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SOCIO-DEMOGRAPHIC DETERMINANTS OF INSURANCE LITERACY AMONG UNIVERSITY STUDENTS IN INDONESIA

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ABSTRACT

Introduction/Main Objectives: This research aims to investigate the level of insurance literacy among economics and business students and identify the socio-demographic factors impacting the level of insurance literacy. **Background Problems:** Low insurance literacy has long been identified as the cause behind the weak insurance penetration growth in Indonesia. College students area potential market for the development and deepening of the insurance sector. **Novelty:** However, hardly any studies have been published that assess the insurance literacy of university students in Indonesia. This study also presents a unique view of students' insurance knowledge across different universities in Indonesia, providing an understanding of the factors contributing to their literacy level. **Research Methods:** We conduct the commonly applied ordinary least squares test on the survey data collected using stratified random sampling. **Findings/Results:** The test results conclude that students from universities in Java, who have mothers who graduated from college, come from middle-income families, and live in Java have significantly higher insurance literacy levels compared to the rest of the students. However, gender and residency do not seem to significantly impact insurance literacy. **Conclusion:** Our study shows that socio-demographic factors influence university students' level of insurance literacy. These findings provide valuable information for policymakers and insurance firms to target this potential market with their insurance products.

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INTRODUCTION

The government of Indonesia is committed to realizing the vision of becoming a developed country by 2045. The Indonesian economy in 2045 is estimated to be one of the top five largest economies in the world, with a nominal gross domestic product (GDP) of more than USD7 trillion and GDP per capita of roughly five times its current economic size(Ministry of National Development Planning [Bappenas], 2019). In order to achieve the 2045 target, the development of the domestic financial sector is vital. Here, the insurance sector plays an integral factor in the deepening of the financial sector in Indonesia. The domestic insurance sector is one of the largest investors in the finance industry, having placed 80% of its assets in the capital market by the end of 2021.

However, the development of the insurance sector in Indonesia is still very limited, as reflected by the low insurance penetration rate (measured by the insurance premiums as a percentage of nominal GDP). By the end of 2021, the insurance penetration rate in Indonesia was only 1.6% of GDP, much lower than other ASEAN-5 countries such as Singapore, where penetration was about 9.3%; Thailand at 5.4%; Malaysia at 5.3%; and the Philippines at 2%. Studies have shown that one of the primary challenges in developing the insurance sector is the literacy level among the domestic population.

According to the National Survey on Financial Literacy and Inclusion (SNLIK) conducted by The Indonesian Financial Services Authority (Otoritas Jasa Keuangan [OJK]), Indonesia's insurance literacy rate was reported at 31.7%, suggesting that only 32 out of every 100 people have knowledge and understanding of insurance types and products. On the other hand, Indonesia's insurance inclusion rate was reported at 16.6%, which means that only 17 out of every 100 people use insurance products. The OJK (2022) surveys also show that the literacy rate has tended to outpace the inclusion rate in recent years.

In the coming years, university students are expected to make up a significant portion of the productive age population. With an estimated 7.8 million students enrolled in universities in 2022, they represent a significant portion (8.9%) of the country's cohort population in the age range from 15 to 34 years old. College students will be a potential market for the insurance sector, as this population will enter the labor market in the future. To maximize this potential, strengthening their financial literacy regarding the insurance industry is urgently needed. Ozili (2020) argues that financial literacy will increase people's willingness to participate in the formal financial sector. Moreover, Rutledge (2010) reports that the deepening of a financial sector needs to be supported by good financial literacy, and a strong consumer protection framework.

Therefore, with this study, we aim to invest-tigate the level of insurance literacy among Indonesian college students through a survey. A variety of cultural and ethnic backgrounds may affect the process of acquiring insurance knowledge from family members, schools, and other socio-demographic factors. Obtaining better knowledge about the specific influences on college students' insurance literacy is necessary, as this allows more effective and appropriate insurance literacy programs to be designed. Previous studies have documented the contributions of socio-demographic factors, such as education, gender, parental educational level, and family background in explaining the level of financial literacy. A study by Tennyson (2011) analyzes data from a survey among adult residents in the United States of America and found that there is a significant variation in the level of insurance literacy due to demographic

characteristics such as age, race, family status, and other demographics. Kadoya, Rabbani, and Khan (2022), showed that older people who are men, married, relatively younger than their older counterparts, and moderately educated, have a higher balance of financial assets, while those who have work experience in the finance industry are more likely to be insurance literate. Unfortunately, there has hardly been any research done on insurance literacy and demographic factors in the case of Indonesia. This study fills the gap by contributing empirical evidence on the role of socio-demographic factors in shaping insurance literacy among university students in Indonesia.

This study provides contributions to the current literature in at least two ways. First, this research develops and fields a comprehensive survey to assess the insurance literacy level of university students. This study is among the first attempts to do so. Second, this study uses primary data, collected by distributing questionnaires to undergraduate and graduate university students across Indonesia, covering different universities and locations, to get diverse and comprehensive results. Hence, the data sample that the study provides is unique. The findings are highly relevant for policymaking and product development by the insurance sector.

The rest of the discussion in this paper proceeds as follows. In the next section, literature on insurance literacy and our hypothesis on the role of the socio-demographic factors associated with insurance will be presented. Meanwhile, the third section describes the methodology, the data, as well as the empirical testing applied in this study. Lastly, the final section presents the empirical results and highlights the key findings, and the paper ends with a brief concluding remarks section, which also includes future research directions.

LITERATURE REVIEW

1. Insurance Literacy

Many studies have focused on examining financial literacy and its impact on an individual's financial decision-making. In a comprehensive review of financial literacy studies, it was observed that most of the research primarily concentrated on topics such as investing and savings. Studies on consumers' insurance literacy or the link between financial literacy and insurance matters are relatively limited. Huston (2010) examined 52 studies on financial literacy and found that only 16 (30.8%) of them covered questions about insurance. It is evident that financial literacy does not encompass all the aspects of finance, especially insurance. Furthermore, the lack of criteria and general reference standards detailing the essential knowledge for insurance literacy has become one of the challenges facing the literature on insurance. Lin, Bruhn, and Willian (2018) conducted an experimental survey to draw up the concept of insurance literacy and found that the definition of insurance literacy comprises three fundamental components: (1) understanding the concept of insurance; (2) possessing knowledge about insurance products and the risks covered; (3) and having the capability to effectively apply this knowledge.

Similarly, Weedige and Hongbing (2019) conducted a comprehensive review of the relevant literature and developed a conceptual definition along with an approach for a measurement instrument. The findings showed that insurance literacy can be defined as a combination of the knowledge, skills, attitude, and behavior required to make informed insurance decisions. Moreover, Allodi, et al. (2020), carried out a review of the literature and proposed that the definition and concept of insurance literacy should be a three-dimensional construction, encompassing: (1) insurance

knowledge; (2) insurance understanding; and (3) insurance skills and attitudes.

The existing literature has also discovered that the concept of insurance literacy can be conceptualized and measured as having dimensions of knowledge, understanding, skills, and attitude in decision-making regarding insurance. First, "knowledge" relates to the understanding of insurance principles, concepts, and features of the product, also the rights and responsibilities of the policyholders (NAIC [2010]; Tennyson [2011]; Weedige and Hongbing, [2019]; Weedige et al., [2019]). Second, "understanding" refers to having a reasonable understanding of the benefits and risks covered by the insurance policy under consideration. In this study, we adopt the perceived usefulness and perceived risk of insurance products to measure the understanding dimensions of insurance literacy. According to Liebenberg et al. (2012), perceived usefulness refers to the extent to which individuals believe that enhancing a particular benefit will positively impact their attitude toward acquiring health insurance. Furthermore, due to the complex nature of the financial products and services, and the inherent risks involved in the insurance industry (including products, providers, and sales representatives), it becomes crucial for individuals to comprehend the risks and uncertainties linked to their decisions (Lusardi and Mitchell, 2014).

Third, "attitude" relates to being able to apply the relevant knowledge and understanding to make insurance decisions. Attitude is characterized as a psychological tendency that is expressed through the assessment of an object with some degree of favor or disfavor (Aziz et al., 2019). According to Cole et al. (2013), if individuals possess a relatively higher level of financial literacy, it is likely that they have a favorable attitude toward insurance. Previous research found that the subjective norm is a significant factor in individuals' attitudes to insurance products. The subjective norm refers to the consumers' perception of whether this factor can impact their intention to purchase health insurance (Weedige et al., 2019). In addition, Mamun et al. (2020), emphasize the importance of perceived behavioral control among employed individuals in their intention to own insurance products. Furthermore, based on the correlation between intention and behavior, Weedige et al. (2019) provide justification for the assertion that the inclination to purchase insurance serves as a predictor of a consumer's actual attitude or purchasing decision. In addition, a person's attitude toward insurance depends on his/her level of trust in insurance.

Studies have also investigated health insurance literacy, most of which focus on customers' understanding of health insurance policies (Nobles et al., [2018]; Adegboyega et al., [2020]). Other research has investigated the literacy on life insurance, property, and casualty insurance (Tennyson [2011]; Bartholomae et al., [2016]; Tilley et al. [2018]). More recently, Kadoya et al. (2022) examined the level of insurance literacy among older people in Japan and how their socio-economic status was related to the attainment of insurance literacy. The findings revealed that the overall level of insurance literacy was quite low, particularly among the oldest subgroup, and women. The findings suggested that social learning plays an important role in insurance literacy among older people in Japan.

2. Relationship between Socio-demographic Determinants and Insurance Literacy

Comprehensive literature on the association between financial literacy and socio-demographic factors remains limited. In terms of family background, our study adopts Bandura's

social learning theory (1977). The social learning theory suggests that individuals acquire knowledge and skills by observing, modeling, and imitating the behaviors and actions of others in society. The theory emphasizes the influence of family, peers, and society in fostering individuals' learning abilities. Moreover, much of the literature suggests that family background plays a major role in influencing children's consumer behavior. Regarding family income, a study by Johnson and Sherraden (2007) found that students from high-income families had much more knowledge of finance because they had more opportunities to access financial services (Johnson and Sherraden [2007]; Bohm et al.,[2023]). There is also enough evidence from empirical studies to support the idea that there is a positive correlation between household income and financial literacy (Atkinson and Messy, [2012]; Kadoya and Khan, [2020]; Kadoya et al., [2022]). Bernard, Banthin, and Encinosa (2009) demonstrate that privately insured individuals have an average income level that is 2.9 times higher than those who do not have insurance (uninsured).

By analyzing the number of family members, several empirical works suggest that higher financial literacy levels are found in individuals with fewer family members. Individuals with dependents have a lower probability of belonging to the group with high financial literacy levels than individuals without dependents (Agarwalla et al.,[2015]; Kadoya et al., [2022]). Also, in the family background context, major studies found that the mother's education played a major role, by influencing her children's understanding of financial products and was positively associated with financial literacy. A study by Lusardi et al. (2009) found that a mother's education was strongly and positively linked to financial literacy. Those with college-educated mothers had correct response rates that were about 19% points higher compared to those whose mothers graduated from high school. In addition, several studies also found that mothers who graduated from college were significantly and positively correlated with financial literacy (Ansong and Gyensare, [2012]; Brau et al., [2019]). The findings of more recent studies suggest that the educational levels of both parents influence young adults' financial behavior but in significantly different ways. Andrea (2023) found that a father with a university degree seems to influence his son's financial behavior positively, while a mother with a university degree seems to influence her daughter's financial behavior negatively.

From a gender perspective, there is a rich pool of empirical evidence from numerous researchers showing that male students have higher financial literacy levels than female students (Chen and Volpe, [1998]; Lusardi et al., [2009]; Ergun, [2018]; Brau et al., [2019]; Bohm et al., [2023]). According to Chen and Volpe (1998), female college students are less certain and passionate about financial subjects. In terms of residency, urban residents have higher financial literacy levels than their rural counterparts (Morgan and Trinh [2017]; Askar et al.,[2020]). Table 1 shows a synthesis of the relationships between financial literacy and the socio-economic and demographic variables mentioned above.

Table 1. Synthesis of the relationship between socio-demographic variables and financial literacy

Variables	Relation to financial literacy	Expected Sign	Authors
Family income	Students from families with more income had much more knowledge of finance or were more financially literate.	+	Johnson and Sherraden (2007); Bohm et al. (2023); Atkinson and Messy (2012); Kadoya and Khan (2020); Kadoya et al. (2022).
Mother's education	Mothers who graduated from college are significantly and positively associated with financial literacy.	+	Lusardi et al. (2009); Ansong and Gyensare (2012); Brau et al. (2019).
Number of family members	Higher financial literacy levels are found in individuals with fewer family members.	-	Agarwalla et al. (2015); Kadoya et al. (2022).
Gender	Male students have higher financial literacy levels than female students.	+	Chen and Volpe (1998); Ergun (2018); Bohm et al.(2023); Lusardi et al. (2009); Brau et al.(2019).
Residency	Rural households are less likely to have high financial literacy rates, whereas respondents from urban areas are more financially literate.	+	Morgan and Trinh (2017); Askar et al. (2020).

DATA AND METHODOLOGY

1. Data

This research used primary data, obtained through the survey questionnaires conducted by the IFG Progress. The respondents comprised undergraduate and graduate students from the faculties of economics and business of several public universities across Indonesia. The data collection was performed by using a stratified random sampling procedure, where stratification was carried out according to the ranking of the university and its location (region). The universities were ranked, based on the Webometrics 2022 data, and classified into three groups. Tier 1 (rank 1 to 10), tier 2 (rank 11 to 20), and tier 3 (rank > 20). Stratified samples based on the universities' locations were grouped into three regions namely Java, Sumatra, and Nusa Tenggara/Bali. This study collected questionnaires filled out by 404 respondents. Data in this study were collected via an online survey from October until December 2022. The online questionnaires were distributed to respondents using the Google Forms link. Additionally, for robustness, we cleaned missing data and then tested the normal distribution, and we found 399 observations (99% of the data observed were within three standard deviations of the mean) to be eligible for the study.

There is no accepted common standard for the measurement of insurance literacy, although several measurements have been widely used in the literature. A multidimensional measure proposed by Allodi et al. (2020), is commonly applied, which includes the following three dimensions: insurance knowledge, insurance understanding, and insurance attitude. In this study, we also measured insurance literacy based

on the respondents' answers to the following statements related to the insurance features (see Appendix). To measure insurance literacy, a set of 50 question statements was adopted from Mamun et al. (2021), and Weedige et al. (2019), with the aim of exploring the respondents' insurance knowledge level concerning issues such as insurance basic concepts, insurance principles, insurance product features, and policyholders' rights and responsibilities (13 questions); insurance understanding level related to perceived usefulness (eight questions) and perceived product risk (five questions); and also concerning issues such as attitude (five questions), subjective norm (five questions), perceived behavioral control (five questions), intention to purchase (four questions), and level of trust (five questions).

The type of questionnaire used was a close-ended questionnaire, where the possible answers have been provided, in this case using a 5-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree. The Likert-type scale is a scale designed to measure acceptable attitudes and was scientifically validated and developed by Rensis Likert (1932). The Likert scale has been widely used for measuring attitudes, opinions, perceptions, and preferences in various fields of research, which also aligns with the type of parameters in this study, such as insurance knowledge, understanding, and attitude that contain a lot of the respondents' perceptions and preferences.

Moreover, to construct the insurance literacy score for each respondent, we used a scoring system for each question according to the type of question (positive statement or negative statement, see Table 3). The overall score for insurance literacy is the sum of the scores from the 50 questions. We then adopted the aggregate scores to measure the respondent's level of insurance literacy. A higher score represents higher literacy. To find how the socio-demographic factors were associated with the level of insurance literacy, we also incorporated several questions related to the respondents' demographic and socio-economic backgrounds, such as their gender, university location, place of origin, residency, family income, parents' education level, and number of family members.

Table 2. Sampling criteria used in this study.

University List	Ranking (Tiers)	Region	Pickup Date Sample
University 1	Tier 1	Java	October 21, 2022
University 2	Tier 3	Nusa Tenggara	November 4, 2022
University 3	Tier 2	Sumatra	December 1, 2022

Table 3. Scale of measurement

Positive Statement (+)		Negative Statement (-)	
Alternative Answers	**Score**	**Alternative Answers**	**Score**
Strongly Agree	5	Strongly Agree	1
Agree	4	Agree	2
Neutral	3	Neutral	3
Disagree	2	Disagree	4
Strongly Disagree	1	Strongly Disagree	5

2. Empirical Model

Our research used cross-section data, and we constructed regression models to analyze how socio-demographic variables contribute to insurance literacy among university students in Indonesia. Our empirical approach adopted Chen and Volpe (1998). That study aimed to explore the impacts of the socio-demographic factors on financial literacy among college students in the USA. For our regression models, the insurance literacy constructed from the survey was the dependent variable, while the independent variables included the university's location, family income, number of family members, gender, residency, and place of origin, with all the independent variables being dummy variables because most of them were qualitative characteristics (see Table 4). Family income for the survey was categorical; a person could answer that their family's monthly income was less than IDR5,000,000; IDR5,000,000 to IDR9,999,999; or greater than or equal to IDR10,000,000.

In this study, the ordinary least square (OLS) regression model was utilized to examine the linear relationship between the dependent and independent variables and to investigate the impact of socio-demographic factors on the level of insurance literacy. Past studies that have employed the OLS regression model to test the impact of the socio-demographic factors on financial literacy include those by Bohm et al. (2023); Askar et al. (2020); Kadoya and Khan (2020); and Brau et al. (2019). We constructed the OLS model as follows.

To quantify the effect of the educational background on the insurance literacy level, the following equation was estimated:

$$Log\ Ins_Lit = \alpha_0 + \beta_1\ Loc\ univ + \varepsilon$$

To quantify the effect of family background on the insurance literacy level, the following equation was estimated:

$$Log\ Ins_Lit = \alpha_0 + \beta_1 Income + \beta_2 mom_education + \beta_3 fam_memb + \varepsilon$$

To quantify the effect of other socio-demographic determinants on the insurance literacy level, the following equation was estimated:

$$Log\ Ins_Lit = \alpha_0 + \beta_1 Gender + \beta_2 Residence + \beta_3 Origin + \varepsilon$$

Table 4 summarizes the definitions and measurements of the variables.

Table 4. Description of variables

Variable Names	Description
Log *Ins_Lit*	Logarithm of insurance literacy aggregate score
Loc univ	University location, dummy variable = 1 if a respondent was from a university located in Java; and 0 if a respondent was from a university located outside Java.
Income	Family monthly income, dummy variable. Low income = if a respondent's family income was in the income group of less than IDR5,000,000 per month (base category); Middle income = 1 if a respondent's family income was in the income group from IDR5,000,000 to IDR9,999,999 per month; and 0 otherwise High income = 1 if a respondent's family income was in the income group greater than or equal to IDR10,000,000 per month; and 0 otherwise.

Variable Names	Description
Mom_education	Mother's education level, dummy variable = 1 if a respondent's mother graduated from college (diploma, undergraduate, and graduate); otherwise,0 if a respondent's mother graduated from elementary or high school.
Fam_memb	Number of family members.
Gender	Dummy variable = 1 for male; and 0 otherwise
Residency	Dummy variable = 1 if a respondent lived in an urban area; and 0 for a rural area.
Origin	Region where the respondent lives, dummy variable = 1 for Java; and 0 for outside Java.

RESULT

1. Measurement Model Analysis

Validity and reliability, and other tests for the accuracy and consistency of a survey/ questionnaire, form a significant aspect of research methodology. According to Huck (2007), reliability concerns the extent to which the measurement of a phenomenon provides stable and consistent results. Testing for reliability is crucial since it refers to the consistency between the measuring instruments. Therefore, in this study, we assessed the reliability of this survey. Cronbach's alpha (1951) was used to calculate the internal consistency of a test or scale, which normally ranges between 0 and 1. The closer the coefficient of Cronbach's alpha is to one, the greater the internal consistency of the items in the scale. According to several reports, the acceptable range for values of alpha is 0.70 to 0.95. As presented in Table 5, the values of alpha in this study exceeded 0.8, confirming that the questionnaire of this study was reliable.

2. Descriptive Statistics

Descriptive statistics for the characteristics of the respondents, including the distribution of the sample and the average scores, are presented in Table 6 and Table 7.

Table 5. Reliability test result

Items	Number of Items	Alpha
Knowledge	13	0.81
Understanding	13	0.87
Attitude	24	0.94

Source: Processed from STATA

Table 6. Descriptive statistics

	Obs.	Mean	Std. Deviation	Min	Max
Insurance literacy score	399	164.23	12.60	128	199
Number of family members	399	4.93	1.52	1	10

Source: Processed from STATA

According to previous studies on insurance literacy, consumers with average scores ranging from 30% to 60% (out of a total of 100%) can be considered as literate (NAIC, [2010]; Tennyson [2011], Kadoya et al., [2022]). Based on these studies, we decided that the average score would be the minimum score to properly categorize the respondents as highly literate, or less literate. Based on the results in Table 6, the overall average score for insurance literacy was 164.23 from a maximum score of 199. Out of the 399 respondents, 51.55% of them had an above-average insurance literacy score.

Table 7 summarizes the distribution of the insurance literacy scores by the socio-demographic characteristics of the respondents. Based on the results reported in Table 7, the average insurance literacy score for respondents from universities located in Java, who have a monthly family income between IDR5,000,000 and IDR9,999,999, have mothers who graduated from college, are male, live in rural areas, and come from Java, was well above average (164.23). Meanwhile, the respondents who studied at universities outside Java, have mothers who only graduated from primary and high schools, have a monthly family income of less than IDR5,000,000 or greater than or equal to IDR10,000,000, are female, live in urban areas, and come from outside Java, recorded an average insurance literacy score that was below the overall average (164.23).

Table7. Distribution of socio-demographic variables

Socio-demographic Variables	Class/Interval	Freq.	Percent	Average Score
University location	Java	76	19.05	169.67
	Outside Java	323	80.95	162.82
Family income	Low income (less than IDR5,000,000)	344	86.22	163.70
	Middle income (IDR5,000,000 – IDR9,999,999)	36	9.02	169.58
	High income (greater than or equal to IDR10,000,000)	19	4.76	161.36
Mothers' education level	Elementary school, middle school, and high school	289	72.43	162.64
	Diploma, undergraduate, and graduate	110	27.57	168.01
Gender	Female	272	68.17	163.72
	Male	127	31.83	165.00
Residence	Urban	281	70.43	163.62
	Rural	118	29.57	165.31
Origin	Java	52	12.76	171.23
	Outside Java	347	87.24	163.06

Source: Processed from STATA

3. Hypothesis Testing

Table 8 reports the results from the three linear regression models (OLS estimate). The first model (model 1) tested the impact of educational background on insurance literacy. The educational background variable was proxied by the university's location variable, to observe the effect of higher education's quality on insurance literacy. As shown in Table 1 column 1, the academic background was significant, explaining 4.4% of the total variance in insurance literacy (R^2 = 0.044; F = 18.55; p < 0.000). Confirming the hypothesis and early analysis, the variable university location had a significance at the 1% level, with a positive coefficient on the model, pointing out that students from universities in Java had insurance literacy levels that were 4.1% higher, compared to students from universities outside Java, which was in line with the descriptive statistics.

Model 2 investigated the impacts of the mother's education, family size (number of family members),and family income levels on insurance literacy. The test results showed that family background (mother's education and family income level) explained around 5.8% of the total variance in insurance literacy (R^2 = 0.058; F = 6.55; p < 0.000). Furthermore, the coefficients for model 2 showed that the mother's education appeared to be the most significant, with a significance level of 1%. If everything else remained unchanged, the respondent's mother who graduated from college (diploma/undergraduate/graduate) had an insurance literacy level that was 3.1% higher than the respondents' mothers who graduated from primary and high school. The test results also confirmed that family income significantly affected the insurance literacy level. The test results found differences in the levels of insurance literacy within the all-family income group. The respondents in the income group between IDR5,000,000 and IDR9,999,999 per month had a 2.5% higher insurance literacy level compared to the respondents in the income group below IDR 5,000,000 per month (low income). Interestingly, the income factor greater than or equal to IDR10,000,000 per month (high income) did not seem to significantly influence literacy. This finding suggested that for the low-income group, insurance is not an affordable service, while the high-income group does not seem to have any "need/demand" for insurance products. Similarly, family size, as proxied by the number of family members variable, also did not significantly determine the literacy level.

The final regression (model 3) focused on several socio-demographic traits of the respondents (such as gender, residency, and origin), and examined the impacts of these factors on the literacy level. Our test results showed that these socio-demographic factors explained around 4.9% of the total variance in the insurance literacy scores (R^2 = 0.049; F = 6.49; p < 0.000). From the three socio-demographic variables included in model 3, only the variable origin had a positive and significant relationship with insurance literacy at the level of 1%, while the variables gender and residency were not significant. In short, assuming *ceteris paribus*, the respondents who lived in Java had an insurance literacy level that was 4.9% higher than that of the respondents who lived outside Java.

In summary, the regression results found that students at university in Java, who had mothers who graduated from college, came from families in the middle-income group (IDR5,000,000 to IDR9,999,999), and originated from Java, had a higher insurance literacy level compared to the rest of the students in the survey.

Table 8. OLS Regression Results

Explanatory Variables	Dependent Variable: Log of Insurance Literacy Score			
	Expected Sign	Model 1	Model 2	Model 3
Constant		5.089	5.10	5.088
		(0.004)***	(0.011)***	(0.008)***
University location	+	0.041		
		(0.009)***		
Family income	+			
Middle income (IDR5,000,000 – IDR9,999,999)			0.025	
			(0.013)*	
High income (greater than or equal to IDR10,000,000)			-0.026	
			(0.016)	
Mother's education	+		0.031	
			(0.008)***	
Number of family members	-		-0.003	
			(0.002)	
Gender	+			0.009
				(0.007)
Residency	+			0.000
				(0.008)
Origin	+			0.049
				(0.011)***
F-test		18.55***	6.55**	6.49***
R-squared		0.044	0.058	0.049
Obs		399	399	399

Notes: Figures in parentheses are robust standard errors. *, **, and *** represent significance at 10%, 5%, and 1%, respectively.

Source: STATA test results by authors

DISCUSSION AND CONCLUSION

Our study provides evidence of the socio-demographic factors' influence on insurance literacy levels among economics and business students in Indonesia. We have identified seven variables that could affect insurance literacy and grouped those factors into educational background, family background, and other socio-demographic factors. The empirical findings confirm that there are different effects of the various socio-demographic factors on the insurance literacy level. Among the effects of the educational background, we found that the university's location significantly affects insurance literacy. Our finding confirms that economics and business students from universities located in Java are more literate than those economics and business students at universities outside Java. This finding is in line with the fact that the majority of the top 10 public universities in Indonesia are located in Java, according to the data from Webometrics rankings for 2022. These findings also indicate that there are still significant differences in the level of insurance literacy among economics and business students as a result of disparities in the quality of higher education in Indonesia.

In terms of family background, we found that the mother's education has a positive impact on insurance literacy. The mother's education plays a significant role, by influencing her children's consumer behavior and knowledge of insurance. The result is consistent with the previous literature (Lusardi et al., [2009]; Ansong and Gyensare, [2012]; Brau et al., [2019]). In addition, according to Bandura's social learning theory (1977), individuals gain information and ability by observing, modeling, and imitating the behavior of other people in their society. The theory places a strong emphasis on how family, peers, and society may support an individual's capacity for learning. Insurance is among the most complex financial products. It requires consumers to have the knowledge and ability to understand insurance concepts in a conscious way. Fite et al. (2021) suggest that educated people may be well-informed and gain a better understanding of the benefits and risks of insurance plans, which drives them to sign up for health insurance products. Moreover, Swiss Re (2019) and Kowalewska and Vitali (2020)found that women hold significant financial power as the household bread winners and as key decision-makers for financial product purchases. This further suggests that raising students' knowledge of insurance products, through the influence of highly educated mothers, can contribute to successful efforts to advance insurance literacy.

In terms of the family income variable, we find that students from middle-income families (IDR5,000,000 to IDR9,999,999) are more literate than those from the low-income group (below IDR5,000,000). This result is in line with existing findings by Johnson and Sherraden (2007); Atkinson and Messy (2012); and Bohm et al. (2023), who found that students from families with more income had much more knowledge of finance because they had more opportunities to access financial services, particularly insurance products. Moreover, in the context of insurance, income is one of the determinant factors that have an impact an individual's choice of insurance products. A study by Beck and Webb (2002) found a high positive elasticity of life insurance consumption to real per capita income. Their study argues that consumers spend more of their income on life insurance products as their per capita income increases. In other words, an increased income level contributes to the increased ability to direct a higher share of that income to life insurance products.

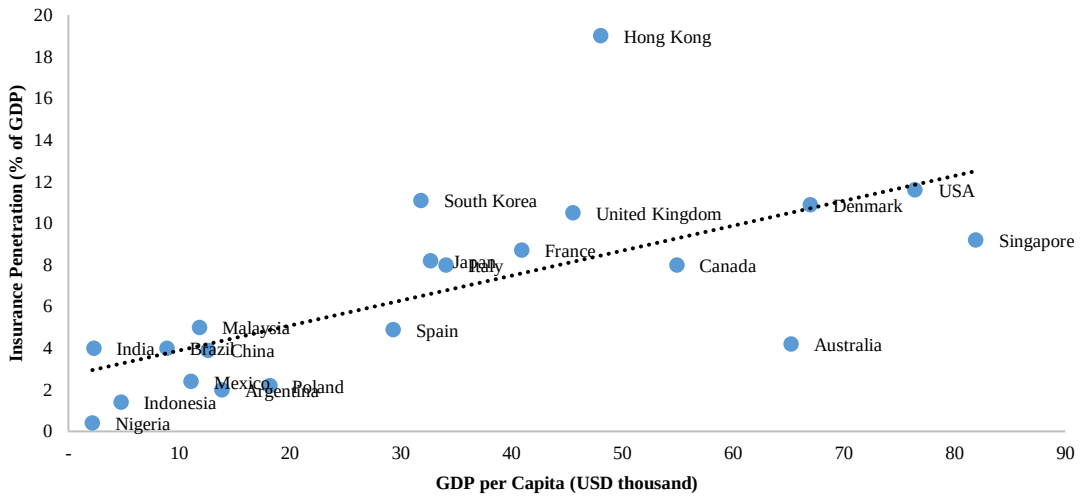
In 2022, Indonesia's GDP per capita was reported to be USD4,783.9 or IDR71.0 million per year or IDR5.9 million per month. Our findings show that students from families with income levels above GDP per capita have a higher level of insurance literacy, compared to those in the income group below GDP per capita (low income). This finding is also consistently reported in several other countries. Graph 1 shows a positive relationship between insurance penetration and GDP per capita for a sample of 21 countries in 2022, with the R-squared being 44.6%. The relationship shows that higher GDP per capita is associated with higher insurance penetration.

Interestingly, students from high-income families (greater than or equal to IDR10,000,000) do not seem to have a higher literacy rate than students from the lower income threshold. A study by Jayaraman and Jambunathan (2018) came to a similar conclusion. Their study measured financial literacy levels among high school students in India. They showed that students from higher-income families had a lower financial literacy compared to their peers from low-income families. A possible explanation for this difference could be that low-income students were aware of the

financial status of their families and the strategies their parents used to manage their budgets. The exposure to real-life risk helped them to have a better understanding of financial issues.

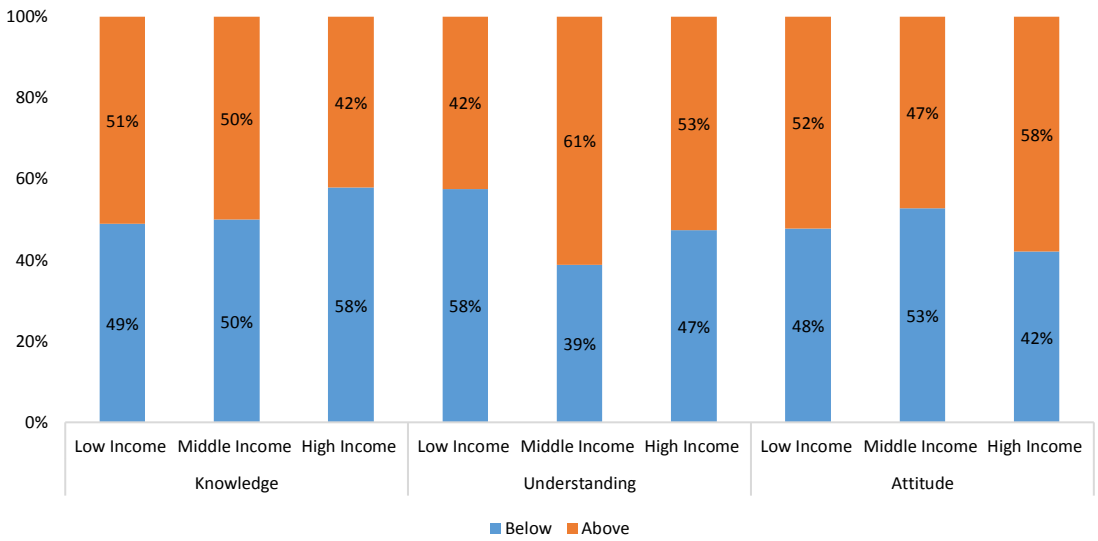
Graph 2 presents comparisons of the family income groups for each component of insurance literacy, based on the survey used in our study. We adopted the average score of each component of insurance literacy as a threshold to categorize the respondents. Based on Graph 1, the results show that 58% of respondents from high-income families have a score for insurance knowledge that is below the average score. This percentage is higher than the percentage of respondents from the low-income and middle-income groups for the knowledge component.

Graph 1. Insurance penetration and GDP per capita in selected countries, 2022



Sources: Swiss Re

Graph 2. Percentage of respondents of each insurance literacy component by family income group



Sources: Authors' calculations.

In terms of other socio-demographic factors, only the "origin factor" has a significant and positive impact on insurance literacy. These results are consistent with the findings of a national survey by OJK (2022) that there are financial literacy gaps between the regions in Indonesia.

In summary, our results show that socio-demographic factors influence economics and business students' insurance literacy. Students from universities located in Java, who have mothers who graduated from college (diploma/ undergraduate/graduate), come from families in the middle-income group (IDR5,000,000 to IDR9,999,999), and originate from Java have a high insurance literacy level or are highly literate. The findings of this paper offer policy insights to improve insurance literacy. Policies and programs should target population groups that have lower levels of insurance literacy, namely groups of students who are studying at universities outside Java, have mothers who graduated from primary and high schools, and originate from outside Java. Moreover, the authorities and policymakers should consider implementing policies and programs that can be conducted at the secondary/high school level, targeting the population not only in Java but evenly across all the regions in Indonesia. For future research, different measures of insurance literacy should be developed, to ensure the robustness of the results. The lack of a commonly accepted literacy measurement remains the issue currently. Moreover, a larger sample size and a more comprehensive survey will strengthen the findings.

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APPENDIX

Knowledge	
K1	The main purpose of insurance is to reduce the financial burden of risk faced by the consumer.
K2	Insurance is the best risk management tool for any level of loss that might occur.
K3	I understand the risks and benefits that I will get if I use insurance products, especially insurance products related to investments.
K4	Consumers are protected against insurance company bankruptcies by state funds that pay some of the claims of bankrupt insurers.
K5	I have difficulty understanding the differences in insurance products.
K6	Term life insurance provides death coverage until the death of the insured.
K7	Life insurance products serve as wealth accumulation or saving products that can be taken out in full after a certain period of time.
K8	Insurance cannot be used as an investment tool.
K9	Insurance is the best way to save and secure money.
K10	Insurance provides assurance regarding a guaranteed return.
K11	Insurance schemes are suitable for all kinds of individuals.
K12	The premium paid for general insurance, which covers things like health, home insurance, and accidental insurance may have a maturity value after a specific period of time.
K13	After buying an insurance policy, the customers' responsibility is finished, and the insurance company is liable to pay any kind of damages that arise during the period of the policy.
Understanding – Perceived Product Risk	
U1	Given the financial expenses associated with purchasing an insurance product, there is a substantial financial risk.
U2	Considering the investment involved, purchasing the insurance product would be risky.
U3	I am unsure whether I can get the desired protection from the insurance company.
U4	I am afraid that insurance will create unnecessary problems if I make a claim.
U5	If it fails to perform the desired outcome, the insurance poses a threat to my personal finances.
Understanding – Perceived Usefulness	
U6	Purchasing health insurance enables me to ease my future expenses.
U7	Purchasing life insurance enables me to protect my family from financial risks that may occur in the future.
U8	Using health insurance will enhance my dependent's ability to cope with their financial needs.
U9	Insurance reduces or eliminates losses hidden in life's uncertainty.
U10	Insurance provides stability for wealth planning.
U11	Insurance serves as capital or wealth accumulation.

U12	With the insurance policy, I obtain a sense of security.
U13	The insurance policy assists me in planning my personal financial management.
Attitude – Attitude	
A1	I have a positive attitude toward insurance and believe that insurance is an essential service for people.
A2	I think the purchase of a personal insurance plan is a good thing to do.
A3	I think the purchase of a personal insurance plan is valuable.
A4	I think buying life/health insurance should be compulsory.
A5	I think buying life/health insurance is essential for everyone.
Attitude – Subjective Norm	
A6	My social groups support me in purchasing insurance products.
A7	People who are close to me influence my view of insurance.
A8	Mass media or social media influences my view of insurance.
A9	The school or work environment influences my view of insurance.
A10	People around me advised me to purchase insurance products.
Attitude – Perceived Behavioral Control	
A11	I have sufficient knowledge to purchase insurance.
A12	I have easy access to purchase insurance products.
A13	I do not have enough income to purchase insurance products.
A14	I can buy insurance products reasonably well on my own.
A15	The decision to purchase insurance is completely dependent on me.
Attitude – Intention to Purchase	
A16	I am likely to purchase personal insurance plans (life, income protection, critical illness, and accidental insurance) in the future.
A17	I think that life insurance products are better than savings accounts or other safe properties.
A18	I know the value of personal insurance and want to purchase it as soon as possible.
A19	I would recommend people around me to purchase insurance products.
Attitude – Level of Trust	
A20	I believe insurance companies in Indonesia can complete the entire process of paying liabilities (claims) that occur.
A21	I believe insurance companies in Indonesia are of good quality and can be trusted.
A22	I trust foreign or joint venture insurance companies more.
A23	I trust local insurance companies or state-owned insurance companies more.
A24	I believe that the pension fund institution can manage my funds well until my retirement.