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Credit access and happiness: Evidence from Indonesia

Siti Aisyah Tri Rahayu[1], Mulyanto[1], Johadi[1], Muhammad Yusuf Indra Purnama[1,2*]
[1]*Faculty of Economics and Business, Universitas Sebelas Maret, Indoneisa*
[2]*Center for Fintech and Banking, Universitas Sebelas Maret, Indonesia*
*Corresponding Author: myipurnama@staff.uns.ac.id

Abstract

The objective of this study is to investigate household credit access and its impact on happiness. We use data from the Indonesia Family Life Survey (IFLS) and employ Ordinary Least Square (OLS) as well as an Ordered Probit approach to test our empirical framework. Our results reveal that per capita expenditure has positively affects the probability of being granted credit, and people in urban communities benefit more from accessing credit than those in rural areas also document that those who successfully obtain credit tend to increase their probability of being happy. We then recommend an improvement in access to credit, particularly for poor people and those who live in rural communities, as an important policy implication. In addition, a better financial capability and financial literacy should be improved continuously to ensure the positive impact of credit on happiness as the ultimate goal in life.

Keywords : Credit Access, Households, IFLS, Happiness, Indonesia
JEL Classification : G41, G51, D14

1. INTRODUCTION

There has been a comparative lackrelativeh on the impact of debt on happiness. This gap may stem from a largely income-focused perspective in the literature, rather than a debt-focused one, where there is a long-standing debate on whether income improves subjective wellbeing (Tay *et al.*, 2017). Debt and happiness are particularly pertinent in emerging and transitioning countries, where financial capability (financial knowledge and behavior) is frequently restricted. In addition, debt concerns might vary depending on a country's cultural values (Xiao *et al.*, 2021). However, most studies used data from developed countries, and the necessity for data from emerging economies with high cultural diversity settings was just recently acknowledged.

We draw our empirical framework based on following arguments. First, a person must first know where he or she can borrow to engage into further process in the credit market (whether apply and securing the loan). Therefore, the initial part of our

investigation is a model of the credit application process (following Okten & Osili, 2004). Second, to support our second part of our investigation, we basically rely our theoretion cal background based on the self-wellbeing literature. There are two common way for how debt may effect self-wellbeing (Tay *et al.,* 2017). First, the bottom-up spillover. According to the bottom-up spillover approach, overall self-wellbeing is psychologically created from domain satisfactions; that is, overall self-wellbeing is derived from a perception of whether multiple life domains are acceptable, with each domain weighted according to its importance to the life goals. One of the most important life dimensions for total self-wellbeing is financial well-being (Diener et al. 1999). Second, the resource viewpoint. A resource viewpoint suggest debt that can be incurred strategically, and when it is managable, it does not substantially drain overall wealth/financial resources (i.e., when resource accumulation exceeds resource depletion) which may result in beneficial outcome. For instance, debt may improve wellbeing when it is necessary for attaining particular objectives (such as securing a business loan) that can lead to larger chances to increase wellbeing in the long run.

As one of the emerging economies yet culturally diverse countries, almost half of the population in Indonesia still does not have a bank account, and the country is home to over 6% of the world's unbanked individuals. When compared to mid-1997, the bank credit-to-GDP ratio remains low at 35%, down from 60% at the time (Khera, 2021). Only 17% of Indonesians borrowed from a formal bank or microfinance organization in 2017, while 36% borrowed from unofficial sources (family, informal money lenders, or other sources). A significant proportion of households and microbusinesses, particularly in developing nations such as Indonesia, lacked access to formal financial institutions, prompting them to borrow from illegal loan providers (Trinugroho et al., 2017b). Additionally, Demirguc-Kunt *et al.*, (2018) suggest that the small scale of the banking system, flaws in the legal and institutional environment, high market power and limited competition, as well as operational inefficiencies, all contribute to low bank intermediation efficiency, hence impeding financial inclusion.

Some facts about the credit markets are well-documented. In particular, lack of collateral, illiteracy, and high default risk can hinder an individual's access to credit in a low-income environment (Adam & FItchett, 1992; Besley, 1995). In the more visible part (easier to investigate), credit markets allow individuals to smooth their consumption, increase their productivity, and make a visible contribution to the creation of economic value in society. The hidden component of the former is the invisible part, which includes increasing utility, dignity, self-esteem, and social recognition.

Recently, people are demanding a better concept of human progress rather than money as a very visible indicator. People judge progress by how much they are enjoying their lives (Clarks *et al.,* 2019). Successful development projects that rescue beneficiaries from marginalization and provide access to opportunities go beyond the provision of monetary resources since they end up healing beneficiaries' wounded relationships with themselves (restoration of dignity and self-esteem) and with other members of society (Becchetti & Conzo, 2013).

However, economists tend to be skeptical about measuring utility by using subjective measures. The main reason for this is that what people say may differ from what they do, or people may not understand what they are saying (e.g., Bertrand and Mullainathan, 2001). In contrast, Konow and Earley (2008) argue that measures of happiness have objective meanings. These measures are also relevant for most moments

of happiness experienced and characterized by considerable intrapersonal stability and interpersonal comparability (Kahneman, et al., 2006).

Although one may prioritize money over happiness, happiness is generally regarded as the ultimate goal in life, whereas money is regarded as a means to happiness. Ruberton et al., (2016) suggest that individuals with higher liquid wealth were found to have a more positive perception of their well-being. If this is the case, and if a measure of happiness harbors useful information, development economists need to pay more attention to happiness. The importance of happiness becomes even more compelling in light of Easterlin (1995) demonstration that increases in income over time are not accompanied by increases in happiness.

Starting from the well-known Easterlin (1974) paradox, which documented the decoupling between the dynamics of per capita income and happiness in the post-war US, the economic literature on the determinants of life satisfaction has flourished with an increasing number of published contributions. In general, and beyond the provocation of the paradox, the interest in this strand of the literature arises from the desire to test empirically the undemonstrated assumptions about the shape of utility functions, which are at the basis of economic models, once a wide array of large databases, including information on self-declared wellbeing, has become available.

This paper aims to investigate the impacts of access to the credit market on subjective wellbeing in Indonesia. More specifically, we question whether access to credit markets contributes to the increase in happiness. We extend the literature on the impact of access to credit on happiness by studying one of the most culturally diverse countries that has experienced long, sustained, and rapid economic growth. Controlling for regional characteristics, we find that people who are successful in obtaining credit are significantly and positively associated with the probability of being happy. Our results also reveal that per capita expenditure has a positive effect on the individual's probability of being granted credit, and people in urban communities benefit more from accessing credit than those in rural communities.

2. RELATED LITERATURE

Empirical literature related to wellbeing has examined the relationship between happiness and several determinants such as financial capability (Taylor et al., 2011), income (Easterlin, (1995); Ferrer-i-Carbonell & Frijters, (2004)), employment status (Winklemann & Winklemann, 1998), marital status (Blanchflower & Oswald, 2004; Frey & Stutzer, 2002; Johnson & Wu, 2002; Stutzer & Frey, 2006), unemployment and inflation (Clark & Oswald, 1994; Di Tella, MacCulloch, & Oswald, 2001, 2003; Gallie & Russell, 1998), relational goods (Becchetti, Trovato, & Bedoya, 2011), natural capital (Engelbrecht, 2009) and many other factors.

Several empirical studies have looked into the relationship between happiness and life satisfaction, concluding that life satisfaction is one of the components of happiness. Happiness and life satisfaction, on the other hand, are empirically and theoretically separate. Substantial enjoyment and achievement in life may be indicative of life satisfaction rather than happiness (Chui & Wong, 2016). Positive and negative impacts can also directly stimulate sensations like happiness and sadness, among other things.

So far, the literature has emphasized so far the role of assortative matching (Ghatak and Guinnane, 1999; Morduch, 1999), peer monitoring in presence of group lending with joint liability (De Aghion, 1999) and dynamic incentives in presence of

individual progressive loans (Wydick, 1999; Karlan, 2005) to explain the puzzles of microfinance such as high repayment rates despite loans are generally uncollateralized. More recently, financial technology could also be a substantial vehicle to promote financial inclusion (Trinugroho et al., 2017a). A growing body of research has also examined the impact of social institutions on economic outcomes (Fukuyama, 1995) and more specifically, the importance of asymmetric information (Stiglitz & Weiss, 1981), and social networks (Okten & Osili, 2004) on credit access.

Previous research documents mixed results regarding the association between access to credit and happiness. Some studies have found that debt has a negative impact on subjective well-being (see Brown *et al.*, 2005; Tay *et al.*, 2017; Liu *et al.*, 2020). However, income plays a role in balancing the negative impacts of debt on happiness (Brown *et al.*, 2005; Agarwal *et al.*, 2008). Apart from family and formal banking, access to microfinance has been associated with happiness among poor customers, with the number of lending cycles having a significant and favorable effect on life satisfaction (Becchetti & Conzo, 2013). From an economic standpoint, people borrow money to spread their spending over the course of their lives (Modigliani, 1986). If this were the case, all debt-related decision would be subjected to an optimization process, resulting in greater well-being.

3. DATA AND METHOD

Data and variables

The empirical analysis in this paper is based on the fourth and fifth waves of the Indonesia Family Life Surveys (IFLS 4&5). The IFLS was conducted by RAND in cooperation with local research institutions in Indonesia and is available for free at the RAND website. The first wave of IFLS was fielded in 1993 (IFLS1). The IFLS covers only 14 provinces and 249 districts, but the area covered contains around 83% of the Indonesian population (Strauss,et al. , 2009).

Table 1. Variable definition

Type	Variable	Measurement	Range	Data Source
Happiness indicator	Happiness	Taken all things together how would you say things are these days - would you say you were very happy, pretty happy, or not too happy? [1=very unhappy, 2=unhappy, 3=happy, 4=very happy]	[1-4]	IFLS
Credit indicators	Aware	Do you or any other household member know of a place where you can borrow money? [1=aware, 0=otherwise]	[1,0]	IFLS
	Apply	Did you or other member of the household try to borrow any money or goods from a source other than your family or friends over the past 12 months? [1=apply for credit, 0=otherwise]	[1,0]	IFLS
	Granted	Were you or other member of the household successful in securing a loan in the past 12 months? [1=granted,	[1,0]	IFLS

Type	Variable	Measurement	Range	Data Source
		0=otherwise]		
Individual characteristics	Hhead	Head of household [1=being head of household, 0=otherwise]	[1,0]	IFLS
	Female	Sex [1=female, 0=otherwise]	[1,0]	IFLS
	Married	What is your marital status [1=married, 0=otherwise]	[1,0]	IFLS
	Sdw	Single, divorce and widowed [1=single, divorce, widowed, 0=otherwise]	[1,0]	IFLS
	Education	Years of schooling		IFLS
	Religiosity	How many times do you pray each day?		IFLS
	Age	How old are you?		IFLS
	Health condition	In general, how is your health? [1=very healthy, 2=healthy, 3= unhealthy, 4=very unhealthy]	[1-4]	IFLS
	Per capita expenditure	Total expenditure divided by the number of households		IFLS
	Household size	Number of household member		IFLS
Household characteristics	Housing	Self-owned house [1=owned private house, 0=otherwise]	[1,0]	IFLS
	Participation	During the last 12 months did you participate in community meeting? [1=participated in community meeting, 0=otherwise)	[1,0]	IFLS
Community characteristic	Rural	Household location [1=rural, 0=urban]	[1,0]	IFLS

Our main dependent variable of interest is whether an individual has successfully obtained credit in the past 12 months. Individuals can be classified according to whether they are aware of credit sources, whether they applied for credit, and whether their loan applications were granted or denied

Individual and household variables

In our analysis, we control for the following individual characteristics: household headship, gender, marital status, schooling, religion, age, age squared, and health condition. Variables that capture economic resources available to individuals include per capita expenditure and household size.

Contextual variable

To control for regional variation in our data, we include province dummies in our analysis. Province dummies reflect differences in ecological environments, resource endowments, population density, and other socioeconomic differences across regions in Indonesia. We also include a community characteristics variable, which is equal to one for urban communities (and zero otherwise).

Empirical Model

In order to participate in the credit market, an individual first needs to know where he or she can borrow money. The first part of our analysis models the credit application process. An individual's decision to apply depends on whether the individual has a demand for credit as well as whether there is a perception of access to credit. For an individual to be granted a loan, the lender must deem the borrower creditworthy.

Following Okten & Osili (2004), our econometric framework allows us to capture the sequential nature of the credit granting process: In stage one, an individual states whether she or he knows of a place where she or he can borrow money. In stage two, she/he decides whether to apply for credit. In stage three, the lender decides whether to accept or reject the loan application. We use the probit model to run our specifications on the credit application process as below:

Prob $[Y_0, Y_1, Y_2] = f\{I, H, C\}$……..(1)

whereas I is a vector of individual characteristics, H is a vector of household characteristics, and C is community characteristic. $Y_0 = 1$ if the individual states that she/he knows a place to borrow; and zero otherwise; $Y_1 = 1$ if the individual applies for a loan; and zero otherwise and $Y_2 = 1$ if individual is granted a loan; and zero otherwise.

In our data, for a given individual, Y_1 is not observed unless $Y_0=1$. An individual is asked whether she applied for a loan only if she states that she knows at least one place from which she can borrow. Furthermore, due to the nature of the loan application process, Y_2 is not observed unless $Y_1 = 1$. We estimate a three-stage probit model and correct for the sample selection bias as in Zeller (1994).

To correct for selection bias, we include the inverse Mill's ratio from the first stage probit model as an additional regressor in the second stage probit. We then include the inverse Mill's ratio from the second stage probit as an additional regressor in the third stage probit. The omission of the inverse Mill's ratio may lead to biased estimates (Greene, 2003). This can be thought of as an omitted variable problem since the expected value of $Y_1(Y_2)$ given that $Y_1(Y_2)$ is observed depends on the probability that $Y_0 = 1(Y_1= 1)$. By including the inverse Mill's ratio as an additional regressor, we can obtain unbiased estimates for the variables of interest.

We should note that we also do not observe all the specific lenders to which a given individual has applied for credit. In addition, since the data typically stems from the demand side, we cannot define the purpose of the loans objectively due to the potential biased information problem. Therefore, when we analyze the determinants of obtaining credit, we do not differentiate between specific credit sources and the purpose of the loans.

The second part of our analysis, we focus on the impact of access to credit on the probability being happy by employing the following model:

Ordered Probit [Happy] = $f\{Y_2, I, H, C\}$……...(2)

whereas Happy is measured by the answer to the following question in IFLS4: "Taken all things together how would you say things are these days?". The respondent was asked to indicate one among four levels: very unhappy, unhappy, happy and very happy. $Y_2 =1$ if individual is granted a loan and zero otherwise, I is a vector of individual characteristics, H is household characteristics, and C is community characteristics. In this part, we also

calculate marginal effect of each variable to analyze the incremental effect of happiness on each variable.

In addition, we also estimate marginal effect which is well known as the calculation of a change in a regressor on the probability of declaring oneself very happy in the ordered probit model with the following formula:

$$\Delta \Pr(Very\ happy) = f(S + \Delta S - c) - F(S - c) \quad \text{.....(3)}$$

where *F* is is the cumulative normal distribution, *S* the predicted average happiness level and c the highest cut point.

4. RESULTS AND DISCUSSION

Summary statistics

In Table 2, we present summary statistics for the full sample. Almost 83 percent of individuals surveyed declared that they were aware of credit sources. Among those who are aware, 34% have applied for credit and 76% have successfully obtained credit. In our analysis, sources of credit refer to formal and informal institutions as well. In other words, we do not differentiate the source of credit from the formal and informal institutions due to the data limitation on IFLS. individuals that applied for credit and those that successfully obtained credit in the survey period. It is interesting to note the differences in per capita income for loan applicants who were granted credit. An average individual who has accessed the credit market is less likely in rural communities. This observation provides some preliminary evidence that family and community characteristics may impact an individual's participation in the credit market. This observation points out the importance of controlling for such household and community characteristics in our analysis.

Table 2. Summary Statistics

	Full sample		**Applicants**		**Grantees**	
Variable	***N***	***Mean***	***N***	***Mean***	***N***	***Mean***
Credit indicators						
Aware (=1 if aware of credit sources)	34302	0.83	9634	1	9308	1
Apply (=1 if applied for credit)	28554	0.34	9634	1	9308	1
Granted (=1 if granted)	9634	0.76	9634	0.76	9308	1
Individual characteristics						
Hhead (=1 if household head)	34302	0.27	9634	0.27	9308	0.27
Female (=1 if female)	34302	0.52	9634	0.52	9308	0.52
Married (=1 if married	34302	0.71	9634	0.75	9308	0.75
Sdw (=1 if single, divorce and widowed)	34302	0.09	9634	0.07	9308	0.07
Education (year of schooling)	34302	8.67	9634	9.33	9308	9.33
Religiosity	31511	2.90	8943	2.90	8635	2.91
Age	34301	38.39	9634	36.97	9308	36.99
Age^2	34301	1732.50	9634	1579.45	9308	1580.69
Health condition (1-4, lower more healthy)	34141	2.05	9596	2.06	9272	2.05

Variable	Full sample		Applicants		Grantees	
	N	*Mean*	*N*	*Mean*	*N*	*Mean*
Per capita Expenditure (in millions)	33750	1,419	9486	1,805	9173	1,826
Household characteristics						
Household size	34302	4.25	9634	4.46	9308	4.46
Housing (=1 if self-own house)	34302	0.75	9634	0.74	9308	0.75
Participation in community meeting	31305	1.92	8892	2.19	8588	2.19
Community characteristic						
Rural	34302	0.41	9634	0.37	9308	0.37

Credit access

In this section, we analyze the determinants of credit access using a three-stage probit model. Our first-stage equation examines whether an individual is aware of any sources for obtaining credit. The dependent variable at the first stage is equal to 1 if the individual states that s/he knows a place where s/he can borrow, and zero otherwise. The second-stage equation examines the decision to apply for credit. We correct for sample selection bias when we analyze the determinants of the loan application process (as we only observe the loan application process for individuals who state that they know of a place where they can borrow). The third-stage equation allows us to study the probability that an individual is granted credit. We also correct for sample selection bias in the third stage.

Table 3 presents the first part of our empirical findings, including our credit access analysis at all stages of credit access. Focusing on the first stage, determinant awareness of credit sources, we find that marital status, gender, educational attainment, social network, and older individuals have a positive and significant effect on awareness of credit sources. Wealth that is represented by expenditure and housing self-ownership also appears to be important for being familiar with credit opportunities. Individuals who live in rural communities are less likely to be familiar with credit sources. More specifically, increasing one unit of per capita expenditure raises the probability of an individual's awareness of credit sources by 4,9 percentage points, followed by being married by 4,8 percentage points as the highest effect (see Table 4).

The second column of table 3 presents the second stage of probit estimation where we analyze the determinants of the decision to apply for credit. Our dependent variable is equal to 1 if the individual has applied for credit in the last 12 months and zero otherwise. Marital status, educational attainment, and per capita expenditure have a positive and significant effect on the decision to apply. Otherwise, housing self-ownership has a negative and significant effect on the credit application process. In particular, religiosity decreased the probability of applying for credit by 7.6% (see table 4).

The third column of table 3 presents our third stage of probit result where the dependent variable is equal to 1 if the individual is granted credit, and zero otherwise. At a 10% significance level, we find that per capita expenditure and social network have a positive effect on the probability of being granted, whereas rural community has a negative effect and is significant at a 1% significance level. We also examine closely the coefficient of the interaction term (social network x per capita expenditure level). The

interaction variable (social network x per capita household expenditure) has a negative and significant effect on the probability of being granted credit. This finding may support Okten & Osili's (2004) observation that suggests poorer individuals are more likely to benefit from social networks. The aforesaid findings support an information-based view of the function of networks in credit markets. Participation in community meetings, in particular, may lower the cost of acquiring information linked to credit transactions for a possible borrower. It is not a surprise that our social network metrics are more important in promoting awareness of new loan sources because potential borrowers are less likely to be familiar with new credit institutions.

Table 3. Determinants of credit access

	Stage 1	**Stage 2**	**Stage 3**
Explanatory Variable	**Aware**	**Applied**	**Granted**
Individual characteristics			
Hhead (=1 if household head)	0.014	0.032	0.084
	(0.025)	(0.024)	(0.087)
Female (=1 if female)	0.047*	-0.004	0.064
	(0.021)	(0.020)	(0.066)
Married (=1 if married)	0.207***	0.082*	0.315
	(0.031)	(0.040)	(0.200)
Sdw (=1 if single, divorce and widowed)	0.080	0.082	0.156
	(0.046)	(0.047)	(0.190)
Years of schooling	0.041***	0.022***	0.011
	(0.003)	(0.006)	(0.007)
Religiosity	0.021	-0.076**	0.062
	(0.023)	(0.024)	(0.081)
Age	0.007*	-0.005	-0.002
	(0.003)	(0.004)	(0.012)
Age^2	-0.000**	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Health condition (1-4, lower healthier)	-0.006	0.054***	-0.011
	(0.013)	(0.013)	(0.064)
Per capita Expenditure (in millions)	0.209***	0.055*	0.417*
	(0.013)	(0.028)	(0.171)
Household characteristics			
Household size	0.032***	0.051***	0.083
	(0.005)	(0.006)	(0.061)
Housing (=1 if self-own house)	0.104***	-0.109***	0.124
	(0.022)	(0.024)	(0.079)
Social network	0.083***	0.018	0.658*
	(0.006)	(0.011)	(0.304)
Community characteristic			
Rural	-0.054**	-0.032	-0.291***
	(0.019)	(0.019)	(0.079)
Mills ratio (2)		-1.498***	
		(0.372)	
Social network X Per capita Expenditure			-0.042*
			(0.020)
Mills ratio (3)			1.922
			(1.262)
Province dummies	Yes	Yes	Yes
Constant	-2.881***	-0.498	-6.647
	(0.203)	(0.615)	(3.923)

Explanatory Variable	Stage 1 Aware	Stage 2 Applied	Stage 3 Granted
Observation	30810	25752	8765
Chi square	1339.78	712.45	50.71
Log likelihood	-13023	-16146	-1260

***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively. Standard errors in parentheses.

Table 4. Marginal effect: credit access

Explanatory Variable	1	2	3
Individul characteristics			
Hhead (=1 if household head)	0.003	0.011	0.006
Female (=1 if female)	0.011**	-0.001	0.005
Married (=1 if married)	0.048***	0.029*	0.023
Sdw (=1 if single, divorse and widowed)	0.019	0.029	0.011
Years of schooling	0.010***	-0.008***	-0.000
Religiosity	0.005	-0.027***	0.005
Age	0.002*	-0.002	-0.000
Health condition (1-4, lower healthier)	-0.001	0.019***	-0.000
Household characteristics			
Per capita Expenditure (in millions)	0.049***	0.020*	0.030**
Household size	0.007***	0.018***	0.006
Housing (=1 if own house)	0.024***	-0.039***	0.009
Social network	0.020***	0.006	0.048**
Community characteristic			
Rural	-0.013***	-0.011	-0.021***
Participation*Per capita Expenditure			-0.003**

Dependent variable: model 1 (Y=1if individual knows a place to borrow); model 2 (Y=1 if individual knows a place to borrow and has applied for a loan); model 3 (Y=1 if granted loan). ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively

Credit access and happiness

The distribution of happiness for the different groups of our samples shows that the frequency of grantees' samples giving answers is higher than the applicant group (figure 1). Moreover, in table 5, the Wilcoxon nonparametric test reveals that individuals who successfully obtained credit have on average a significantly higher level of happiness than unsuccessful applicants.

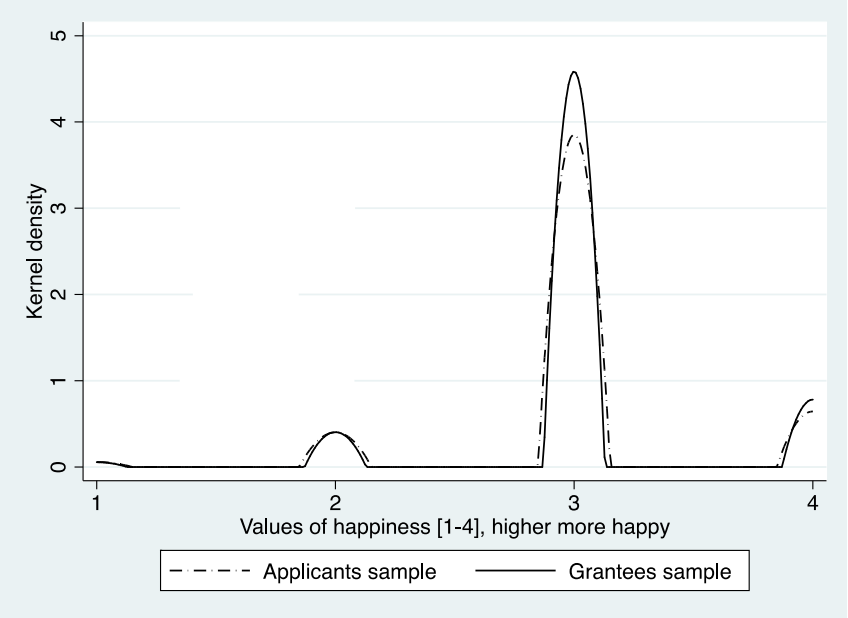

Figure 1. Distribution of subjective well-being (applicants and grantees sample)

Table 5. Nonparametric test on differences in happiness between groups

Test type	**Z-stat**	***p*-value**
Wilcoxon rank-sum equality test on self-wellbeing: successfully versus unsuccessfully granted for credit	-6.411	0.000
Wilcoxon rank-sum equality test on self-wellbeing: applied versus unapplied for credit	-0.013	0.989

After we checked the preliminary evidence regarding the impact of granting credit on individuals' happiness, we moved further to the second part of our analysis: examining the effect of granting credit on happiness. Since the dependent variable is reported on an ordinal scale, happiness regressions are generally estimated with an ordered probit. However, Van Praag & Ferrer-i-Carbonell (2006, 2008) show that the simple linear models are as good as the probit and logit methods, but computationally much easier. For this reason, we will propose both Ordinary Least Squares (OLS) and ordered probit estimates to check the robustness of the estimating techniques of each model specification.

Our main findings on the grantees' sample show that individuals who obtained credit have a significant and positive effect on their happiness. As shown in Table 6, the results of OLS and the Ordered Probit model both show a significant and positive relationship between credit and happiness for those who were successful in obtaining credit. Furthermore, individuals who are successfully granted credit increase their probability of being happy by 5.3%. These findings are consistent with Becchetti & Conzo (2013), who evaluated the impact of successful borrowers on life satisfaction, especially for those who had access to microfinance outside of family and formal banking. We argue that the relatively large number of unbanked individuals and the low level of formal bank financial access in Indonesia might be a plausible reason why our findings support the evidence of Becchetti & Conzo (2013) empirical work, which has a similar context.

Moreover, our grantees sub-sample who succeeded in obtaining credit had relatively higher expenditure compared to our full sample, which could help this sub-sample group to balance any potential negative effect of debt on happiness. However, due to our data limitation as we discus earlier, the result should be interpreted carefully for several reasons. First, since we do not cover the type of the credit (whether it belong to consumer or productive loan), the relationship between credit and happiness could be result in different way for each loan purpose. Second, from the literature it is arguable that consumer credit could be useful for smoothing households' income and turn to increase the probability of the households' life satisfaction. However, we cannot hold this relationship directly when it comes to the productive loan purposes.

Table 6. The determinant of happiness: granted for credit

Explanatory variables	**OLS**	**Ordered Probit**	**Marginal effect**
Succesfull granted for credit	0.119***	0.317***	0.053***
	(0.028)	(0.077)	
Hhead (=1 if household head)	0.008	0.025	0.005
	(0.015)	(0.040)	
Female (=1 if female)	0.010	0.027	0.006
	(0.012)	(0.033)	
Married (=1 if married)	0.147***	0.406***	0.072***
	(0.019)	(0.052)	
Sdw (=1 if single, divorse and widowed)	0.011	0.059	0.012
	(0.031)	(0.088)	
Years of schooling	0.010***	0.025***	0.005***
	(0.001)	(0.004)	
Religiosity	0.042**	0.110**	0.022***
	(0.014)	(0.039)	
Age	-0.014***	-0.038***	-0.008***
	(0.002)	(0.007)	
Age^2	0.000***	0.000***	0.000***
	(0.000)	(0.000)	
Health condition (1-4, lower healthier)	-0.102***	-0.265***	-0.053
	(0.008)	(0.023)	
Per capita Expenditure (in millions)	0.052***	0.144***	0.029***
	(0.010)	(0.028)	
Household size	0.008**	0.021*	0.004***
	(0.003)	(0.009)	
Housing (=1 if own house)	0.043***	0.124***	0.024***
	(0.012)	(0.034)	
Participation in community meeting	-0.091*	-0.226	-0.045
	(0.046)	(0.126)	
Participation*Per capita Expenditure	0.006	0.016	0.003
	(0.003)	(0.009)	
Rural	-0.028*	-0.081**	-0.016***
	(0.011)	(0.030)	
Constant	2.363***		
	(0.155)		
cut1			
Constant		-0.616	
		(0.421)	
cut2			
Constant		0.365	

Explanatory variables	OLS	Ordered Probit	Marginal effect
		(0.421)	
cut3			
constant		3.041***	
		(0.423)	
Observation	8765	8765	
Chi square		573.11	
Log likelihood	-5889	-5716	

Dependent variable: level of happiness, ranging from very unhappy to very happy [1-4]. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively. Standard errors in parentheses

In addition, marital status, educational attainment, per capita expenditure, number of household members, and housing self-ownership have a positive and significant effect on being happy. Otherwise, older people, people in poor health, and people who live in rural areas appear to have a significant and negative association with the likelihood of increasing happiness.

5. CONCLUSION AND LIMITATION

In this paper, we investigate the determinants of credit access and its impacts on subjective well-being in Indonesia by considering a three-stage application process and examining the impact of obtained credit on happiness. We use data from the Indonesian Family Life Surveys provided by RAND.

We find that marital status, gender, educational attainment, social network, and older individuals are a positively associated with the awareness of credit sources. Wealth level also appears important for being familiar with credit opportunities. Additionally, individuals who live in rural communities are less likely to be familiar with credit sources. It appears that marital status, educational attainment, and per capita expenditure are also positively linked with the decision to apply credit. Otherwise, housing ownership and religiosity are negatively associated with the willingness to apply for credit. Furthermore, we find that per capita expenditure and social network are more likely positively associated with the probability of individuals being granted for credit. We also document those poorer individuals are more likely to benefit from social networks as an additional collateral to obtain credit.

Our findings have some noteworthy policy implications. First, regulators have to strengthen regulation to promote financial access more inclusively, particularly for poor people and those who live in rural communities. Second, as prerequisite role of credit on wellbeing, a narrow focus of stakeholders to increase households' financial capability and financial literacy needs to be continuously improved.

This paper recommends further research into robustness, endogeneity, and relevancy for happiness, especially related to access to credit markets. Although some attempts are made to avoid selection bias for some of the variables in this paper, the robustness of causality itself needs to be checked with other measurements or appropriate instrumental variables for the endogenous variables.

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