

# Risk-preferences and poverty nexus : Evidence from indonesia

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Risk-preferences and poverty nexus :  
Evidence from Indonesia  
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**Abstract**

This study aims to identify empirically the relationship between poverty and risk preference in Indonesia. We measure the risk preference via Indonesia Family Life Survey 2014 (IFLS5) data. The poor households tend to more risk averse than the other households across income level. Poor people are relatively low educated and mostly come from rural area. This suggest that rural communities and disaster-prone areas should be prioritized to be empowered to move from poverty zones due to its most vulnerability.

**Keywords** : risk preference, poverty, IFLS4 data

**INTRODUCTION**

Poor households often find a difficulty to escape the poverty trap, as has noted in several studies (e.g., Dercon, 2009). One of the factors may be the relatively high risk aversion of them. A possible reason of the increasing poverty likelihoods emerge from high risk aversion behavior will have an impact on economic behavior which can have implications for relatively low income which leads to poverty. Being in a vulnerable condition makes people reluctant to accept higher risks considering the potential losses that might arise would endanger their life.

Individual decision-making that tends to avoid risk is allegedly one of the causes of people still in poor condition. This is a lot of concern in economic development, especially if it is associated with preferences. Individuals who extremely avoid financial risk have a tendency to avoid business activities that can threaten their financial condition. Some empirical evidence suggests that poor people tend to have low savings rates (Hubbard *et al*, 1995) and also have low investment in child education planning (Behrman *et al*, 1998).

In his research using IFLS4 data related to risk preferences in Indonesia, Ng (2013) concluded that women tend to avoid risk more than men. There is also evidence that the more

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prosperous a person will tend to avoid risk. The higher level of education and the younger the age of the respondents are more patient and risk-averse.

Sanjaya (2013) found that risk-preferences in Indonesia is not only influenced by welfare and demographic factors, but time-preferences also plays an important role as a determinant. The effect of economic shocks and their determining characteristics is not expected to have an impact on people's preferences for risk.

Moreover, most of <sup>17</sup> poverty assessments find a high correlation between education and <sup>4</sup> income status. Education can help a family climb out of poverty directly by increasing household income, through increasing the productivity of self-employed workers, or by enabling access to higher-paid jobs (Iqbal, 2006).

Daniel (1995) and Gray (1997) as cited in Gorman (2010) suggest that <sup>2</sup> marital status difference in earnings contend that married individuals are more productive than unmarried individuals and therefore receive greater rewards. <sup>2</sup> Several studies suggest that married workers indeed engage in greater effort. Married individuals report devoting more effort to their work as on Bielby & Bielby, 1988 (as cited in Gorman, 2010).

<sup>3</sup> Since formal insurance coverage of damages caused by natural disasters is limited, especially in developing countries. Thus, informal insurance mechanisms naturally play a major role as safety nets among the poor in addition to public disaster risk management schemes (Banerjee & Duflo, 2011).

## METHODS

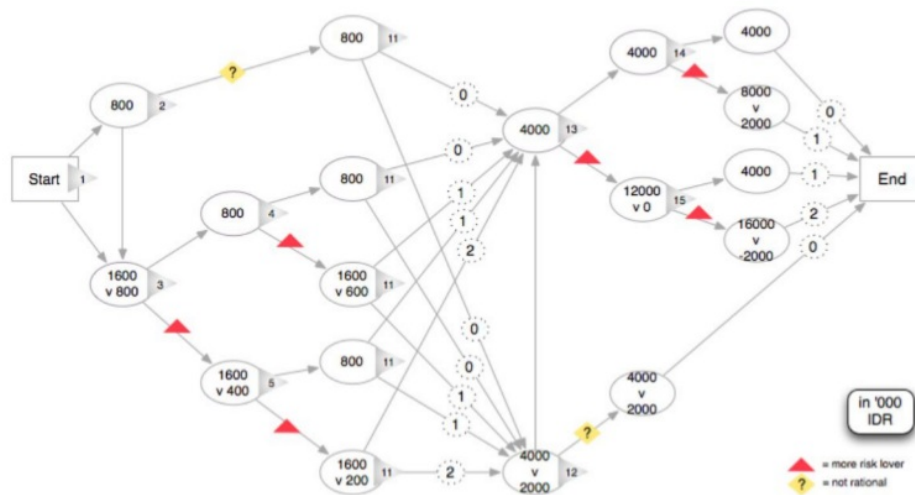
<sup>15</sup> This study uses data from the Indonesian Family Life Survey (IFLS) to assess the relationship between risk-time preferences and poverty. IFLS is a longitudinal survey data that is free of access and is run by RAND in collaboration with Indonesian domestic research institutions. Although respondents only came from 13 provinces in Indonesia, the sample represented 83% of the population of the entire population of Indonesia.

The IFLS was first released in 1993 and continued in 1997, 2000, 2007 and most recently in 2014. Survey instruments related to risk of the IFLS were only conducted in the IFLS4 released

in 2007 and continued in 2014. In general, IFLS consists of two instrument blocks, namely household blocks and community blocks. Household blocks measure the daily lives of individuals and households, such as consumption, welfare, health, education, employment, and so on. While community blocks contain information related to environmental / rural activities such as health and education facilities in an area.

The risk aversion variable is a variable constructed by author which is adopted from Sanjaya (2013). This variable is measured by calculating each possible choice of risk taken in games 1 and 2 in the "risk taking and time" section of the IFLS (see figure 2).

**Figure 2. Possible path taken by respondents**



Source : adopted from (Sanjaya, 2013)

Each choice is then given a score to be summed and has a range between 0 and 4 which indicates a very risk averse to very risk lover preferences (see table 1).

**Table 1. Example of respondents path**

Path	Game 1		Game 2		RA = Score 1 + Score 2
	Choice	Score 1	Choice	Score 2	
1	SI01=2; SI03=2; SI05=2	2	SI11=1; SI13=2; SI15=2	2	4
2	SI01=2; SI03=1; SI04=2	1	SI11=1; SI13=2; SI15=1	1	2
3	SI01=1; SI02=2; SI03=2; SI05=1	1	SI11=2; SI12=1	0	1
4	SI01=2; SI03=1; SI04=1	0	SI11=2; SI12=2; SI13=1; SI14=1	0	0
⋮	⋮	⋮	⋮	⋮	⋮

Source: adopted from Sanjaya, 2013.

Note: there is two mistranslations in question SI12: first, “1. Still picks option 1” should be read “1. Still picks option 2”; second, “2. Switches to option 2” should be read “2. Switches to option 1”. Red means that the respondent took the risky choice

Table 2 shows the average value of each variable used in this study. In the lowest income group, which is on the bottom and second quantile (poor group), it appears to have a relatively risk-averse behavior compared to the other groups. The education level of this group is also relatively low when compared to other groups.

In addition, rural areas become the dominant location of the residence of the poor. This phenomenon is in line with the World Bank report (2018) that 61.9% of the poor in Indonesia live in rural areas. In relation to exposure to disasters, the lowest income group also appears to be relatively more often affected by disasters compared to other groups.

**Table 2. Descriptive statistic**

Variables	Bottom Quantile	Second Quantile	Third Quantile	Fourth Quantile	Fifth Quantile	All sample	
						Mean	SD
Income (in million rupiah)	2,02	5,67	12,5	23,6	42,5	2,98	3,42
Risk averse (0-4, lower more risk averse)	0,80	0,81	0,87	0,96	1,09	0,86	1,05
Education (1-4, higher more educated)	1,76	1,94	2,13	2,45	3,07	2,23	1,13
Rural (=1)	0,52	0,46	0,41	0,31	0,25	0,41	0,49
Disaster (how often)	0,68	0,61	0,63	0,57	0,38	0,61	3,15
Javanese (=1)	0,49	0,46	0,47	0,43	0,39	0,44	0,5
Moslem (=1)	0,9	0,9	0,9	0,89	0,87	0,9	0,3
Age	41,35	39,37	37,85	36,33	38,63	37,16	14,78
Male (=1)	0,39	0,56	0,69	0,7	0,71	0,47	0,5
Married	0,73	0,77	0,8	0,8	0,86	0,73	0,45
Arisan (=1)	0,33	0,32	0,32	0,31	0,39	0,33	0,47
Number of observation	3479	3423	3317	3387	3401	17007	17007

Notes: these are the mean values

To reflect the effect of risk preference on poverty, we estimate the following equation by OLS as below:

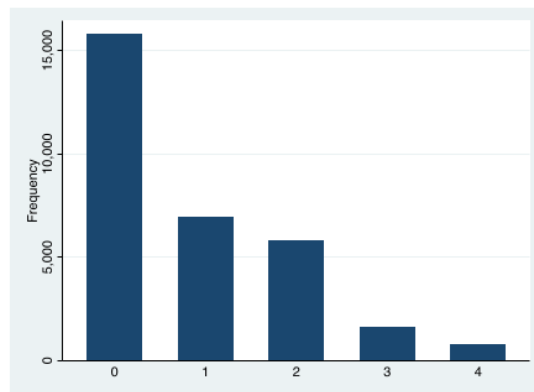
$$\text{Poverty} = f(\text{risk preference, education, other sociodemographic variables, } \textit{expected error})$$

In addition, this study uses an income quantile approach as a proxy of poverty (the lowest quantile represent the poorest groups) in the sample. Total income is the overall income obtained by respondents originating from the main job, which is the most time-consuming work obtained from IFLS-TK section of questionnaire (book 3A).

## RESULTS AND DISCUSSION

Figure 1 shows the estimation results related to the frequency distribution of community risk preferences by calculating any possible decision taken by respondents in the risk preferences segment of IFLS5. It can be seen that the majority of the people are still very dominant in risk-averse attitude. This is in accordance with many cases that occur in emerging economies, such as Indonesia.

**Figure 1. Risk aversion (RA) frequency distribution \***



Source: author estimation based on IFLS5.

Note : \*risk aversion values ranging from 0-4, higher value indicates more risk lover

The result from OLS model shows that risk-taking attitude has a positive and significant relationship with income. The more risky choices taken will have a positive impact on income. This is still consistent as in the quantile regression with additional information that there is a likelihood of non-linear relationship between risk preferences across income level.

Meanwhile, the level of education also appears to have a positive effect on income (OLS) and there is a increasing effect across income groups (quantile). The presence of shock factors associated with increasingly repetitive disaster exposures turned out to have a negative impact on income (OLS) and the poor seemed to be most affected, in terms of decreasing income, if they were hit by disaster.

Furthermore, risk aversion on lowest income group has much more stronger effect compare to the OLS model. This means that increasing risk attitude (more risk lover) in the lowest income groups will have a greater positive impact on total income compared to other income groups. The poor attribute that tend to avoid risk are also in line with the relatively low level of their education compared to other income groups.

In addition, people who live in rural areas and the frequency of disasters appear to have a negative and significant effect on income in general. They also bring a relatively more negative effect on income received in low-income groups. Arisan which is a form of self insurance looks to have a positive impact on income levels in general and has a relatively greater positive effect on low-income groups. The poor who are statistically concentrated in rural areas are also tend to have low incomes.

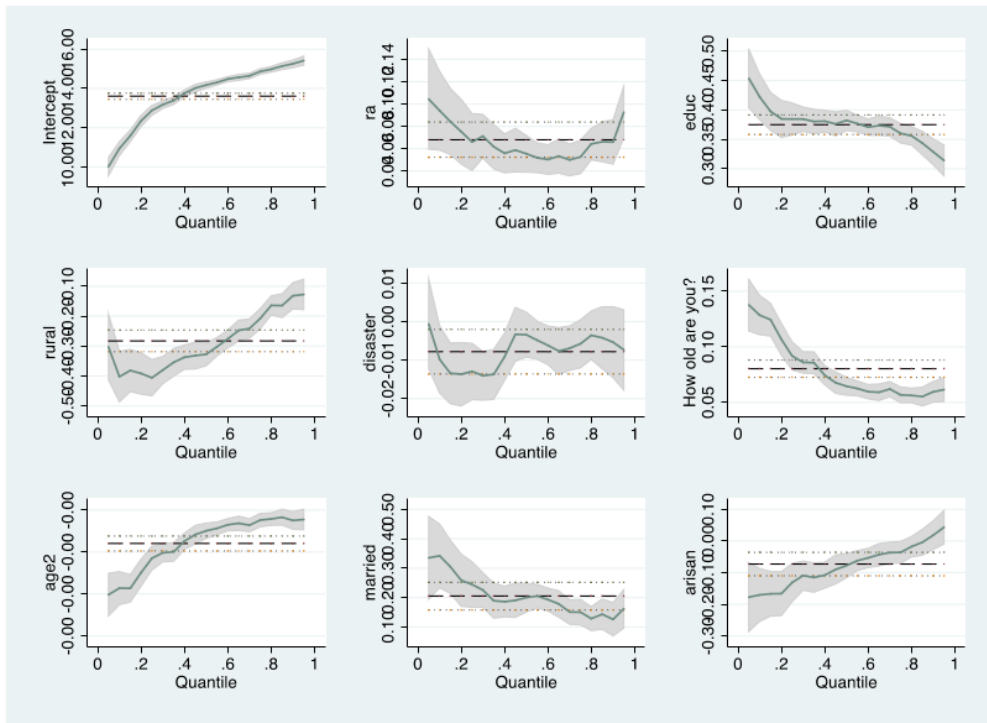
**Table 4 . OLS and Quantile Regression Result**

	(1) OLS	Quantile Income		
		(2) Quantile 25	(3) Quantile 50	(4) Quantile 75
Risk aversion (0-4, higher more risk lover)	0.0383*** (0.0084)	0.0441*** (0.0122)	0.0292*** (0.0088)	0.0434*** (0.0082)
Education (1-4, higher more educated)	0.3416*** (0.0118)	0.3383*** (0.0127)	0.3537*** (0.0092)	0.3595*** (0.0086)
Rural (=1)	-0.3393*** (0.0386)	-0.3925*** (0.0276)	-0.3276*** (0.0199)	-0.2180*** (0.0187)
Disaster (how often)	-0.0084** (0.0030)	-0.0160*** (0.0044)	-0.0047 (0.0032)	-0.0057 (0.0030)
Age (years)	0.0784*** (0.0056)	0.0887*** (0.0059)	0.0647*** (0.0043)	0.0554*** (0.0040)
Age <sup>2</sup>	-0.0009*** (0.0001)	-0.0010*** (0.0001)	-0.0008*** (0.0000)	-0.0006*** (0.0000)
Married (=1)	0.1109*** (0.0307)	0.1320*** (0.0358)	0.0952*** (0.0258)	0.0918*** (0.0243)
Arisan (=1)	0.1783*** (0.0248)	0.2024*** (0.0299)	0.1362*** (0.0215)	0.0987*** (0.0202)
Constant	13.4638*** (0.1468)	12.5808*** (0.1338)	13.9300*** (0.0963)	14.7253*** (0.0905)
FE	Yes	No	No	No
R-square	0.24			

Chi-square	7.3e+30			
	(0.0000)*			
Observations	17007	17007	17007	17007
Notes: Standard errors in parentheses * $p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$				

In order to test the validity of the quantile regression model, a homoskedasticity test was conducted to see the stability of the variance of the variables. It appears that the chi-square value is smaller than 5 percent which indicates heteroscedasticity exist in the OLS model. Thus, the unstable variance can be overcome by the use of quantile regression analysis. Although quantile models can be used as a solution to heteroscedasticity, in Figure 3 it can be seen that only age, sex, and rural variable that are significantly different from OLS are related to the interval of statistical confidence levels.

**Figure 3. OLS–Quantile regression confidence interval comparison**



Notes : dots lines and solid lines are OLS and quantile regression confidence interval, respectively

### CONCLUSIONS

A higher positive effect regarding the increase in risk preferences (more risk lover) in the lowest income group indicates that poor households need to change their risk preferences. The



increase in risk preference certainly needs to be built through improving the quality of education, due to the relatively low level of education in this group.

Government needs to prioritize the empowerment of poor people in rural and disaster-prone areas considering that people who live under this circumstance are more vulnerable. The positive role of self insurance (*Arisan*) should promote the implementation of formal insurance as a

This research also suggest for further research to improve the proxy of poverty with more valid than merely measured by income level. Real per capita expenditure and the value of total asset ownership should be used as a better alternative.

#### REFERENCE

- 6 Banerjee, A., & Duflo, E. (2011). *Poor economics: A radical thinking of the way to fight global poverty*. New York: Public Affairs
- 14 Behrman, Jere and T.N. Srinivasan,. (1998). *Handbook of Development Economics*, vol. 3. Amsterdam: North-Holland.
- 8 Dercon, S. (2009). Rural poverty: Old challenges in new contexts. *World Bank Research Observer*, 24, 1-28.
- 10 Gloede, O. et al., (2013). Shocks, Individual Risk Attitude, and Vulnerability to Poverty among Rural House-holds in Thailand and Vietnam, *World Development*
- 5 Gorman, Elizabeth, (2000). Marriage and Money The Effect of Marital Status on Attitudes Toward Pay and Finances, *Work and Occupations* 27(1):64-88 .
- 9 Hubbard, R. Glenn, Jonathan Skinner, and Stephen P. Zeldes., (1995). Precautionary Saving and Social Insurance, *Journal of Political Economy*, Volume 103,360-399.
- 7 Iqbal, Farrukh, (2006). *Sustaining Gains in Poverty Reduction and Human Development in the Middle East and North Africa. Orientations in Development*. Washington, DC, Worldbank.
- 13 Ng, James., (2013). *Risk and Time Preferences in Indonesia: The Role of Demographics, Cognition, and Interviewers*, University of Southern Carolina.
- 11 Sanjaya, M. R. (2013). *On the Source of Risk Aversion in Indonesia Using Micro Data 2007*.

*Http://Www.Economics-Ejournal.Org, 2013-33, 0-31.* Retrieved from <http://www.economics-ejournal.org/economics/discussionpapers/2013-33/file>

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