

**THE EFFECT OF FINANCIAL INCLUSION THROUGH CREDIT
ACCESS ON HOUSEHOLD WELFARE IN INDONESIA**

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ABSTRACT

Financial inclusion is widely promoted as a program for enhancing household welfare by expanding access to credit and other financial services. This study empirically examines the impact of credit access on household welfare in Indonesia, utilizing total and disaggregated expenditures as indicators of welfare. Drawing on data from the fifth wave of the Indonesia Family Life Survey (IFLS 5, 2014-2015), we implement a quasi experimental design with Propensity Score Matching (PSM) to compare households that received individual credit with observationally similar control households. The results reveal that credit access has a significant impact on nonfood expenditures, while food expenditures remain unaffected. These findings are consistent with Amartya Sen's capability framework, which emphasizes the importance of inclusive financial access in expanding individual freedoms, and with Engel's Law, which predicts that households allocate additional income toward quality-enhancing goods once their basic food needs are met. Our study highlights the role of targeted credit provision in promoting welfare beyond subsistence consumption, offering policy insights for strengthening inclusive finance initiatives in developing economies.

Keywords: *Financial Inclusion; Credit Access; Household Welfare*

A. INTRODUCTION

Family welfare has always been one of the key targets of global development. Through the Sustainable Development Goals (SDGs) agenda, efforts to improve family welfare are pursued primarily through poverty eradication (Agyepong et al., 2025; UNDP, 2015). Law No. 11 of 2009 defines household welfare as a condition in which the material, spiritual, and social needs of citizens are fulfilled, enabling them to live decently and develop themselves.

The Capability Approach posits that true welfare lies in individuals' ability to achieve lives they consider meaningful through the realization of their rights (Sen, 1999). In this context, the ability to access resources including financial services becomes a crucial factor in improving family welfare (Paul, 2022). Financial inclusion is defined as the process of ensuring that individuals, particularly those living in poverty, have adequate access to formal financial services such as savings, credit, insurance, and payment instruments (Cociug & Turcan-Munteanu, 2021). Its primary objective is to enable all segments of society to participate in the financial system, which in turn can enhance economic prospects and overall quality of life (Ahmed & Salleh, 2016).

Ouechtati (2020) argues that access to financial services can reduce poverty and income inequality in developing countries, promote asset accumulation, and help households increase consumption. This view is supported by Duvendack and Mader (2020), who demonstrate that access to financial services improves opportunities for low-income households to cope with economic shocks and strengthen their social and economic position. Thus, financial inclusion functions not only as an instrument for reducing poverty and inequality but also as a mechanism for economic protection and empowerment that enables low-income households to enhance their economic resilience and achieve sustainable welfare improvements.

The Indonesian government actively promotes financial inclusion as a strategic instrument to improve public welfare, reduce poverty, and narrow economic disparities. This commitment was formalized through the government's initiative to develop the National Strategy for Financial Inclusion (SNKI) in 2012. Effective implementation of the SNKI requires coordination among relevant institutions and agencies to expand public access to formal financial institutions. To strengthen the institutional framework for financial inclusion, the government issued Presidential Regulation No. 82 of 2016 on SNKI, which was subsequently updated through Presidential Regulation No. 114 of 2020. Alongside this policy framework, the government has implemented various programs to promote financial inclusion, including the People's Business Credit (KUR) program, the National Community Empowerment Program (PNPM) Mandiri, and the revitalization of Rural Credit Banks (BPR) and other microfinance institutions. In this context, financial inclusion policies are intended not only to expand access to formal financial services but also to enable households to better manage income and expenditure in order to improve their quality of life.

One of the most important instruments of financial inclusion with a significant impact on family welfare is microcredit. Microcredit plays a strategic role in supporting household expenditure by providing access to capital that is

often difficult to obtain through conventional financial channels. This finding is consistent with Islamiyah et al. (2021), who show that microcredit provided through formal and informal financial institutions enables households to meet food and non-food expenditures, thereby improving their overall welfare.

The World Bank suggests that household welfare can be assessed using the Multidimensional Poverty Index (MPI), which encompasses indicators of income, health, education, and living standards (World Bank, 2023). Accordingly, progress across these dimensions can be reflected in household expenditure on education, health services, and the fulfillment of food and non-food needs, which together serve as proxies for living standards (Sen, 1999).

Furthermore, household expenditure can be explained through Engel's Law, which states that as income increases, the proportion of expenditure allocated to non-food needs such as education and health also increases, as basic necessities like food have already been met. Consequently, expenditure patterns shift from food consumption toward non-food items (Engel, 1857; Chakrabarty & Mukherjee, 2022). A similar argument is proposed by Milton Friedman through the Permanent Income Hypothesis, which suggests that individuals allocate their spending based on their expectations of long-term permanent income and, conversely, may rely on borrowing to smooth consumption when income declines (Friedman, 1957). This hypothesis implies that households tend to manage their expenditure patterns according to expected long-term income rather than short-term income fluctuations. Accordingly, households do not allocate income solely to meet immediate needs but also direct part of their resources toward long-term investments such as education and health that are expected to enhance future welfare.

This journal article empirically examines the effect of financial inclusion, as indicated by household access to credit, on household welfare in Indonesia. Household welfare is measured using monthly household expenditure. The analysis employs the Propensity Score Matching (PSM) method to control for differences in household characteristics, thereby enabling a comparison between households with similar socio-economic profiles but differing in their access to credit as a form of financial inclusion.

B. LITERATURE REVIEW

Several previous literatures from various countries have shown the influence of financial inclusiveness on household welfare. Most of them stated that financial inclusiveness has a positive effect on improving household welfare. However, some of them did not show a positive effect but a negative effect, and there were also some that had no significant effect. In several developing countries, such as countries in Africa and Asia, financial inclusiveness has a positive effect on community welfare.

Financial inclusivity in 33 sub-Saharan African countries has been shown to improve household welfare through income and education expenditures using the financial inclusion index and panel data regression (Ofori-Abebrese et al., 2020). Similarly, in Nigeria, financial inclusion significantly positively impacted household welfare in 1,750 rural households using expenditures on food, health,

savings, asset expenditures, and sanitation expenditures, as well as PSM analysis (Ibrahim et al., 2019). A similar analysis of financial inclusion policies in India, using the Theil's entropy-based index on consumption expenditures using panel data regression, also showed a similar effect, indicating that financial inclusion policies improve household welfare levels in food and non-food expenditures (Chakrabarty and Mukherjee, 2022). However, this contrasts with the findings in Ghana, where financial inclusivity, analyzed using the PSM technique, was positively correlated with food and non-food expenditures but negatively with expenditures on goods for temporary pleasure (Abkyi, 2025).

On the other hand, financial inclusiveness does not always have a positive impact on household well-being. Differences in household characteristics, particularly among low-income households with varying conditions and abilities, including in managing funds, can lead to underutilization of earned income and even increase the risk of economic vulnerability, as seen in various households and small businesses in several countries (Meager, 2019). Duvendack (2020) also expressed a similar sentiment, stating that the results of financial inclusiveness on household well-being in low- and middle-income countries also vary in systematic literature reviews. This uncertainty in the results makes research on the impact of financial inclusiveness implemented in developing countries like Indonesia on household well-being crucial.

C. METHOD

This study is based on data taken from the Indonesian Family Life Survey (IFLS), a longitudinal survey of households in Indonesia conducted periodically. This survey represents 83% of the Indonesian population and covers more than 30,000 individuals living in 13 of Indonesia's 27 provinces, including North Sumatra, West Sumatra, South Sumatra, Lampung, DKI Jakarta, West Java, Central Java, DI Yogyakarta, East Java, Bali, West Nusa Tenggara, South Kalimantan, and South Sulawesi. This study uses data from the fifth wave of IFLS (IFLS-5), which was conducted from October 2014 to August 2015. The total number of selected respondents used in this study was 26,569 respondents who were heads of households or other household members aged 15 years or older who were able to answer questions related to household economics. The table below shows the operational definition of each variable in this study.

The independent variable in this study is household access to loan services (credit), which reflects financial inclusiveness. Respondents were asked "What is the total current loan amount?" This can be used to capture the intensity and dependence of households on loan services, both from formal and informal financial institutions. Meanwhile, the dependent variable in this study is household welfare, measured by monthly household expenditure. This expenditure includes consumption for food, consumption for non-food items, and education costs.

Table 1: Research Variables

No	Variables	Description
Independent Variables		
1	Access to household credit	Household access to formal and informal loan (credit) services reflects financial inclusivity
Dependent Variable		
1	Expenditure on food consumption	Expenditure on prepared food eaten both at home and outside the home (In thousands of rupiah)
2	Expenditure on non-food consumption	Expenditure on electricity, water, household fuel, telephone/cellphone, personal care, household goods, recreation and entertainment, gifts, social gatherings and transportation (in thousands of rupiah)
3	Expenditure for education costs	Expenditure for school fees, school equipment costs and transportation costs to school (In thousands of rupiah)
Control Variables		
1	Marital status	Marital status of the head of the household influences decision-making and household spending patterns
2	Religion	Religious identity can influence social norms and household consumption preferences
3	Ethnicity	Ethnic background reflects cultural differences that influence decision making in the household
4	Gender of Head of Household	Gender of the head of household influences decision-making, access to income and financial services
5	Age of Head of Household	The age of the head of the household can influence decision-making regarding household expenditure, especially when the unit of analysis includes the workforce age group
6	Home Economics Class	The level of household welfare at the time of observation, which describes the initial economic position before receiving access to credit
7	Level of education	The highest level of education of the head of the household can influence decision making in making decisions and managing household expenses
8	Type of work	The type of job of the head of the household can influence the income earned by the household in one month, which will then be used for household expenses
9	Residence Location	Characteristics of residential areas (rural/urban) that influence access to financial services and influence household decision-making and

spending patterns

Source: Author's processed results in 2026

The control variables in this study include marital status, religion, ethnicity, gender, age, household economic class, education level, occupational category, and residential location. These variables are used to control for the influence of demographic and socioeconomic characteristics that can influence household consumption behavior. By including these control variables in the analysis model, it is hoped that the estimation results for the independent variables will be more accurate and not distorted by external factors not directly examined.

The approach used in this study is a quantitative approach with the Propensity Score Matching (PSM) analysis method. PSM is an approach that makes statistical comparisons by creating individual probabilities between groups that receive benefits from a program (treatment group) and then matched with groups that do not receive benefits from the program (control group) based on observed characteristics (covariates) or so-called propensity scores. Afterward, the Average Treatment Effect (ATE) is calculated to see the average difference between the groups that receive benefits and the groups that do not receive benefits (Khandker et al, 2009).

In this study, Propensity Score Matching (PSM) is used to estimate the effect of household inclusiveness through credit access on household welfare, as measured by expenditures on food, non-food, and education. PSM was chosen because it can reduce selection bias in observational data by matching households with certain economic characteristics (treatment) with households without those characteristics (control) based on propensity scores calculated from the control variables. Therefore, the research model in this study is as follows:

- $$p(x) = \text{prob}(D = 1|x) = (D|x)$$
- $p(x)$ = Propensity score, namely the probability or chance that a unit (for example an individual or household) receives treatment $D = 1$, with the condition of having the characteristic or explanatory variable x
 - $\text{prob}(D = 1|x)$ = Conditional probability notation which states the probability of the unit receiving treatment $D = 1$ provided the variable is known
 - $(D|x)$ = The expected value (average expectation) of the treatment variable D with the condition variable x . Since D is a binary indicator variable (0 or 1), the expected value $(D|x)$ is equal to the probability $D = 1$ under the condition x

D. EXPLANATION

Household Consumption Behavior Statistics Description

Through the results of the survey data from IFLS-5, this study uses several variables that are statistically analyzed to understand household consumption behavior with statistical descriptions that can be seen in Table 2. Household

consumption is divided into three main categories including consumption for food (food_cons), non-food items (nonfood_cons) and education costs (educ_cons). The average consumption expenditure for food per household in Indonesia was recorded at IDR 74,242 per month, while the average expenditure for non-food items was IDR 84,223 per month and for education costs was IDR 445,356 per month. This shows that consumption behavior in Indonesia prioritizes spending on education costs compared to spending on non-food costs and food expenses.

Regarding household access to loans, the average value of 0.449 indicates that approximately 45% of the households sampled in this study have loans, meaning nearly half of the observed households in Indonesia are recorded as having loans. These loans are partly used to finance consumption expenditures on food, non-food items, and education. The results of this analysis show a significant relationship between household access to loans and household expenditure.

Tabel 2: Regression Result Loans on Consumption Impact

Variable	Obs	Mean	Std. Dev.	Min	Max
Loans	26569	.4495841	.4974611	0	1
nonfood_cons	26569	.84223.27	2023620	0	9.50e+07
food_cons	26569	74242.56	237892.9	0	3800000
educ_cons	26569	445356.8	735336	0	1.50e+07

Source: Analysis Result on 2025

Classification of Indonesian Households

For the religion variable, probit regression results indicate that differences in religious background significantly influence households' probability of accessing loan services. Non-Muslim households, such as Protestants, Catholics, Hindus, Buddhists, and other religions, are more likely to access loans than Muslim households. This is due to differences in preferences that influence debt decisions. Muslim households tend to be more cautious when borrowing to avoid bank interest.

Differences in ethnic background also significantly influence a household's probability of accessing loan services. These differences can be influenced by several factors, such as cultural norms regarding debt and accessibility to financial and non-financial institutions that provide loan services. Gender also significantly influences a household's probability of accessing loan services. Households headed by men tend to be more likely to access loan services than households headed by women. This, coupled with men's role as breadwinners and financial decision-makers, makes them more active in seeking access to financing.

The location of residence, whether rural or urban, also influences a household's probability of accessing loan services. Households living in rural areas are less likely to access loan services than those in urban areas. Limited accessibility to financial and non-financial institutions that provide loan services, as well as low literacy rates, are important factors limiting rural households' access to financial services, including loans.

Table 3: Probit Regression Result of Control Variables

Probit regression	Number of obs	=	26569
	LR chi (9)	=	600.18
	Prob > chi2	=	0.0000
Log likelihood = -17980,845	Pseudo R2	=	0.0164

loans	Coef.	Std. Err.	z	P> z	[95% Conf.	Interval]
religion	.1102399	.0109031	10.1	0.00	.0888702	.1316096
ethnicity	.0100243	.0012858	-7.8	0.00	-.0125444	.0075041
sex	.0443088	.0085553	5.18	0.00	.0275407	.0610769
location	.0462617	.0166118	-2.78	0.00	-.0788204	.0137031
age	.1458877	.0583673	2.5	0.01	.0314898	.2602855
income_group	.1133471	.0071697	15.8	0.00	.0992947	.1273994
edu_group	.0408198	.0066534	6.14	0.00	.0277793	.0538603
marital_group	.0361132	.0179982	2.01	0.04	.0010837	.0713893
work_category	-.018521	.0038081	-4.86	0.00	-.0259847	.0110573
_cons	.8453104	.0797902	10.5	0.00	-1.001696	.6889246

Source: Analysis Result on 2025

The age difference between productive and non-productive age also shows a significant influence. When a household has a head of family of productive age, there is a tendency to use loans compared to households with heads of non-productive age. Individuals of productive age tend to have greater financial needs

than those of non-productive age, so they are more likely to seek access to loans to meet their needs.

Differences in household economic class, as seen from monthly income, also significantly influence the probability of households accessing loan services. Households with higher income levels are more likely to access loan services compared to households from lower income groups. Education level also significantly influences the probability of households accessing loan services, meaning that the higher the level of education, the greater the likelihood of obtaining loan services, and vice versa. Better financial literacy and better administrative and communication skills make individuals with higher levels of education more trusted by lending institutions.

Differences in marital status also significantly influence a household's probability of accessing loan services. Unmarried households are more likely to access loan services than married households. Interpreted, unmarried households tend to have greater financial needs and are not supported by increased income sources unlike married households with combined income sources. Therefore, unmarried households are more likely to seek access to loans to meet their needs.

Employment category also significantly influences household probability. Households with informal, non-permanent, or low-income jobs are less likely to access loan services compared to households with formal sector jobs, permanent jobs, or relatively stable incomes. This suggests that employment stability and formality are important considerations for financial institutions when providing access to financing, as they are directly related to loan repayment ability.

The Impact of Financial Inclusivity through Credit Access on Household Welfare

The analysis results show that households with access to loans have a higher level of food consumption compared to households without loans. Households with loans have an average consumption level of Rp 78,641.53, while households without loans recorded a lower consumption level, namely Rp 70,649.45 with a t-stat of 2.93. This indicates a significant influence on consumption expenditure for food.

Table 4: Propensity Score Matching Result of Food Consumption

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
food_cons	Unmatched	78641.532	70649.449	7992.084	2933.5291	2.72
	ATT	78641.532	69796.683	8844.849	9427.9250	0.94

Source: Analysis Result on 2025

However, these results are preliminary, prior to matching household characteristics, potentially biased by differences in baseline characteristics between groups. Therefore, further analysis needs to be conducted by matching household characteristics before examining the impact of loans on household consumption. This matching is based on a set of socioeconomic and demographic variables that influence a household's ability to obtain loans, such as marital

status, religion, ethnicity, gender of the household head, age of the household head, household economic class, education level, type of employment, and location of residence.

After matching, the average food consumption among households with loans was Rp 78,641.53, while households without loans recorded a lower food consumption level of Rp 69,796.68. However, after matching, the t-status decreased drastically to 0.94. This value indicates that after matching household characteristics, food consumption was no longer statistically significant. Thus, access to loans did not significantly influence food consumption. Households prioritize allocating loan funds to other sectors, such as education, business capital, or non-food consumption. Because food consumption is the most important need, households avoid borrowing whenever possible.

Table 5: Propensity Score Matching Result of Non-Food Consumption

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
nonfood_cons	Unmatched	141461.139	37470.919	103990.219	24949.2059	4.17
	ATT	141461.139	24927.995	116533.144	28030.6692	4.16

Source: Analysis Result on 2025

Table 5 shows that households with access to loans have higher consumption levels for non-food items compared to households without loans. Households with loans had an average consumption level of Rp 141,461.14, while households without loans recorded a lower consumption level of Rp 37,470.92, with a t-stat of 4.17. This indicates a significant impact on consumption expenditure for non-food items.

However, these results are preliminary, prior to matching household characteristics, potentially biased by differences in initial characteristics between groups. Therefore, further analysis should be conducted by matching household characteristics before examining the impact of loans on household consumption. After matching (ATT), the average non-food consumption among households with loans was Rp 141,461.14. Meanwhile, households without loans recorded a lower non-food consumption level of Rp 24,927.99. However, after matching, the t-status increased slightly to 4.17. This value indicates that after matching, consumption for non-food items remained statistically significant.

Thus, access to loans has a strong influence on increasing consumption for non-food items. Households tend to utilize access to loans to meet non-food needs such as transportation, housing, clothing, household supplies, or healthcare. Therefore, loans not only serve as a temporary financial aid but can also encourage broader improvements in household welfare, particularly in the aspect of non-food consumption.

Table 6 shows that households with access to loans have higher education expenditures compared to households without loans. Households with loans have an average education expenditure of Rp 538,561.72, while households without loans have an average education expenditure of Rp 369,226.28, with a t-stat of 18.8. This indicates a significant influence on education expenditure.

Table 6: Propensity Score Matching Result of Education Consumption

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
educ_consums	Unmatched	538561.72	369226.2	169335.4	9009.213	18.8
	ATT	538561.72	382599.0	155962.6	28426.34	5.49
		1	79	42	65	
		1	88	33	45	

Source: Analysis Result on 2025

These results are preliminary before household characteristics matching, which could potentially bias the results due to differences in initial characteristics between groups. Therefore, further analysis should be conducted by matching household characteristics before examining the impact of loans on household consumption. After matching (ATT), the difference in education consumption decreased slightly to Rp155,962.63, followed by a significant decrease in the t-statistic value to 5.49. Despite the decrease in the t-statistic value, these results still indicate that education expenditure remains statistically significant.

Thus, it can be concluded that access to loans plays a significant role in increasing spending on education. Household loans not only help meet short-term needs but also contribute to human resource development, which has long-term implications through increased access to education, which is a long-term investment in family welfare and socioeconomic development.

E. CONCLUSION

Based on the description of the results and analysis above, this study generally proves that financial inclusion through access to credit has a positive impact on household welfare in Indonesia, particularly in increasing non-food expenditures and monthly education costs. However, no significant effect was found on food expenditures, indicating that basic household needs are relatively met, so that additional financial capacity is allocated more to aspects of improving quality of life. This finding is consistent with Amartya's capability theory and Enge's Law, which emphasizes that increased income will encourage a shift in consumption from primary needs to long-term investment and more complex needs.

In addition to providing empirical evidence in a developing country context, this study also strengthens the ex-post development policy methodology through the application of Propensity Score Matching, which ensures the validity of the results by controlling for endogeneity. Thus, financial inclusion functions not only as an instrument for credit access but also as a transformative mechanism that expands household capabilities to improve welfare sustainably. The policy implication of this study is the need for the government and financial institutions to expand access to inclusive, affordable, and household-empowerment-oriented credit. With this strategy, financial inclusion can become a crucial pillar of Indonesia's socio-economic development, boosting household economic resilience, strengthening investment in education, and reducing welfare inequality within society.

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