



## Household finances and social comparison: Determinants of financial well-being in Indonesia

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### ABSTRACT

To achieve a vision of sustainable financial well-being (FWB) in Indonesia, generating more knowledge in household behavior and FWB is pivotal. This study assesses the impact of household financial position and social comparison on individual FWB in Indonesia. Using the latest wave of Indonesia Family Life Survey (IFLS) dataset, subjective FWB was assessed by questions on subjective prosperity, perceived current standard of living adequacy and perceived future standard of living. The empirical analysis showed that net wealth and total assets are among the essential determinants and positively related to FWB along with income. On the contrary, though it was only found significant on the perceived current standard of living adequacy, the total debt level has a negative effect on FWB. The findings also confirmed that socioeconomic and demographic factors also significantly affect FWB (being female and more educated has a positive effect on FWB). Furthermore, it was also found that relative financial position (social comparison) has important roles in determining individuals' FWB level. Being above the reference group's average for a particular financial measure (income and total assets) has a positive effect on an individual's FWB. The findings of this study suggest for promoting financial education in the national school system starting from senior high school to increase the level of financial well-being among young adults and people with lower educational attainment.

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### INTRODUCTION

Household sector has a considerable power to affect the overall economy due to its scale and its substantial exposure to the financial sector. It becomes the concern of many governments across the world, who then developed frameworks to increase households' financial literacy. In 2017, the Financial Services Authority (OJK) launched the revised National Strategy on Indonesian Financial Literacy with a vision of "to actualize a highly financial literate population who thus can take advantage of suitable financial

products and services to achieve sustainable financial well-being (FWB)" (OJK, 2017). Generating more knowledge in household behavior and FWB in Indonesian case is vital to understand whether the Indonesian people may behave to achieve such vision. This study aims to contribute to this research body by exploring subjective FWB measures and its household finances factors as well as socioeconomic and demographic factors in Indonesia.

FWB has been studied across academic fields and its definition varies among researchers (Aggarwal, 2011; Mahdzan et al., 2019; Prawitz et al., 2006; Shim

et al., 2009). [Brüggen et al. \(2017\)](#) clustered the existing definitions and measures of FWB into three groups: (i) those that use both objective and subjective characteristics; (ii) those that use only objective characteristics; and (iii) those that use only subjective characteristics to define FWB. Furthermore, [Brüggen et al. \(2017\)](#) suggested that subjective approach is more suited to capture and measure a complex and personal phenomenon such as FWB.

After a thorough literature review, [Brüggen et al. \(2017\)](#) synthesized the various definitions and meanings of FWB and proposed a specific definition of FWB as "the perception of being able to sustain current and anticipated desired living standards and financial freedom". There are three important aspects from this definition. First, FWB is a subjective measure as it is based on perception of oneself. Secondly, FWB is measured by perception of people on their own standard of living. Lastly, the definition of FWB has two time dimensions which are current and future situation. Furthermore, [Michael Collins & Urban \(2020\)](#) suggested that researchers can proxy FWB using proximate questions which are available in existing surveys. In this study, we measure FWB following above definition by utilizing unique questions on the existing household survey, namely, Indonesia Family Life Survey (IFLS).

Previous studies have confirmed that certain financial measures of household are important determinants of FWB. [Headey & Wooden \(2004\)](#) explored the effect of household net wealth on both subjective well-being and ill-being in Australia. Using the Household, Income and Labour Dynamics in Australia (HILDA) survey in 2002, the findings indicated that both income and net wealth are positively linked to financial satisfaction. Similarly, [Hansen et al., \(2008\)](#) explored the impact of assets and liabilities on financial satisfaction in old age. Utilizing the first wave of the Norwegian Life Course, Aging, and Generation Study (NorLAG), the results indicated that a significant proportion of the rise in FWB in old age can be attributed to the increase in assets and decline in debt carried by the elderly. Similarly, [Plagnol \(2011\)](#) investigated the effect of assets and debt on financial satisfaction in the U.S. Using data from the second and third waves of the National Survey of Families and Households (NSFH), the analysis showed that the level of financial satisfaction grows along with increasing income while having more assets and lower debt will lead to greater

financial satisfaction in later life. Following [Headey & Wooden \(2004\)](#), [Brown & Gray \(2016\)](#) examined the effect of the household's financial position on the overall life satisfaction and FWB. Using the HILDA survey in 2002, 2006 and 2010 waves, the empirical analysis revealed that the household's level of net wealth and total assets are positively related to financial satisfaction, while debts are inversely related to FWB. We build on these studies by initially exploring the effect of household financial position as measured by net wealth, total assets and debt, on FWB measures. Furthermore, we explore whether relative financial position or social comparison effect does matter on individual's FWB in Indonesia.

Social comparisons have been extensively studied in a variety of disciplines including economics and psychology. The theory was initially proposed by [Festinger \(1954\)](#), who postulated that human beings have an innate drive to evaluate their abilities and opinions in order to gain a better understanding of themselves by comparing themselves with others who are similar to them. This topic regarding social comparisons and its effect on subjective well-being, often measured by life satisfaction and happiness, has been researched by several authors ([Corazzini et al., 2012](#); [Easterlin, 1974](#); [Hagerty, 2000](#)), but only few of them examined its effect specifically on FWB ([Brown & Gray, 2016](#); [Chatterjee et al., 2019](#)).

[Brown & Gray \(2016\)](#) explored the effect of social comparison on individual's level of FWB in Australia. The authors found that relative position of household's financial measures in the comparison group are important determinants of FWB. The empirical analysis showed that having a household income above that of the average of the comparison group has a positive impact on financial satisfaction. Furthermore, the results indicated that having a level of net wealth and total assets above that of the comparison group are positively related with financial satisfaction, whilst having a level of secured debt above the average of the reference group has a negative effect on financial satisfaction.

Furthermore, we also include demographic and socioeconomic factors such as age, gender, education, marital status and income in the analysis, following the existing literature ([Brown & Gray, 2016](#); [Chatterjee et al., 2019](#); [Gutter & Copur, 2011](#); [Joo & Grable, 2004](#); [Mahdzan et al., 2020](#); [Vera-Toscano et al., 2006](#)). Several authors have found that FWB increases with age ([Brown & Gray, 2016](#); [Mahdzan et al., 2020](#)),

while some others found that that age is positively related with FWB but not linearly ([Chatterjee et al., 2019](#); [Michael Collins & Urban, 2020](#)).

Furthermore, many authors found a U-shaped relationship between age and FWB ([Headey & Wooden, 2004](#); [Hsieh, 2003](#); [Vera-Toscano et al., 2006](#)). The effect of gender has also been researched by many authors. While some authors found that gender has no significant effect on FWB ([Hsieh, 2003](#); [Michael Collins & Urban, 2020](#); [Vera-Toscano et al., 2006](#)), many authors found that being female is positively related with FWB ([Chatterjee et al., 2019](#); [Clark et al., 2020](#)). Higher levels of income and educational attainment had a positive effect on FWB in all previous studies, possibly due to the increased financial efficacy ([Chatterjee et al., 2019](#)). It was also found in those studies that being unemployed is negatively related with lower FWB ([Brown & Gray, 2016](#); [Chatterjee et al., 2019](#); [Michael Collins & Urban, 2020](#)). Most authors also found that, compared to being married, being divorced/ separated and being widowed are inversely related to FWB ([Brown & Gray, 2016](#); [Fan & Babiarz, 2019](#); [Hsieh, 2003](#)); whilst being single or never married is positively related to FWB ([Gutter & Copur, 2011](#); [Mahdzan et al., 2020](#)). Furthermore, the number of people present in the household is found to be inversely related to FWB ([Brown & Gray, 2016](#); [Joo & Grable, 2004](#); [Vera-Toscano et al., 2006](#)).

This study has three main objectives. The first one is to analyze the effect of household finances attributes beyond income (net wealth, total assets, financial assets, non-financial assets and debt) on various FWB measures (subjective prosperity, perceived current standard of living satisfaction, and perceived future standard of living) in Indonesia. The second objective is to explore whether the social comparison effect does matter in determining individual's FWB. Finally, the third objective is to explore demographics factors that affect FWB in Indonesia.

This study contributes to the literature in three ways. First, to the author's knowledge, there is no previous research that analyzes the subjective FWB and its determinants in Indonesia. Using the latest wave of IFLS dataset, a large nationally representative household survey, we are able to empirically analyze the effect of household financial position (net wealth, the level of total assets and debt) along with socio-demographic factors (age, income, gender and

education) on various FWB measures in Indonesia. Secondly, we contribute on the growing area of social comparisons by further explaining how the relative financial position may affect individual's FWB in Indonesia. Lastly, the results of this study will support evidence-based policymaking to enhance FWB in Indonesia.

## RESEARCH METHOD

The empirical analysis was based on data drawn from the Indonesia Family Life Survey (IFLS), a continuing longitudinal socioeconomic and health survey based on a sample of households representing about 83% of Indonesian population. The IFLS data supported the analysis of interrelated issues ranging from household-level information (consumption, housing, household characteristics), individual-level information (education, health, employment), and community-level information (electricity, water and sanitation, school availability).

For the analysis, this research focused on the latest wave of IFLS survey which was fielded in 2014 and early 2015 where the information related to subjective well-being was available. Further details of the IFLS survey are described in [Strauss et al. \(2016\)](#). We dropped all individuals who report missing values for any of the dependent variables, making the sample of individuals analyzed throughout the study consistent (N=30,385).

As the nature of our dependent variables are ordinal, cross-section ordered logistic regression models were employed to examine factors correlated to FWB (Figure 1). Based on the previous literature, this research formed the following research hypothesis:

- H1. Net wealth is positively related with FWB
- H1a. Total assets is positively related with FWB
- H1b. Total debt is negatively related with FWB
- H2. Social comparison is significantly related with FWB
- H3. Income is positively related with FWB
- H4. Age has a U-shaped relationship with FWB
- H5. Being female is positively related with FWB
- H6. Education is positively related with FWB
- H7. Being unemployed is negatively related with FWB
- H8. Being married is positively related with FWB
- H9. Household size is negatively related with FWB

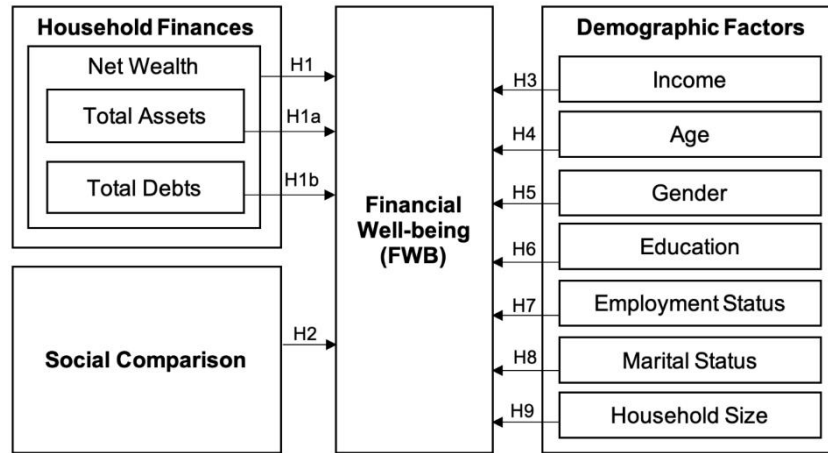


Figure 1. Conceptual framework of research

The underlying model of the research is based upon the latent variable model:

$$FWB_i^* = x_i' \beta + \epsilon_i, i = 1, \dots, N, \quad (1)$$

where  $FWB_i^*$  is a latent measure of the  $i^{th}$  individual's FWB,  $x_i'$  is a vector of observable household financial measures and demographic and socio-economic characteristics,  $\beta$  is a vector of coefficients to be estimated and  $\epsilon_i$  is an error term. We observed  $FWB_i$  related to  $FWB_i^*$  as follows:

$$FWB_i = k \text{ if } \mu_k < FWB_{it}^* \leq \mu_{k+1}, \quad k = 1, \dots, K \quad (2)$$

$$\Pr(FWB_i = k | x_i') = \Pr(\mu_k < x_i' \beta + \epsilon_i \leq \mu_{k+1}) \quad (3)$$

$$= \Lambda(\mu_{k+1} - x_i' \beta) - \Lambda(\mu_k - x_i' \beta)$$

The probability of observing outcome  $k$  corresponded to the probability that the estimated linear function, plus random error within the range of the threshold parameters estimated for a certain outcome. Where the threshold parameters  $\mu_k$  were assumed to be strictly increasing for all values of  $k$ , and  $\mu_1 = -\infty$  and  $\mu_{K+1} = +\infty$ . The coefficients  $\beta$  and the threshold parameters  $\mu_k$  were estimated together using maximum likelihood estimation (MLE). While the error term  $\epsilon_i$ , was assumed to be independently and identically distributed (IID) by the logistic distribution and  $\Lambda(\cdot)$  represented the cumulative logistic distribution. The ordered logit model was implemented in Stata using the "ologit" command.

## RESULT AND DISCUSSION

### Well-being Characteristics

Utilizing unique questions on subjective well-being section from the latest IFLS dataset, we try to capture self-perception of one's FWB. Following the definition of FWB by Brüggen et al. (2017), we explored three measures of FWB, namely, (i) subjective prosperity; (ii) current standard of living; and (iii) perceived future standard of living. Similar to Brown & Gray (2016), our subjective prosperity measure was based on the question, "Please imagine a six-step ladder where on the bottom (the first step), stand the poorest people, and on the highest step (the sixth step), stand the richest people. On which step are you today?". The mean level of perceived subjective prosperity was 3.024 with the median being 3. The full information of the distribution of responses to this question is presented in the Table 1.

Furthermore, in accordance with the definition of FWB by Brüggen et al. (2017), this study tries to capture information on the self-perception of one's current standard of living as well as the perceived ability to sustain current standard of living in the future. The measure of perception on one's current standard of living was based on the question, "Concerning your current standard of living, which of the following is true?: (i) it is less than adequate for my needs; (ii) it is just adequate for my needs; (iii) it is more than adequate for my needs". The mean level of this measure was 2.04 with the median of 2.

Table 1. Distribution of Subjective Prosperity Measure Responses

Subjective Prosperity	Frequency	Percentage %
1: Poorest	2,059	6.78
2	5,357	17.63
3	14,189	46.7
4	7,651	25.18
5	844	2.78
6: Richest	285	0.94
Total	30,385	100

Source: IFLS 5, processed

Meanwhile, the perceived future standard of living was measured as the response to the question, "Knowing about how prices change in recent year, do you think you can keep the standard of living you have today in the next 5 years? (i) Very unlikely; (ii) Unlikely; (iii) Likely; (iv) Very likely". The mean level of perceived subjective prosperity was 2.613 with the median of 3.

Table 2. Distribution of Current Standard of Living Measure Responses

Current standard of living	Frequency	Percentage %
1: It is less than adequate for my needs	5,968	19.64
2: It is just adequate for my needs	17,231	56.71
3: It is more than adequate for my needs	7,186	23.65
Total	30,385	100

Source: IFLS 5, processed

Various financial measures were used in order to capture the household's financial position. These measures included the household's net wealth, total assets (including both financial assets and non-financial assets), and total debt. It should be noted that all of the financial variables are measured at the household level; consequently, each household member was given the same value of financial measures. In line with [Gropp et al. \(1997\)](#) and [Brown & Gray \(2016\)](#), in order to take account of the skewed nature of the monetary financial variables, the empirical analysis included the natural logarithm of each of the monetary measures. Following [Brown & Taylor \(2008\)](#) and [Brown & Gray \(2016\)](#), where net wealth, assets and debt take a positive value, the natural logarithm was simply taken. When the values of these variables are equal to zero, the natural logarithm is defined to be zero. When the value of net

wealth (nw) is negative, the natural logarithm of net wealth is defined to be  $-\ln(|nw|)$ .

Table 3. Distribution of Future Standard of Living Measure Responses

Can keep the standard of living in the next 5 years	Frequency	Percentage %
1: Very unlikely	2,110	6.94
2: Unlikely	9,191	30.25
3: Likely	17,439	57.39
4: Very likely	1,645	5.41
Total	30,385	100

Source: IFLS 5, processed

In order to explore social comparison effects, a reference group must be defined for each individual. According to existing literature, there are several ways to define an individual's reference group in the context of income. [McBride \(2001\)](#) defined an individual's reference group to be all individuals five years older or younger than the individual. While [Clark et al. \(2009\)](#) and [Luttmer \(2005\)](#) defined an individual's reference group based on precise geographic location. Furthermore, [Ferrer-i-carbonell \(2005\)](#) defined an individual's reference group based on a variety of individual characteristics, namely, years of education, 5 age brackets, gender and regions (West and East Germany).

In line with [Brown & Gray \(2016\)](#), this research defined an individual's comparison group to be based on a variety of characteristics including the respondent's age, education level, gender and geographical region. Specifically, gender was separated into males and females, and education was divided into five categories (primary, junior secondary, senior secondary, tertiary, others). Following [Ferrer-i-carbonell \(2005\)](#), the comparison group was defined into 5 age brackets (under 25, 25-34, 35-44, 45-65, 66 and above). In addition, the geographical region was based on province level area.

First, the average value of certain financial measures of the reference group for each individual was calculated. Then, the difference between the household's own financial measure and the average of the financial measure in the reference group was calculated. It was anticipated that relative financial measures in the comparison group are important determinants of FWB ([Brown & Gray, 2016](#); [Chatterjee et al., 2019](#); [Clark et al., 2020](#)).

Table 4. Demographic and Socio-Economic Characteristics

Variable	Mean	Std. Dev.	Min.	Max.
<u>Dependent Variable</u>				
Subjective prosperity	3.024	0.946	1	6
Current standard of living	2.040	0.657	1	3
Future standard of living	2.613	0.696	1	4
<u>Household Finances</u>				
Ln(net wealth)	17.146	5.444	-20.721	22.096
Ln(total assets)	17.991	1.665	6.908	22.096
Ln(financial assets)	4.131	6.774	0	20.723
Ln(non-financial assets)	17.957	1.705	0	21.951
Ln(total debt)	6.273	7.659	0	20.723
<u>Demographic Variables</u>				
Ln(household income)	15.460	2.775	0	20.245
Age	37.120	14.779	14	101
Female	0.531			
Below primary (Omitted cat.)	0.047			
Primary education	0.296			
Junior secondary education	0.210			
Senior secondary education	0.319			
Tertiary education	0.128			
Unemployed	0.012			
Married (Omitted cat.)	0.728			
Never married	0.199			
Divorced/separated	0.025			
Widow	0.048			
Ln(Household Size)	1.335	0.485	0	2.833
<u>Comparison group</u>				
Ln(avg. household income)	17.659	0.491	0	21.344
Ln(avg. net wealth)	18.731	1.458	-18.743	21.751
Ln(avg. total assets)	18.843	0.603	10.820	21.754
Ln(avg. financial assets)	14.365	2.412	0	20.030
Ln(avg. non-financial assets)	18.821	0.596	10.820	21.558
Ln(avg. total debt)	15.535	1.830	0	19.588

In accordance with the existing literature, a wide variety of demographic and socio-economic variables was included in the econometric analysis. Those included age, gender, education, employment status, marital status, and size of the household. This study distinguished the highest level of educational attainment between primary, junior secondary, senior secondary and tertiary education, with the omitted category of below primary education.

For the employment status, the study focused on those who were unemployed. This unemployment dummy variable was coded as 1 for individuals who were unemployed and 0 for otherwise. Furthermore, this study explored the effect of individual's marital status by categorizing whether the respondent is never married, divorced/separated or widowed, with being married as the omitted category. Table 4 presents summary statistics related to all variables used in the empirical analysis.

### Determinants of Financial Well-Being

Table 5, 6 and 7 present the determinants of three different measures of FWB which are subjective prosperity, perceived current standard of living, and perceived future standard of living, respectively. Each table presents three models which capture different aspects of the household's financial position along with the same set of socioeconomic and demographic variables. Model 1 includes the household's level of net wealth, while model 2 separates net wealth into total assets and total debt in order to explore whether a particular component of net wealth has distinct influences on FWB. In addition, model 3 divides the overall assets into financial and non-financial assets to discover whether there are distinct effects on FWB. Financial assets include savings, certificate of deposit and stocks, while non-financial assets include land, properties, vehicles, and other tangible assets.



Table 5. Ordered Logit Estimates of of Subjective Prosperity

Variable	1	2	3
Ln(net wealth)	0.0281*** (0.00211)		
Ln(total assets)		0.287*** (0.00752)	
Ln(financial assets)			0.0276*** (0.00160)
Ln(non-financial assets)			0.251*** (0.00787)
Ln(total debt)		-0.000642 (0.00141)	-0.00115 (0.00141)
Ln(household income)	0.0298*** (0.00402)	0.00339 (0.00403)	0.00107 (0.00403)
Age	-0.0154*** (0.00492)	-0.0244*** (0.00494)	-0.0246*** (0.00495)
Age-squared	0.000234*** (5.67e-05)	0.000256*** (5.68e-05)	0.000267*** (5.69e-05)
Female	0.423*** (0.0221)	0.399*** (0.0222)	0.400*** (0.0222)
Primary education	0.497*** (0.0718)	0.448*** (0.0727)	0.432*** (0.0728)
Junior secondary education	0.897*** (0.0742)	0.777*** (0.0753)	0.748*** (0.0755)
Senior secondary education	1.248*** (0.0733)	1.039*** (0.0745)	0.991*** (0.0747)
Tertiary education	1.815*** (0.0762)	1.426*** (0.0778)	1.326*** (0.0784)
Ln(household size)	0.0232 (0.0231)	-0.198*** (0.0241)	-0.165*** (0.0244)
Never married	0.266*** (0.0381)	0.184*** (0.0384)	0.210*** (0.0386)
Divorced/separated	-0.488*** (0.0763)	-0.459*** (0.0771)	-0.454*** (0.0773)
Widow	-0.291*** (0.0665)	-0.283*** (0.0676)	-0.298*** (0.0677)
Unemployed	-0.392*** (0.100)	-0.338*** (0.100)	-0.339*** (0.100)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0330	0.0495	0.0516

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

### 1. Household finances

In line with previous studies ([Brown & Gray, 2016](#); [Hansen et al., 2008](#); [Headey & Wooden, 2004](#)), the results showed that net wealth and total assets was positively related with all FWB measures. Our estimation results indicate that the higher people's net wealth and assets, the more likely people see themselves as rich compared to others, feel adequate with their current standard of living, and perceive themselves as being able to keep their standard of living in the future. Although both financial and non-financial assets were positively associated with all FWB measures, it was found that non-financial asset had a larger magnitude than financial assets on all three FWB measures: 0.251, 0.199 and 0.125 compared to

0.0276, 0.0377 and 0.0208, respectively (Table 5, 6 and 7 column III). This indicates that owning non-financial asset has greater association with the three FWB measures than owning financial asset. This is possibly due to the functionality of tangible assets served that increase individual's FWB. Similar results were also found in Australian ([Brown & Gray, 2016](#)).

Table 6. Ordered Logit Estimates of Current Standard of Living

Variable	1	2	3
Ln(net wealth)	0.0274*** (0.00224)		
Ln(total assets)		0.243*** (0.00783)	
Ln(financial assets)			0.0377*** (0.00172)
Ln(non-financial assets)			0.199*** (0.00798)
Ln(total debt)		-0.00723*** (0.00152)	-0.00791*** (0.00152)
Ln(household income)	0.0439*** (0.00426)	0.0229*** (0.00424)	0.0197*** (0.00427)
Age	-0.0623*** (0.00472)	-0.0702*** (0.00477)	-0.0713*** (0.00478)
Age-squared	0.000521*** (5.19e-05)	0.000540*** (5.24e-05)	0.000560*** (5.25e-05)
Female	0.255*** (0.0234)	0.230*** (0.0235)	0.229*** (0.0236)
Primary education	0.206*** (0.0592)	0.164*** (0.0599)	0.142*** (0.0601)
Junior secondary education	0.483*** (0.0629)	0.377*** (0.0638)	0.336*** (0.0639)
Senior secondary education	0.819*** (0.0618)	0.645*** (0.0628)	0.575*** (0.0631)
Tertiary education	1.431*** (0.0656)	1.113*** (0.0674)	0.969*** (0.0679)
Ln(household size)	-0.117*** (0.0239)	-0.293*** (0.0250)	-0.247*** (0.0252)
Never married	-0.0856** (0.0403)	-0.165*** (0.0409)	-0.136*** (0.0411)
Divorced/separated	-0.403*** (0.0776)	-0.394*** (0.0787)	-0.386*** (0.0790)
Widow	-0.115** (0.0577)	-0.0963* (0.0582)	-0.116** (0.0581)
Unemployed	-0.680*** (0.109)	-0.644*** (0.110)	-0.649*** (0.111)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0463	0.0603	0.0664

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

On the other hand, having a higher level of total debt was found to have a significant and inverse relationship with perceived current standard of living, whereas there was a negative but statistically insignificant effect on subjective prosperity and perceived future standard of living. This finding is also consistent with previous studies in Australia ([Brown &](#)

Gray, 2016) and UK (Vlaev & Elliott, 2014). Vlaev & Elliott (2014) found that higher debt to income ratio is associated with lower financial satisfaction of the respondents in the UK.

To summarize this part, the empirical analysis indicates that it is necessary to account monetary variables beyond income when considering the determinants of FWB. Furthermore, the study found that assets and debt have distinctly different effects on FWB, highlighting the need of segregating net wealth into its own parts.

## 2. Demographic factors

The results of all socioeconomic and demographic factors were relatively uniform in all of three FWB measures. Consistent with existing studies (Brown & Gray, 2016; Fan & Babiartz, 2019), the empirical analysis showed that household income is positively associated with FWB. In line with Hsieh (2003) and Vera-Toscano et al. (2006), this study found a U-shaped relationship between age and all FWB measures. This finding is also similar with Sohn's (2013), who found a U-shape relationship between age and other subjective well-being measure (happiness) in Indonesia. Being female is significantly associated with higher level of FWB. This finding is also in line with studies in other countries: United States (Fan & Babiartz, 2019), Japan (Clark et al., 2020), and India (Chatterjee et al., 2019).

In line with previous studies (Brown & Gray, 2016; Chatterjee et al., 2019; Fan & Babiartz, 2019), higher level of educational attainment had a positively significant effect on FWB. This is possible due to the increase of financial efficacy. This finding was consistent in all three FWB measures (Table 5, 6 and 7). For example, on the subjective prosperity on the basic model I (Table 5 column I), the magnitude for primary education, junior secondary and tertiary education were 0.497, 0.897, 1.248 and 1.815, respectively. Providing financial education starting primary level of education might help in increasing the level of FWB among young people and people with lower educational attainment. Conversely, being unemployed was inversely related to all three FWB measures (similar with Brown et al., 2015; Chatterjee et al., 2019; Fan & Babiartz, 2019). In accordance with existing literature (Brown & Gray, 2016), being divorced/separated and widowed had significant and inverse relationship with all FWB measures. Interestingly, being never married had positive association with subjective prosperity, but negative

association with perceived current and future standard of living. In line with existing studies (Brown & Gray, 2016; Joo & Grable, 2004; Vera-Toscano et al., 2006), the more number of people living in the household was negatively associated with all three FWB measures.

Table 7. Ordered Logit Estimates of Perception on Future Standard of Living

Variable	1	2	3
Ln(net wealth)	0.0205*** (0.00196)		
Ln(total assets)		0.148*** (0.00760)	
Ln(financial assets)			0.0208*** (0.00173)
Ln(non-financial assets)			0.125*** (0.00767)
Ln(total debt)		-0.000435 (0.00150)	-0.000817 (0.00150)
Ln(household income)	0.0192*** (0.00393)	0.00543 (0.00407)	0.00338 (0.00406)
Age	-0.0268*** (0.00466)	-0.0318*** (0.00468)	-0.0320*** (0.00468)
Age-squared	0.000219*** (5.18e-05)	0.000236*** (5.19e-05)	0.000243*** (5.18e-05)
Female	0.281*** (0.0236)	0.266*** (0.0236)	0.265*** (0.0236)
Primary education	0.271*** (0.0587)	0.242*** (0.0589)	0.230*** (0.0589)
Junior secondary education	0.372*** (0.0626)	0.298*** (0.0629)	0.274*** (0.0630)
Senior secondary education	0.348*** (0.0608)	0.224*** (0.0616)	0.182*** (0.0617)
Tertiary education	0.745*** (0.0640)	0.526*** (0.0656)	0.441*** (0.0661)
Ln(household size)	-0.122*** (0.0241)	-0.231*** (0.0250)	-0.208*** (0.0252)
Never married	-0.141*** (0.0394)	-0.183*** (0.0396)	-0.167*** (0.0397)
Divorced/separated	-0.222*** (0.0717)	-0.206*** (0.0722)	-0.203*** (0.0723)
Widow	-0.190*** (0.0593)	-0.177*** (0.0596)	-0.188*** (0.0596)
Unemployed	-0.0300 (0.103)	0.000673 (0.103)	-0.00185 (0.103)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0108	0.0154	0.0172

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 3. Social comparison

For brevity, Tables 8, 9 and 10 present the findings related to the financial variables only. The results related to the standard control variables were generally consistent with those discussed in previous section. Table 8 presents the results related to the effect of the difference of households' financial measures with the average of their comparison group, for subjective prosperity. Furthermore, Tables 9 and



10 present the coefficients related to the perceived current standard of living and perceived future standard of living, respectively. It is anticipated that if households have higher level of net wealth or asset than the average of its comparison group, they tend to have higher level of FWB, and vice versa. However, it is also possible that people see an increase in the average income of the comparison group as a positive sign that their financial position will improve in the future. This phenomenon is called the "information effect" by [Senik \(2004\)](#) and the "tunnel effect" by [Hirschman & Rothschild \(1973\)](#).

Table 8. Ordered Logit Estimates of Social Comparison on on Subjective Prosperity

Variable	1	2	3
Ln(net wealth)	0.0249*** (0.00204)		
Ln(total assets)		0.278*** (0.00767)	
Ln(financial assets)			0.0257*** (0.00158)
Ln(non-financial assets)			0.243*** (0.00799)
Ln(total debt)		0.000353 (0.00141)	-0.000473 (0.00141)
Ln(household income)	0.0286*** (0.00405)	0.00256 (0.00406)	0.000469 (0.00405)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0325	0.0475	0.0494

Analysis also controls for respondent's age, gender, education, household size, marital status and employment status. Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8 shows the result of social comparison effect on subjective prosperity. The empirical analysis showed that having higher level of net wealth and income than the average comparison group was significantly associated with having perception of being richer. This finding supports the statement that comparison effect is an important determinant of FWB. In model 2, this research splits the net wealth into total assets and total debt and found that, while there was positive and statistically significant effect of having higher level of asset than the average comparison group, there was no comparison effect of having different level of debt than the reference group. Furthermore, in model 3, this research explores the different impact of type of assets on subjective prosperity. It appeared that having a higher level of non-financial assets than the comparison group had a greater impact than having a higher level of financial assets than the counterparts. This is in line with [Brown](#)

& [Gray \(2016\)](#) who supported the idea that comparisons are drawn from more visible assets.

Table 9. Ordered Logit Estimates of Social Comparison on Current Standard of Living

Variable	1	2	3
Ln(net wealth)	0.0242*** (0.00219)		
Ln(total assets)		0.230*** (0.00801)	
Ln(financial assets)			0.0341*** (0.00169)
Ln(non-financial assets)			0.189*** (0.00809)
Ln(total debt)		-0.00627*** (0.00152)	-0.00738*** (0.00152)
Ln(household income)	0.0413*** (0.00429)	0.0212*** (0.00428)	0.0184*** (0.00432)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0455	0.0577	0.0629

Analysis also controls respondent's age, gender, education, household size, marital status and employment status. Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 1. Ordered Logit Estimates of Social Comparison on Perceived Future Standard of Living

Variable	1	2	3
Ln(net wealth)	0.0180*** (0.00196)		
Ln(total assets)		0.140*** (0.00773)	
Ln(financial assets)			0.0187*** (0.00170)
Ln(non-financial assets)			0.118*** (0.00778)
Ln(total debt)		0.000758 (0.00150)	0.000131 (0.00150)
Ln(household income)	0.0217*** (0.00398)	0.00836** (0.00410)	0.00658 (0.00410)
Observations	30,385	30,385	30,385
Pseudo R <sup>2</sup>	0.0106	0.0146	0.0161

Analysis also controls for respondent's age, gender, education, household size, marital status and employment status. Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The social comparison results of the perceived future standard of living (Table 10) were similar with social comparison analysis on subjective prosperity (Table 8). Unlike two other measures of FWB, Table 9 shows different results for the impact of difference level of debt on perceived current standard of living. The result indicated that having higher level of debt than the comparison group had a negative and significant relationship with perceive current standard of living.

## Research Implication

This study has at least three research implications. First, the current research contributes to the growing subject of subjective well-being by exploring various FWB measures and its various determinants in Indonesia. Using the latest wave of IFLS dataset, this research is able to empirically analyze the effect of various household financial positions (net wealth, the level of total assets, and debt) and socio-demographic characteristics (age, income, gender, and education) on subjective prosperity, perceived current standard of living, and perceived future standard of living. The empirical analysis revealed that household's net wealth was also an important determinant of FWB other than income. Furthermore, total assets and total debts had distinct impacts on the FWB. While having higher level of total assets is associated with greater level of FWB, it is worth to note that it was the non-financial asset, instead of the financial one, that had greater impact on FWB. This may be due to the value that tangible assets add to the individuals' purchasing power and give them a strong influence on FWB. This result is in line with the similar study conducted in Australia ([Brown & Gray, 2016](#)). Conversely, it was found that higher level of debt had an inverse relationship with FWB according to the regression results. In summary, this study provides the first view into the study of FWB and its household financial position determinants in Indonesia. Future research may enrich this field of study by analyzing the more actual data, developing a comprehensive measurement of FWB, and including other factors that have not been included in this study. For example, if it is possible, it is worth to further analyze the total debt by separating it into secure debt and unsecured debt as it potentially captures distinct effects on FWB ([Brown et al., 2005](#); [Brown & Gray, 2016](#)).

Secondly, this research contributes to the growing area of social comparisons by further explaining how the relative financial position may affect individuals' FWB in Indonesia. This study found that negative social comparison effect was apparent in all three FWB measures. This finding indicates that an increase in the average income, net wealth and total assets of the comparison group is associated with lower level of FWB. Whereas, the average level of total debt in the comparison group fails to have a statistically significant impact on subjective prosperity indicator and perceived future standard of living. This finding is similar with that of the previous study in Australia

([Brown & Gray, 2016](#)), while upward social comparison is not statistically significant affecting FWB in a similar study conducted in India ([Chatterjee et al., 2019](#)).

Thirdly, the findings of this study can be used as a basis of information for the development of government's program to promote sustainable FWB. The definitions and determinants of FWB have been explored in the Financial Services Authority (OJK) document on the National Strategy on Indonesian Financial Literacy. However, there is no empirical study based on Indonesia case that is presented in the references, as the study on FWB is still strictly limited either in Indonesia or other developing countries.

Based on our research findings, there are two policy recommendations. First, in line with previous studies ([Brown & Gray, 2016](#); [Chatterjee et al., 2019](#); [Fan & Babiarz, 2019](#); [Sabri et al., 2020](#)), our finding shows that lower educational attainment was significantly associated with lower level of individual's FWB. Therefore, this study suggests that financial education be delivered as early as possible to increase the level of FWB among young adults and people with lower educational attainment. According to the report by [OECD \(2020\)](#), financial education alongside financial consumer protection and inclusion are key elements to individuals' FWB. The premise is that providing financial education along with strong literacy and numeracy skills will increase financial literacy and support decision-making and FWB.

Second, the research finding showed that the higher the total debt, the lower is the individual's FWB. However, due to the availability of the data, we could not separate between secured debt and unsecured debt. According to previous studies in UK ([Vlaev & Elliott, 2014](#)), Malaysia ([Sabri et al., 2020](#)) and Australia ([Brown & Gray, 2016](#)), higher level of the unsecured debt correlates with lower level of the FWB. Furthermore, [Vlaev & Elliott \(2014\)](#) stated that it is encouraged for both young workers and families that they reduce and avoid non-mortgage debt if possible. Therefore, it is strongly suggested that the financial education may include competencies related to credit to build a strong and sustainable FWB ([OECD, 2015](#)). In Indonesian context, it is suggested that government promotes financial education that includes competencies related to credit in the national school system, starting from senior high school, to increase the level of FWB among young adults and people with lower educational attainment.

## CONCLUSION AND SUGGESTION

The findings suggest that levels of net wealth and assets are positively associated with all FWB measures being used in the analysis. Furthermore, non-financial assets are found to have a greater impact on FWB than financial assets. In contrary, the level of total debt is inversely related with FWB but only found significant in perceived current standard of living. This study also suggests that the role of relative income, as measured by the difference between one's own financial measures and the average financial measures of the comparison group, are important determinants of individual's level of FWB. In regard to the socioeconomic and demographic factors, consistent with existing studies, the results indicate that the levels of income and educational attainment are positively related with FWB. Employment and marital status are also important determinants of FWB, with being unemployed, divorced/separated, or widowed are found to have a negative effect on FWB. Being female is also positively associated with higher level of FWB.

As one of the first studies of FWB in Indonesia, this study provides valuable information about how FWB in Indonesia is influenced by various household finance measures other than income (net wealth, total assets, and total debts), as well as by various socioeconomic and demographic characteristics (age, gender, education, employment status, marital status, and size of household). This study also found that there is negative social comparison effect among Indonesian population.

The findings of this study can be used as a basis of information for the development of government's program to promote sustainable FWB especially for the Financial Services Authority (OJK). Future research may develop of a comprehensive measurement of FWB, which collects more actual observations and includes other factors that have not been included in this study.

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