In terms of providing a market for business actors, Bank Indonesia ensures protection for consumers, especially regarding the guarantee of confidentiality of consumer data and information through cyber security networks.

2. Bank Indonesia requires every business actor to comply with macroprudential regulations, deepening of financial markets, payment systems to support operations, and cyber security to safeguard consumer data and information in terms of savings, loans, and equity participation.

3. Bank Indonesia also requires every business actor to comply with macroprudential regulations, deepening of financial markets, payment systems to support operations, and cyber security to safeguard consumer data and information in terms of investment and risk management.

4. In terms of payment, settlement, and clearing, Bank Indonesia ensures protection for consumers, particularly regarding guarantees for the confidentiality of consumer data and information through cybersecurity networks.

Bank Indonesia guarantees security and order in payment traffic by being:

- Facilitator.

  Bank Indonesia becomes a facilitator in terms of providing land for paid traffic.

- Astute business analyst.

  Through collaboration with international authorities and agents, Bank Indonesia becomes an analyst for business actors related to financial technology to provide views and directions on how to create a safe and orderly payment system.

- Assessment.

  Bank Indonesia conducts monitoring and assessment of every business activity that involves financial technology and its payment systems that use technology.

- Coordination and communication

  Bank Indonesia maintains relations with relevant authorities to continue to support the existence of payment system financial technology in Indonesia. Bank Indonesia is also committed to supporting business actors in Indonesia by providing regular guidance on financial technology.

2.2. Demographics

Population analysis is an analysis that consists of occupation structure analysis that aims to: (1) obtain basic information about the population distribution, its characteristics, and changes, (2) explain the causes of the changes in those fundamental factors, (3) analyze all the consequences that are likely to occur in the future as a result of those changes.

In short, population analysis deals with changes in human beings as seen from the number of births, deaths, and growth.

Meanwhile, according to Achille Guillard, demography is a science that studies everything from the state and attitudes of humans that can be measured, including changes in general, physical, civilization, intellectual, and moral conditions. In addition, George W. Barclay defines demography as the science that provides a statistical picture of the population. Demography studies the behavior of the population as a whole, not individuals.

The definition of demographics is also proposed by Philip M. Hauser and Duddley Duncan as follows: Demography is a study of the size, territorial distribution, and composition of a population, changes therein, and the components of such changes, which may be identified as natality, territorial movement (migration), and social mobility (change of states). The demographic factors studied are gender, age, income, education, and type of work (economic sector).

2.3. Previous Research

Batunanggar (2019) analyzed fin-tech, economic growth, micro-small-medium enterprises (MSMEs), and financial inclusion in Indonesia. The paper showcases the growth as well as the challenging factors for fin-tech development. This paper also discusses customers' reluctance to use fin-tech products and examines how regulators have adopted strategies related to regulation strategy, frameworks, market supervision, and innovation (Batunanggar, 2019).

So many demographic indicators can be chosen to analyze Fin-tech users in developing countries. One interesting factor is gender. Gender differences in the willingness to use new financial technology or fin-tech entrants if they offer cheaper services account for over half of the remaining gap because women generally gain less income than men (Shin et al., 2021).

Bourainy et al. (2021) assess the impact of financial inclusion on the inflation rate in 37 developing countries for a period of 10 years from 2009 to 2018. The increasing attention that financial inclusion has been gaining requires precise attention to specific groups of the population that have been excluded historically from the formal financial sector either due to their income level, location, gender, or level of financial literacy.

3. RESEARCH METHODOLOGY

The research methodology used in this study is a quantitative research method with multiple non-linear regression using two dummy variables because the factors analyzed are socio-economic factors that contain qualitative values with cross-sectional data taken in Indonesia. The independent variables using financial technology, ownership of savings, credit, age, gender, occupation for the last one year, and education will be analyzed for their influence on the dependent variable of welfare.

The descriptive quantitative analysis technique is also used, which is a technique related to data collection that provides clear and accurate information. Descriptive analysis facilitates the disclosure of various important pieces of information from the data obtained in a concise form. Data analysis was carried out by statistically testing the variables collected using the multiple regression method based on ordinary least square (OLS) to obtain analytical sharpness.

3.1. Ordinary Least Square with Cross-Section Data

The regression method using this model is used to see the closeness and influence between the dependent and independent variables because it has superior characteristics, namely being technically accurate, easy to interpret, and the best linear and unbiased estimation tool. The data needed is socio-economic data, both numerical and qualitative, so dummy variables are used to associate the qualitative data. The econometric model to be used is:

$$Y_i = \beta_0 + \beta_1 D_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i}$$
$$+ \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 D_{7i} + \epsilon_i$$

where

Y : welfare (expenses);
D_1 : dummy variable for gender;
X_2 : age;
X_3 : income;
X_4 : knowledge of financial technology;
X_5 : education;
X_6 : worker;
D_7 : dummy variable savings;
ϵ : error term.

3.2. Classic assumption test

1. Normality Test. The data normality test aims to test whether the confounding or residual variables have a normal distribution in the regression model. A good regression model has data that is normally distributed or close to normal (Ghozali, 2017). It is known that the t-test and F-test assume that the residual value follows a normal distribution. If this assumption is violated, then the statistical test becomes invalid for a small sample size.

2. Test for Multicollinearity. The multicollinearity test aims to test whether there is a correlation between the independent variables and whether there is not in the regression model. A good regression model should not correlate with the independent variables. If the independent variables are correlated with each other, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation value between independent variables is equal to zero. The tolerance value (tolerance value) and the variance inflation factor (VIF) value are being seen to detect the presence or absence of multicollinearity in the regression model. These two measures indicate which of each independent variable is explained by the other independent variables. On the contrary, if the tolerance value is ¿ 0.10 and VIF ¡ 10, it can be interpreted that there is no multicollinearity in the study. On the contrary, if the tolerance is ¡ 0.10 and VIF ¿ 10, there is a multicollinearity disorder in the study (Ghozali, 2017).

3. Test for Heteroscedasticity. This test is used to determine whether there is a deviation from the classical assumption of heteroscedasticity, namely the variance inequality

existence from the residuals for all observations in the regression model. Heteroscedasticity is one of the factors that cause the simple linear regression model to be inefficient and inaccurate, resulting in the use of the maximum likelihood method in estimating the regression parameters (coefficients) being disturbed. In this study, the heteroscedasticity test used the glejser test if the sig. ¿ 0.05, then the result is that there is no symptom of heteroscedasticity.

4. Test for Autocorrelation Statistical analysis was conducted to determine whether there was a correlation between variables in the prediction model and changes in time. Therefore, the assumption of autocorrelation occurs in a prediction model. The disturbance value is no longer in independent pairs but in autocorrelation pairs. The autocorrelation test in this study uses the Run Test method, where the value of sig. ¿ 0.05 means there is no autocorrelation symptom.

3.3. Statistics test

This study examines the influence of the independent variables, namely, income, costs, distance, age, and time, on the dependent variable, namely the number of visitors. The method to test the relationship between these variables is a t-test and an F-test with multiple linear regression analysis.

1. t-test Statistics. This test is intended to determine how much influence the relationship has on the dependent variable. The hypothesis in this study will be supported if the significance value t ¡ 0.05, which means the hypothesis is accepted; otherwise, if the significance value t ¿ 0.05, there is no influence between the independent variables on the dependent variable.

2. F-test Statistics. This test is conducted to determine whether the independent variables simultaneously affect the dependent variable. The significance value of F is done by comparing the value of Fstat with the value of F (0.05). If the significance value is less than (: 0.05), there is a simultaneous significant effect between the independent variables on the dependent variable. If the significance value is less than 0.05, there is no jointly significant effect between the independent variables on the dependent variable.

3. Coefficient of Determination Test (R2). The coefficient of determination R2 is expressed as a percentage whose value ranges from 0 ¡ R2 ¡ 1. A small R2 value means that the ability of the independent variables to explain the variation of the dependent variable is very limited (Ghozali, 2011: 100). If the value of R2 was closer to 1, then the variation of the independent variables could explain the dependent variable and the rest would be influenced by other factors outside the model. A small R2 value means variations in the dependent variable are very limited.

Table 1: Research Instruments

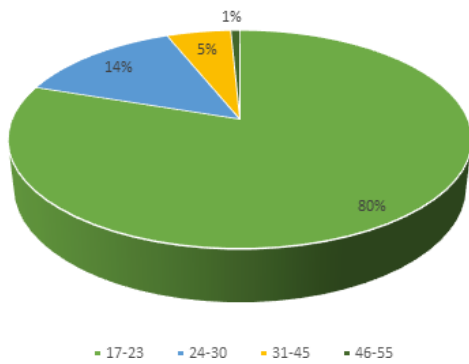| No.	Variable Name	Question
1	Prosperous	1. During the past week, how much was the total expenditure/purchase for [staple food, meat/fish, other side dishes, milk/eggs, spices, drinks, and other beverage/consumable ingredients]?
		2. Approximately what is the total value of [staple food, meat/fish, other side dishes, milk/eggs, spices, drinks, and other beverage/consumer materials] consumed by this household originating from the results of its own business or received from other sources during the past week?
		3. How much did all household members spend on [non-food items] in the past month?
2	Knowledge of financial institutions	1. What types of borrowing places do you, other household members, or the local community know?
		2. Do you know about online loans?
		3. Do you know about online savings?
3	Savings	Do you or other household members have savings?
4	Age	How old are you?
5	Education	The highest education ever taken
6	Worker	Have you worked for the last six months?

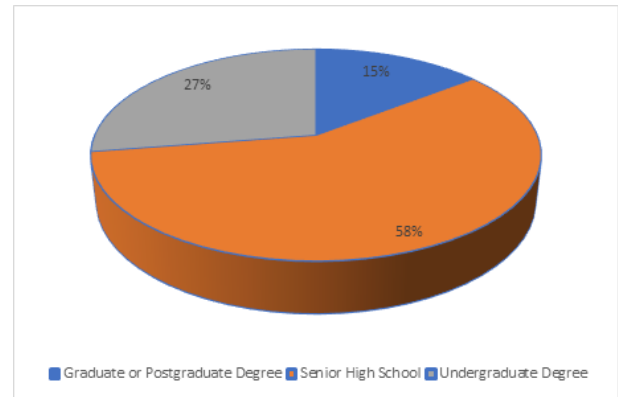Figure 1: Age Distribution of Respondents

Figure 2: Respondent's Last Education

3.4. Research Instruments

4. ANALYSIS AND DISCUSSION

4.1. Data Description

The data in this study are primary data from the results of questionnaire distribution, so the data type is cross-section data (cross regions). One hundred thirty-one respondents filled out a questionnaire about the use of this fin-tech. The respondents were dominated by people aged 24–30 years old, as many as 105 people (80.2% of the total respondents). In contrast, there is only one respondent aged 46-55 years.

The second character of the respondent is the last education taken by the respondent. As shown in Figure 2, 58% of respondents stated that they had completed their education in senior high school or Madrasah Aliyah (Islamic senior high school). While Figure 3 shows that most of the respondents were students.

By the standard from the Central Statistics Agency (Badan Pusat Statistik /BPS), which states that the poverty standard is if the consumption is less than Rp 200,000, - in 1 month. Then the consumption expenditure figure is Rp 50.000,- per week is the basis for the lowest consumption expenditure. From the data obtained, it appears that 13% of respondents are still in the poverty line, perhaps because of the frugal lifestyle adopted by respondents, most of whom are still students.

In Figure 3, it has been revealed that most of the respondents' occupations are students. Therefore, 67 respondents (51.1%) are still very dependent on their parents/guardians.

Saving habit is a good habit. There are many motives for having savings because savings can be used to stock up on daily needs, saving in case of sudden needs, saving for vacations, health savings, investment savings, saving to buy a house, saving for a sense of security, to saving for retirement (Chudzian et al., 2015). Therefore, 92.45% of these respondents have savings for various reasons.

Table 2: Regression Results

WEL	Coef.	Std. Error	t	p Value
OLD	73966.49	27759.65	2.66	0.009
JOB	61611.57	303685.40	0.20	0.84
EDU	40876.75	186166.40	0.22	0.83
SAV	129371.30	317200.10	0.41	0.68
ICT	306.56	3246.16	0.09	0.93
const.	12047.64	805482.80	0.01	0.99

Source: Data analyzed
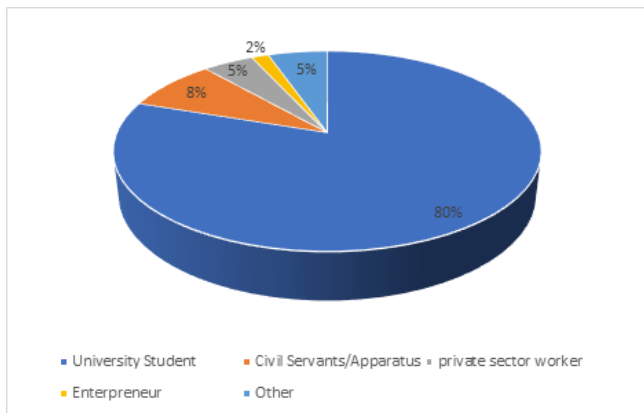
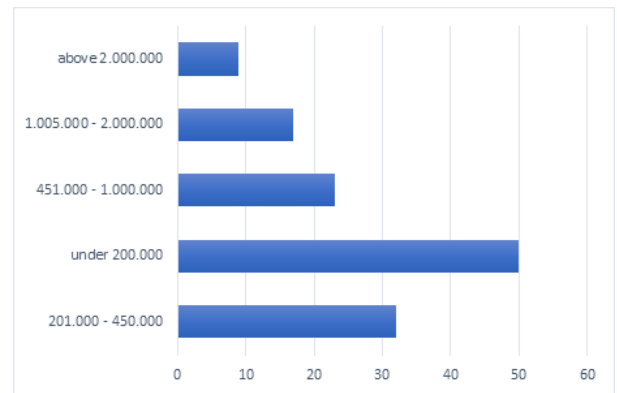Figure 3: Respondents' Occupation in the Last 6 Months

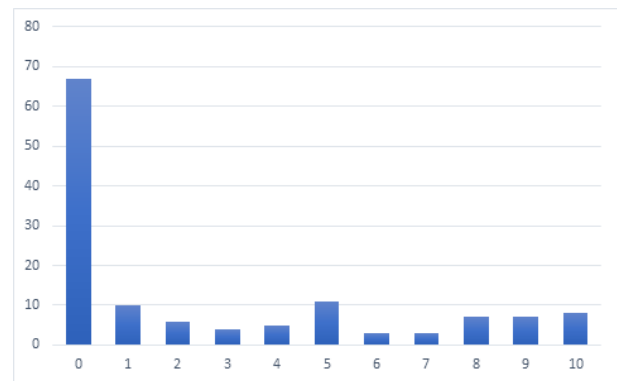Figure 4: Respondents' Primary Consumption Expenditure in a Week

Figure 5: Respondents' Secondary Consumption Expenditure in a Month

Figure 6: Respondents' Financial Independence

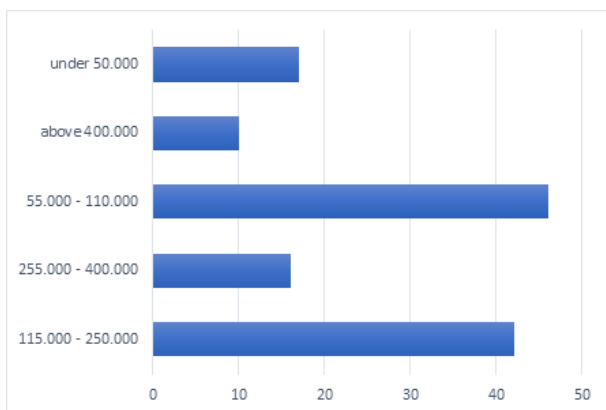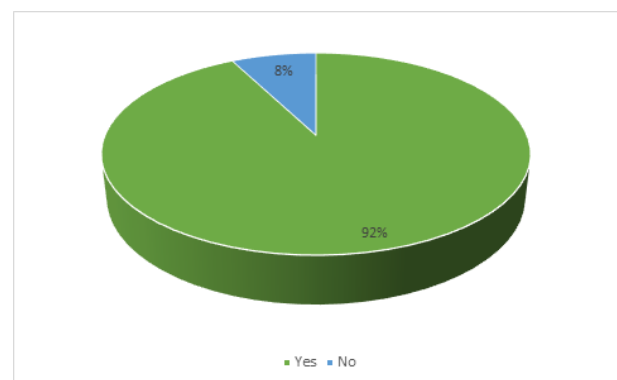Figure 7: Respondents' Savings Ownership

4.2. Cross Section Model Regression Results

Table 2 shows that the variable Age (OLD) has a positive and significant effect on welfare as measured by expenditure with a coefficient of 73,966.49 at an error rate () of 5%. The coefficient value means that if the age increases by one year, the expenditure will increase by Rp 73,966.49. A dummy vari- able type of work, with category 1 = student or student and 0 = other, has a negative but not significant effect on individual welfare. It can be interpreted that someone who is still a student is not more prosperous than someone who already has a job. The coefficient of -61,611.57 indicates that the difference in expenditure between individuals who are already working and individuals who are still students is Rp 61,611.57.

The last educational dummy variable (EDU), with category 1 : Bachelor (S1/S2/S3) and 0: Other (lower), has a positive but not significant effect on individual welfare. That means the higher a person's education, the more prosperous he is. The number 40,876.75 shows that the difference in expenditure be- tween individuals with higher education and individuals with lower education is Rp 40,876.75. Education variables with a positive sign support many other studies that discuss the effect of education on welfare and poverty (Van Vu (2020); Panori and Psycharis (2019); Saidi and Mongi (2018); Rode (2017))

The dummy variable of savings ownership, with categories 1 : Yes and 0 : no, has a positive but not significant effect on individual welfare. That shows that someone who has savings is more prosperous than someone who does not have savings. The coefficient value of 129.371.3 can be interpreted that the difference in expenditure between individuals who have sav- ings and those who do not have savings is Rp 129.371.30. The relationship between savings and welfare, as empirical studies, has an inverse U-shaped non-linear relationship which means that people's savings must reach a certain point to achieve op- timum welfare (Chen et al., 2021). The knowledge variable about fin-tech has a positive but not significant effect on indi- vidual welfare. That means someone who understands more about fin-tech is more prosperous than someone who has less understanding of fin-tech.

The adjusted R-square value of 0.0827 shows that the per- centage of the contribution of the influence of the independent variable on the dependent variable is only 8.27%, while the re- maining 91.73% is influenced by other variables that are not included or not discussed in this study. Usually, researchers prefer models with high adjusted R-square values above 0.7. However, a low adjusted R-square value does not mean that the model is not good/useless to interpret. Because the low adjusted R-square value is the correct result of the analysis of the model, even though the value is small, it still has scientific significance and follows the context (Grace-Martin, 2013).

The results of the F-test show that with an error rate of 0.05 (5%), simultaneously, the variables of age, type of work, edu- cation level, savings ownership, and understanding of fin-tech have a significant effect on welfare.

5. CONCLUSION

Variable age has a positive and significant effect on welfare in our case. Researchers realize that the result may rise because our respondents are dominated by an adult and young age, el- derly become a minority. Young age people mostly are college students and freshly graduated with minimum income. Young age people tend to use gadgets optimally and are eager to be in touch with technology development including fin-tech.

Fin-tech services have a broad area and keep on developing in various sectors. Fin-tech also offers investment and wealth management. The users of fin-tech services are dominated by young age people with education. Young users mostly use fin- tech services of lending and investing. Peer-to-peer (P2P) lend- ing has become a trend for users. And investing becomes easier and cheaper for a young investor.

The limitation of this research is the respondents are domi- nated by young people with 17-23 age without permanent jobs. The next researcher could extend respondents' characteristics with various age and economic social backgrounds, the research's result may improve.

OJK always updates the legal fin-tech lending company list on its official website. Young investors have to be aware of the changing and updating information for their investment. Knowledge about the financial report, macroeconomic indica- tors, and business fluctuations are crucial for all investors to be based on rational expectations for the future.

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