

Are the Educated Interested in Self-Employment? A Case Study in Indonesia

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ABSTRACT

Education is one of the form of human capital investment, it could lead to a productive labour. Educated labour are having a much more diverse job option, which making self-employment interesting for those who are not well educated. Self-employment itself could be interesting for both educated and uneducated people alike. However, due to its risky nature, people are having tendency to pick a stable job. On the other hand, the chance for achieving a success business is high for educated people. Considering its risky nature and the success chance, do educated people are interested to entering self-employment? Using probit regression, this study is trying to find the effect of education degree to the decision of entering self-employment in case of Indonesian. This pooled cross-section research utilize IFLS dataset observing working people age 23 to 25 years old. The result shows that people with higher education level are less likely to becoming self-employed.

Keywords : IFLS, probit, self-employment, self-employed, education, higher education

INTRODUCTION

When talking about educated people, it is commonly known or assumed that they had attained various knowledge and skills during their school days. Education itself is a form of investment to the human capital. Based from Oxford English Dictionary, human capital is the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country. Becker (1993) is one of the first who construct a theoretical analysis and empirical studies regarding the human capital. His study found that investment in human capital—in the form of schooling, training from job, knowledge gaining, and others; could increase productivity margin that then lead to increase in real wage. With that embedded knowledge and skills, the educated are could do tasks and jobs much more efficiently and better than the uneducated. Greater education also leads them to a job with good earnings and also a wide choice of jobs, unlike the uneducated whose choice are very much limited.

Self-employment is “*the state of not working for an employer but finding work for yourself or having your own business*”, a definition by Cambridge Advance Learner’s Dictionary & Thesaurus. The person who enter self-employment is considered as self-employed. Anyone who choose to start a business or working on his own could be considered as a self-employed. However in some case, an agriculture worker that owned a land are considered as self-employment too. The reason why people are wanted to become self-employed could be vary; flexibility, independence, becoming our own boss, and other numerous subjective or objective reasons.

In empirical studies regarding the topic, self-employment are often associated to entrepreneurship. A lot of paper related to self-employment study even did not differentiate between self-employment and entrepreneurship. Example, a self-employment study by Blanchflower and Oswald (1998) did not distinguish between self-employed and entrepreneur, which the author state that the simplest kind of entrepreneurship is self-employment. In fact, there are still a lot of studies which equate self-employment and entrepreneurship. The argument is there are a lot of trait similarities between the two, one as an example, a business starter. Some other might argue that self-employment and entrepreneurship are two

different things. GEDI (2018) state that an entrepreneur is a person with the vision to see an innovation and the ability to bring it to market, which based from that definition, small business owners are not considered as one. Beugelsdijk and Noorderhaven (2005) argue that the concept of self-employed is broader than the strict concept of entrepreneurship. To put it simply, a self-employed is not always inherit the entrepreneur characteristics, for an example, risk-taking behavior. Regardless of the debates, author will adopt Blanchflower and Oswald (1998) perception about self-employed, whom state that it is the simplest kind of entrepreneurship.

The existence of self-employment is could be beneficial. Potentially, it could open new job opportunities, promote innovation, and raise the competitiveness in the market as new firms emerge. Although that self-employment are not necessarily an entrepreneur, a well-established business could bring up those prospective benefits. Being a self-employed could be interesting for many people no matter what their backgrounds are—the rich and the poor; men and women; the married and the single; the Muslims, Christian, Protestant, Hindu, Buddhist; the Javanese, Chinese, Minangnese, and others; the highly educated and the non-educated.

Although it is not always true, there is a common stereotype that the lower educated are tend to enter self-employment. It is a common fact that selections of high paying job for them are very limited, so they have no choice but to start making a fortune on their own. However, there are a lot of case related to education of enter self-employment. Some of the cases it is not because they are lacking of academic performance, instead because they tend to focus on their business which significantly taking their time and then unable to keep up with their school classes. On the other hand, there are other cases that people dropping out of school and then focused on becoming self-employed. But, there are some others who finished their tertiary education and yet choose to run a business instead of become employees. From those common cases, it seems that choosing to become self-employed could be interesting for people with low or high education alike.

A willingness to enter self-employment are affected by various factor. Blanchflower and Oswald (1998) Stated that the main constraint of being self-employed is capital and financial factor. It is a common knowledge that people need a lot of capital and money to start and running a business, and also to cover the operational deficit in the short run. Without those, the business vulnerable to an early shut down. Other than capital, other common factor is the individual's intention itself. However, the intention of entering self-employment is stronger for those who respond confidently to risk and independence (Douglas & Shepherd, 2002; Ekelund et. al, 2005). Earnings from self-employment is tend to fluctuating, unlike formal sectors where it tend to relatively high and stable. Earning difference between the two sectors are significantly affect people's willingness to becoming self-employed, where it is typically having lower income than the formal sector (Hamilton, 2000). So, in terms of income, it may be more reasonable for educated people to become an employee rather than a self-employed. On the other hand, although most of educated people are may not interested in self-employment, the chance for them to success in business is significantly higher rather than the uneducated one (Shavit & Yuchtman-Yaar, 2001).

Self-employment is potentially beneficial as entrepreneurship due to some of similarities in traits. Education is a form of an investment in human capital, which could increase their skills and knowledge. People with good investment in education are work more efficiently and could choose any high paying jobs they desire. Since being self-employed are not always as good as an employee, do educated people are interested to entering self-employment? Considering that educated people are more likely to success in business.

Literature Review

A study of OECD countries found that the least educated are having the highest probability of becoming self-employed. Also, from the similar study there is an evidence that highly educated are relatively having high probabilities (Blanchflower, 2000). Another study found that gaining more education are having a positive linear effect of becoming a self-employed. However, greater education

diminishes the earnings difference, so that the observed increase in likelihood of self-employment is due to the direct effect of education compensating the effect of the reduced economic incentive (Rees & Shah, 1986). On the other hand, a study of Israeli by Shavit and Yuchtman-Yaar (2001) found that the effect of education is curvilinear. Which means that people who either have very low or very high level education are less likely to enter self-employment compared to those with an intermediate level of education. However, they also found that the least educated are less likely to success in business.

Opportunity to become self-employed is largely determined by capital and or financial aspect, which is the main constraint for prospective self-employed (Blanchflower & Oswald, 1998; Praag & Ophem, 1995). People with greater asset or more access to capital are likely to switch to self-employment rather than employment. In a lot of cases, family fortunes are commonly considered as a source of capital, which is found to have positive contribution. The wealthier the family, the more they could provide a financial support to start a business (Shavit & Yuchtman-Yaar, 2001). The expected wage theoretically affect the two sectors. People will prefer the sector that has larger expected wage, educated people are no different. Hamilton (2000) in study case of small businesses in the USA, calculated the earning difference between self-employed and employees where he found that self-employment earnings is significantly lower. His conclusion is that the earnings difference could affect the willingness of self-employed to sacrifice substantial earnings in exchange of pecuniary benefit of self-employment.

The probability of being a self-employed is lower for women compared to men while rises with age (Blanchflower, 2000), however another study shows an evidence that age are having a quadratic effect (Rees & Shah, 1986). Being married increases the chance (Taylor, 1996). There is also an evidence where having a father who is a self-employed himself are having a positive effect for their children to entering self-employment (Hout & Rosen, 1999; Shavit & Yuchtman-Yaar, 2001; Taylor, 1996).

METHOD

Methodology

This study aim to find the effect of education degree to the probability of entering self-employment (1 = become self-employed, 0 = otherwise). The model is based from a probit study of self-employment by Blanchflower and Oswald (1998): *What Makes an Entrepreneur*. For this pooled cross-section study, the model is modified by including intermediate and higher education level as the variable of focus and other addition of socioeconomic factors as control variables.

The model specification could be written as following:

$$\begin{aligned} selfemployed_i = & \delta_1 seniorschool_i + \delta_2 tertiary_educ_i + \delta_3 female_i \\ & + \delta_4 married_i + \delta_5 islam_i + \beta_1 PCE_i + \beta_2 PCEsq_i + \delta_6 f_government_i \\ & + \delta_7 f_private_i + \delta_8 f_other_i + \delta_9 yr00_i + \delta_{10} yr07_i + \delta_{11} yr14_i \\ & + \delta_{12} ethnicity_i + u_i \end{aligned}$$

The function, based from the model specification and the research framework, could be written as the following:

$$P (selfemployed_i = 1) = \Phi (education\ level, characteristic, asset, parents\ occupation, year, ethnicity)$$

Table 1 list the variables used in the model. The independent variable is respondent's current job, *selfemployed_i* (1 = self-employed, 0 = otherwise). Every jobs but self-employment is considered as the base-group of this dependent variable.

Table 1. Variables

Variables	Type	Description
<i>Dependent Variables</i>		
selfemployed_i	Dummy	.... is self-employed
<i>Independent Variables</i>		
seniorschool_i	Dummy	Graduate senior high school
tertiary_educ_i	Dummy	Graduate tertiary education
female_i	Dummy	.... is female
married_i	Dummy	.... is married
islam_i	Dummy	.... is Muslim
pce_m_i	Continuous	Expenditure per capita (Millions IDR)
pcesq_m_i	Continuous	Expenditure per capita (Millions IDR) squared
f_selfemployed_i	Dummy	Father is self-employed
f_government_i	Dummy	Father is a government worker
f_private_i	Dummy	Father is a private worker
f_other_i	Dummy	Father is working at other sector
yr97_i	Dummy	Observation from year 1997
yr00_i	Dummy	Observation from year 2000
yr07_i	Dummy	Observation from year 2007
yr14_i	Dummy	Observation from year 2014

Education level is the main independent variable in this study. Education level are represented as a dummy variable. Those variables that included in the model are *seniorschool_i*—senior high school graduate, and *tertiary_educ_i*—tertiary education graduate. Primary education graduate and the uneducated are acting as the base-group.

The characteristics variable includes sex, marital status, and religion. The focus of main sex here are female, with male as the comparison. The married people are compared with unmarried people. For religion, author focusing on Muslim, which making the other officially recognized religion of Indonesia as the base group.

In this study, asset is instrumented by per capita expenditure (*pce_m_i*) per million IDR. Author also suspect that the effect of financial support is having a quadratic function, which in that case, quadratic variable of asset (*pcesq_m_i*) is also included.

Based from previous finding, father occupation is having effect on entering self-employment. In this study model, self-employed father (*f_selfemployed_i*) is acting as the base-group in order to see the effect of non-self-employed father (formal worker and other) on the decision making.

Since this is a pooled cross-section study, author add dummy variable of years—*yr00_i*, *yr07_i*, and *yr14_i*, in order to see the behavior of respondent from those certain times. Respondent of year 2000, 2007, and 2014 are compared to respondent of 1997 as the base group.

It is arguable that some certain ethnicity are commonly known active as self-employed. Based from that hypothesis, author also includes ethnicity as control variables. The complete list of ethnicity variables are listed on Appendix 1.

Data and Samples

For this study, author utilizes the Indonesian Family Life Survey (IFLS) dataset, an on-going longitudinal survey takes place in Indonesia. The sample is representative of about 83% of the country population and contains over 30000 individuals living in 13 of 27 provinces. The area of survey is illustrated at Graph 1. IFLS waves are conducted by RAND in collaboration with various local institutions. So far, IFLS has been conducted in five waves in general: IFLS1 (1993), IFLS2 (1997) and IFLS2+ (1998), IFLS3 (2000), IFLS4 (2007), and IFLS5 (2014).

Graph 1. Map of 13 IFLS Province in Indonesia



Source: RAND Corporation

The sample consists of working individuals with age ranging from 23 to 25 years old. The main assumption is that during that age, people are recently finished tertiary education and able to making decision for themselves for choosing job. Samples are obtained from four different waves of IFLS—1997, 2000, 2007, and 2014; making this a pooled cross-section study.

RESULT

Descriptive Statistics

Table 2 represents the percentage of samples based from characteristics and variables that used in this study. More than half of total sample are working in formal sector, which dominated by private enterprise worker. Respondents who choose to enter self-employment are consist around one-fifth of the total sample. The rest of other one-fifth are working as something else—jobs that is not in self-employment or formal sector, example, agriculture sector.

Based from education degree, the majority of the sample consist of senior high school graduate—one-third of the total sample. Primary school graduate that consists of elementary and junior high school graduate are the second largest in the sample. Respondents who are graduate tertiary education are ten percent of total samples while the uneducated are only eight percent. From the sample it is also found a very little of respondent who attained education through non-formal education, which only 0.2 percent of samples.

The sample consist of working people in age between 23 to 25 years old with an average age around 24 years old. Females from the sample are a minority, consist of around one-third of the total sample. Based of marital status, the percentage is almost balanced between respondent who is married or not. Another characteristic is including religion, where Muslims are the majority religion of the sample.

The model is including asset variable which instrumented by per capita expenditure (PCE). The average PCE in this sample is around 500 thousand Rupiah; with the highest—8.5 million IDR, and the lowest—9 thousand IDR.

Father's occupation is also included in the model. In this study, author categorized them to four occupations: self-employment, government worker, private worker, and other sector. The sample is dominated by fathers who work in another sector—other than self-employment and formal sector. In previous finding, it is found that having a self-employed father could increase the probability of entering self-employment.

Table 2. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Self-employed	3140	.2111465	.4081871	0	1
Government worker	3140	.0541401	.22633	0	1
Private worker	3140	.5359873	.4987827	0	1
Other worker	3140	.1987261	.399105	0	1
Education					
Not educated	3140	.0875796	.2827276	0	1
Elementary school	3140	.2280255	.4196259	0	1
Junior high school	3140	.2044586	.4033697	0	1
Senior high school	3140	.3678344	.4822928	0	1
Tertiary education	3140	.1095541	.312383	0	1
Other	3140	.0025478	.0504191	0	1
Characteristics					
Age	3140	24.05924	.8227767	23	25
Female	3140	.3764331	.4845679	0	1
Male	3140	.6235669	.4845679	0	1
Married	3140	.5127389	.4999173	0	1
Not married	3140	.4872611	.4999173	0	1
Per capita expenditure (Million IDR)	3140	.4923024	.6081245	.0098576	8.5395
Religion					
Islam	3140	.8955414	.3059033	0	1
Protestant	3140	.0359873	.186288	0	1
Catholic	3140	.011465	.106476	0	1
Hindu	3140	.0515924	.2212378	0	1
Buddha	3140	.0044586	.0666343	0	1
Other	3140	.0009554	.0308999	0	1
Father's job					
Self-employed	3140	.1898089	.3922123	0	1
Government worker	3140	.0273885	.1632387	0	1
Private worker	3140	.1216561	.3269402	0	1
Other	3140	.6611465	.4733954	0	1
Year					
1997	3140	.1853503	.3886434	0	1
2000	3140	.2713376	.4447207	0	1
2007	3140	.2996815	.4581914	0	1
2014	3140	.2436306	.4293407	0	1

This paper is a pooled cross-section study utilizing IFLS data. The sample of working people age 23 to 25 is taken from four different years—1997, 2000, 2007, and 2014. Based from summary statistic, respondent is mostly from the year 2007—around 30 percent, while the least obtained is respondent of the year 1997—around 19 percent.

The ethnicity is also included as control variables in the model. The summary statistics of it are listed at Appendix 2.

Estimation Result

Table 3 shows the marginal effect after probit regression. Author runs three different regressions to check the consistency of the variable of interest. The first model is regressing only education variables, holding other factors constant. The second model is the complete model. The last model is a complete yet a bit different from the second model. The third model is to check the effect of higher education among people who at least graduate senior high school.

The result shows that, compared to the unschooled and primary education graduate, being a senior high school or tertiary education alumnus is having a negative effect to the decision on entering self-

employment. The effect is significant at 0.01 for both education levels, with tertiary education level has a stronger effect. The effect of higher education interestingly seems to be consistent in all models. This finding is contrary to Blanchflower (2000) where higher education have a positive effect. Yet, this finding is partially in line with Shavit and Yuchtman-Yaar (2001), where people with high education are less likely to become self-employed compared to people with intermediate education.

Table 3. Marginal effect after probit regression

VARIABLES (I)			VARIABLES (II)			VARIABLES (III)		
seniorschool	-0.0872*** (0.0140)	-0.0548*** (0.0152)	-	f_private	-	(0.0135)	(0.0159)	
tertiary_educ	-0.148*** (0.0153)	-0.110*** (0.0196)	-0.0425* (0.0218)	f_other	-	-0.202*** (0.0115)	-0.148*** (0.0155)	
female	-	-0.0667*** (0.0141)	-0.0654*** (0.0179)	yr00	-	0.00917 (0.0207)	0.0511 (0.0337)	
married	-	0.149*** (0.0147)	0.118*** (0.0207)	yr07	-	-0.0746*** (0.0201)	-0.0421 (0.0283)	
islam	-	-0.0209 (0.0416)	0.00677 (0.0425)	yr14	-	-0.0910*** (0.0231)	-0.0539* (0.0311)	
pce_m	-	0.0569** (0.0285)	0.0203 (0.0276)	Observations	3,306	3,132	1,438	
pcesq_m	-	-0.00407 (0.00545)	0.00213 (0.00443)	Robust standard errors in parentheses				
f_government	-	-0.170***	-0.122***	*** p<0.01, ** p<0.05, * p<0.1				

Female are tend to not enter self-employment, confirm findings by Blanchflower (2000). Being married increase the probability, while religion seems to show no significant effect.

In line with previous studies, people tend to enter self-employment if they are having more asset or financial support from family. It is suspected that asset possession may have a quadratic effect on the decision, where probability will decline after a certain total of assets. But the result shows no significance on the asset's quadratic variable.

The marginal effect result shows that respondent from year 2007 and 2014 are tend to prefer jobs beside self-employment compared to people in 1997. The effect is stronger for respondents from 2014, indicating that there is a negative trend of self-employment. People from year 2000 even though shows positive effect, it has no significant effect.

Some of certain ethnicity are shown to have positive or negative significant effect. The effect of ethnicity factor are listed at Appendix 3. Last, it could be seen that the total observation is 3132 instead of 3140 individuals. It is the result of omitted variable bias because some individuals with certain ethnicity are too few.

DISCUSSION

Results in Table 3 are showing some interesting findings. Now we discuss the education effect on decision of entering self-employment. The result shows that when people having higher education they tend to not becoming self-employed. The result shows both of senior high school and tertiary education graduate are having significant negative effect while the effect is stronger in the latter. This result differs with the finding from Blanchflower (2000) where he found that highly educated are having relatively high probability. This result is partially confirmed finding by Shavit and Yuchtman-Yaar (2001), which highly educated and the uneducated are found to unwilling to become self-employed compared to people with intermediate level of education.

The result is somewhat interesting. The education itself is enhancing human capital and tertiary education are one of the indicators of start-up skills. To discuss this phenomenon we could turn back to

the basic question, why do people want to attain higher education? The question could be answered by referring back to the theory of human capital and wage expectation. Human capital is the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country. Becker (1993) construct a theoretical and an empirical analysis, where investment in human capital—in the form of schooling, training from job, knowledge gaining, and others; could raise the real income. High income for the high educated is one of the incentives why people wanted to attain higher education.

Albeit the reason to continuing to higher education may vary to people, Bosworth and Ford (1985) have a solid ground to consider that salary and aspects of labor market are important for people's decision to continuing to a higher education. Nowadays, there are a lot of high paying jobs that could be applied only by senior high school graduate or higher. The higher the education degree, the choice of high paying jobs is also wider, creating an incentive to enter higher education.

Now, how about becoming a self-employed? A study case of small businesses in USA by Hamilton (2000) is trying to calculate the earnings difference between self-employment and employees, where it found that the former is significantly lower. He also conclude that earnings difference could affect the willingness of being self-employed. In some or most cases, the benefit of self-employment is not outweigh the cost of high education.

From the discussion above, a conclusion could be made. The common reason why people attain higher education are because usually the original aim is to get job with high wages. Self-employment is known to have a fluctuating income. It could be reasonable why educated people prefer the formal sector rather than the risky self-employment. However, although the educated are tend to not interested in self-employment, there is an evidence that the least educated are tend to fail in business (Shavit & Yuchtman-Yaar, 2001). So, a well-educated self-employed could bring up the full benefits of self-employment.

CONCLUSION

Using data of working people age 23 to 25 years old from IFLS, author tries to address the effect of education level to the decision of entering self-employment. The result of this study shows that education degree does have a significant effect on the job preference. Being a high school or tertiary education alumnus is lower the probability of entering self-employment, the effect is stronger in the latter.

People mainly want to enter higher education because of the expectation of getting a high paying job. It is commonly known in Indonesia that most high paying jobs required labor with education level at very least a senior high school. In order to achieve those, people are continuing education to the highest level possible. Self-employment on the other hand are known to having a fluctuating income and a risky nature, unlike the formal sector. So it may be reasonable if people are not wanting to enter self-employment, since the benefit of being self-employed is not always outweigh the cost of education.

LIMITATIONS

This study is also focusing on the effect of formal education to the decision making of entering self-employment. Author setting aside the non-formal education and other form of education or training. It is suspected that a specific education about self-employment or entrepreneurship could increase the chance of become self-employed.

Author also suspect that one of the reason that the educated from this sample are not interested in self-employment is because it will create a mismatch between their major education and their current job of choice. It is suspected that if people are having high education that related to business or entrepreneur it could have a positive effect. However, due to the inadequate data, author did not have an evidence for this.

BIBLIOGRAPHY

- Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (3th ed.). United States of America: University of Chicago Press.
- Beugelsdijk, S., & Noorderhaven, N. (2005). Personality characteristics of self-employed; An empirical study. *Small Business Economics*, 24(2), 159-167.
- Blanchflower, D. G. (2000). Self-employment in OECD Countries. *Journal of Labor Economics*, 7, 471-505.
- Blanchflower, D. G., & Oswald, A. J. (1998). What Makes an Entrepreneur? *Journal of Labor Economics*, 16(1), 26-60.
- Bosworth, D., & Ford, J. (1985). Income Expectations and the Decision to Enter Higher Education. *Studies in Higher Education*, 10(1), 21-31.
- Douglas, E. J., & Shepherd, D. A. (2002). Self-Employment as a Career Choice: Attitudes, Entrepreneurial Intentions, and Utility Maximization. *Entrepreneurial Theory and Practice*, 26(3), 81-90.
- Ekelund, J., Johansson, E., Järvelin, M.-R., & Lichtermann, D. (2005). Self-Employment and Risk Aversion - Evidence from Psychological Test Data. *Labour Economics*, 12, 649-65.
- Global Entrepreneurship and Development Institute. (2018). *Global Entrepreneurship Index*. Washington, D.C., USA.
- Hamilton, B. H. (2000). Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment. *Journal of Political Economy*, 108(3), 604-631.
- Hout, M., & Rosen, H. S. (1999). Self-Employment, Family Background, and Race.
- Praag, C. V., & Ophem, H. V. (1995). Determinants of Willingness and Opportunity to Start as an Entrepreneur. 48, 513-540.
- Rees, H., & Shah, A. (1986). An Empirical Analysis of Self-Employment in The U.K. *Journal of Applied Econometrics*, 1, 95-108.
- Segal, G., Borgia, D., & Schoenfeld, J. (2005). The motivation to become an entrepreneur. *International Journal of Entrepreneurial Behaviour & Research*, 42-57.
- Shavit, Y., & Yutchman-Yaar, E. (2001). Ethnicity, Education, and Other Determinants of Self-Employment in Israel. *International Journal of Sociology*, 31(1), 59-91.
- Taylor, M. P. (1996). Earnings, Independence or Unemployment: Why Become Self-Employed? *Oxford Bulletin of Economics and Statistics*, 58(2), 253-266.

APPENDIX

Appendix 1. Ethnicity variables

Variables	Type	Description
javanese_i	Dummy	.... is Javanese
sundanese_i	Dummy	.... is Sundanese
bali_i	Dummy	.... is Bali
batak_i	Dummy	.... is Batak
bugis_i	Dummy	.... is Bugis
chinese_i	Dummy	.... Is Chinese
maduranese_i	Dummy	.... is Maduranese
sasak_i	Dummy	.... is Sasak
minang_i	Dummy	.... is Minang
banjar_i	Dummy	.... is Banjar
bimadompu_i	Dummy	.... is Bima-Dompu
makassar_i	Dummy	.... is Makassar
nias_i	Dummy	.... is Nias
palembang_i	Dummy	.... is Palembang
sumbawa_i	Dummy	.... is Sumbawa
toraja_i	Dummy	.... is Toraja
betawi_i	Dummy	.... is Betawi
dayak_i	Dummy	.... Is Dayak
melayu_i	Dummy	.... is Melayu
komering_i	Dummy	.... is Komering
ambonese_i	Dummy	.... is Ambonese
manado_i	Dummy	.... is Manado
acehnese_i	Dummy	.... is Acehnese
banten_i	Dummy	.... is Banten
cirebon_i	Dummy	.... is Cirebon
gorontalo_i	Dummy	.... is Gorontalo
other_ethnic_i	Dummy	.... is other ethnicity

Appendix 2. Summary statistics of ethnicity

Variable	Obs	Mean	Std. Dev.	Min	Max
Ethnicity					
Javanese	3140	.4248408	.4943975	0	1
Sundanese	3140	.1178344	.3224633	0	1
Bali	3140	.0461783	.2099046	0	1
Batak	3140	.0347134	.183082	0	1
Bugis	3140	.039172	.1940348	0	1
Chinese	3140	.0063694	.0795668	0	1
Maduranese	3140	.0296178	.1695576	0	1
Sasak	3140	.043949	.2050144	0	1
Minang	3140	.0414013	.1992482	0	1
Banjar	3140	.0350318	.1838896	0	1
Bima-Dompu	3140	.0254777	.157596	0	1
Makassar	3140	.0130573	.1135383	0	1
Nias	3140	.0028662	.053469	0	1
Palembang	3140	.0044586	.0666343	0	1
Sumbawa	3140	.0050955	.0712123	0	1
Toraja	3140	.0038217	.0617111	0	1
Betawi	3140	.0471338	.2119587	0	1
Dayak	3140	.0015924	.0398789	0	1
Melayu	3140	.0070064	.0834236	0	1
Komering	3140	.0015924	.0398789	0	1
Ambonese	3140	.0003185	.0178458	0	1
Manado	3140	.0003185	.0178458	0	1
Acehnese	3140	.0003185	.0178458	0	1
Banten	3140	.0044586	.0666343	0	1
Cirebon	3140	.0165605	.127638	0	1
Gorontalo	3140	0	0	0	0
Other	3140	.0468153	.2112767	0	1

Appendix 3. Marginal effect of ethnicity

VARIABLES	(I)	(II)	(III)
javanese	-	-0.113*** (0.0293)	-0.0255 (0.0433)
sundanese	-	-0.0936*** (0.0255)	-0.0825** (0.0322)
bali	-	-0.0748* (0.0411)	-0.0642 (0.0464)
batak	-	-0.100*** (0.0332)	-0.00935 (0.0611)
bugis	-	-0.0297 (0.0396)	0.0538 (0.0731)
chinese	-	-0.0607 (0.0773)	-0.0754 (0.0613)
maduranese	-	-0.0781** (0.0341)	-
sasak	-	-0.109*** (0.0262)	-0.0145 (0.0583)
minang	-	0.0410 (0.0488)	0.112 (0.0760)
banjar	-	-0.0337 (0.0391)	0.00625 (0.0640)
bimadompu	-	-0.0285 (0.0460)	-0.0153 (0.0597)
makassar	-	0.0225 (0.0664)	0.107 (0.123)
nias	-	0.0473 (0.129)	-
palembang	-	-0.0805 (0.0812)	-
sumbawa	-	-0.0658 (0.0696)	-0.0614 (0.0841)
toraja	-	-0.158*** (0.0264)	-
betawi	-	-0.0916*** (0.0294)	-0.0590 (0.0392)
melayu	-	-0.0606 (0.0692)	0.0238 (0.170)
komering	-	0.219 (0.182)	
banten	-	-0.0760 (0.0753)	0.0350 (0.157)
cirebon	-	-0.136*** (0.0250)	-0.111*** (0.0279)
Observations	3,306	3,132	1,438

Robust standard errors in parentheses

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