The Nature of Self-Employment in Indonesia: Entrepreneurship or Survival Strategy?

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Abstract

The dualistic market model suggests that self-employment in developing countries should be seen as a survival strategy that is taken by those who are locked out of the formal labour market rather than as a manifestation of entrepreneurial spirit. This study aims to provide empirical evidences on the nature of self-employment in Indonesia, and whether it is more appropriately seen as an entrepreneurial activity or merely as a survival mechanism, by examining self-employed workers' characteristics and the determinants of entry and exit into the self-employment sector. Utilising individual-level panel data from the Indonesian Family Life Survey, this study finds that the self-employment sector in Indonesia is indeed better characterised as a survival strategy as in the dualistic market model. Moreover, entry into the self-employment sector arises in times of economic crisis, implying that it acts as an employment option, namely as a last resort. Consequently, instead of focusing on growing the business of self-employed workers, policies should be directed toward the relaxation of formal labour market entry constraints–providing more decent jobs and protecting the livelihood of existing self-employed workers.

JEL Codes: E26, J46, O17

Keywords: Self-Employment, Indonesia, Dualistic Market Model

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1. Introduction

Self-employment is generally viewed positively in industrialised countries because it is seen as a manifestation of entrepreneurial spirit. Individuals who choose to be self-employed are praised as risk-takers who left their comfort zone to find opportunities for setting up new businesses. It is, therefore, seen as a voluntary and optimal choice of employment.

On the other hand, there is a different view in explaining self-employment in developing countries. Harris and Todaro (1973) suggested that there are two separate labour markets in developing countries: the modern (formal) sector and the traditional (informal) sector. The latter sector absorbs surplus labour that is not employed in the former sector. Self-employment is then assumed belong to the traditional sector, and acts as a means of avoiding unemployment or, in other words, it is a survival strategy. In contrast with the previous entrepreneurial view, this dualistic model suggests that people involuntarily enter the self-employment sector because there is no alternative.

To understand whether self-employment is better explained with a dualistic or an entrepreneurial model, an examination of the nature and dynamics (entry, exit, survivability, and growth) of this sector is required. Nevertheless, empirical studies about the nature and dynamics of self-employment in developing countries are quite limited. Moreover, the findings show that there is heterogeneity inside the sector and that the dualistic view cannot always be applied to all developing countries. For example, Temkin (2009) and Montes-Rojas (2010) found that the self-employment sectors in Mexico and Argentina are indeed a form of survival strategy for the marginalised labour force, while studies by Yamada (2005) and Dodlova et al. (2015) in Peru, as well as Fajnzylber et al. in Mexico support the entrepreneurial view. Other studies reach a mixed conclusion that both models coexist within an economy (Mandelman and Montes-Rojas (2009) in Argentina; Krasniqi (2014) in Kosova; Fiess et al. (2010) in Latin America; and Margolis (2014)).

Understanding the view to which the nature of self-employment in a particular economy belong is the key to formulating correct policies and interventions because each of them is qualitatively distinct and, therefore, needs different approaches. The entrepreneurial model implies that the self-employed are all growth-oriented and that, consequently, policies that promote business expansion, such as by easing access to credit, would be effective for them. Meanwhile, the presence of a dualistic market is usually based on an acceptance that the informal sector is closely associated with poverty. In addition to policies that are promotional in nature, other measures that protect them from falling deeper into poverty are, therefore, also very important (Berner et al. 2012).

In Indonesia, the self-employment sector is very important to the economy since it constituted 38.3 percent of the total employment in 2018 (Statistics Indonesia 2019), and as high as 50.5 percent if we use the International Labour Organization (ILO) definition of self-employment.[1] This is slightly higher than the global self-employment rate (48.0 percent), but lower than that of lower-middle-income countries (65.5 percent) (World Bank 2019). Although the rate seems to have stagnated over the last decade, the absolute number of self-employed still shows an increasing trend (Statistics Indonesia 2019). Despite its importance, the literature on self-employment and on its dynamics in Indonesia in particular is quite rare. Most of the studies related to this topic are about microenterprises (such as Vial (2011); McPherson and Rous (2010); and Parinduri (2014)) and the informal sector (such as Comola and De Mello (2011); Cuevas et al. (2009); and Rothenberg et al. (2016)). The only study, as far as we know, that specifically discusses self-employment and its nature (whether it is best understood in an entrepreneurial or dualistic framework) in Indonesia is the one by Kwon and Sohn (2017), who examines the job satisfaction of the self-employed.

This study tries to fill the gap in the literature on self-employment dynamics in developing countries–particularly in the context of Indonesia. By utilising a rich individual-level panel dataset from the first to the fifth wave of the Indonesian Family Life Survey (1993 to 2014), this study aims to test whether the self-employment sector in Indonesia is best explained by the mainstream entrepreneurial model or a dualistic model (survival strategy) by analysing the characteristics and the determinants of entry and exit into the self-employment sector.

The result of this study generally supports the applicability of the dualistic model in the Indonesian self-employment sector–which means that it is a survival strategy rather than an act of entrepreneurship. The average self-employed workers are characterised by a poorer economic condition and lower human capital compared to paid workers. The correlation between individual characteristics and the probability of entry and exit from self-employment suggests that self-employed workers are not highly skilled. In times of crisis, people are more likely to become self-employed without employees, indicating that this sector is an employment option. In other words, it serves as a last resort. Moreover, the results are consistent even after disaggregating the types of self-employment. It, therefore, implies that government policies should be directed toward: (i) the protection of existing self-employed workers; (ii) relaxation of formal labour market entry constraints; and (iii) providing more decent jobs, instead of pushing policies that encourage the growth of businesses owned by the self-employed.

[1] The ILO adopted the International Classification of Status in Employment (ICSE-93), in which contributing family worker–a similar category to unpaid family worker–is considered self-employment (ILO 2019).

2. Literature Review

Defining Self-Employment

Although the distinction between self-employment and other types of employment–particularly paid employment–in industrialised countries is pretty clear, it is less so in the developing world. Household enterprises, whether operating in the agriculture or non-agriculture sector, are major drivers of employment in developing countries (World Bank 2013; Cho et al. 2012). In this type of enterprise, family members are often working together without a clear employer-employee relationship, resulting in the exclusion of the 'contributing family worker' when calculating the self-employment rate and an underestimate of the actual number of self-employed workers (Margolis 2014).

In Indonesia, employment status is categorised into several types by Statistics Indonesia (*Badan Pusat Statistik*: BPS). Working individuals can be classified as: (1) 'self-employed'; (2) 'self-employed with unpaid family workers'; (3) 'self-employed with permanent or paid workers'; (4) 'employee'; (5) 'unpaid family worker'; (6) 'casual worker in agriculture'; and (7) 'casual worker in non-agriculture'. The last two categories were introduced in 2001 (Nazara 2010). For the purpose of analysis, this study classifies statuses 1, 2, and 3 as self-employed and statuses 4, 6, and 7 as paid workers. Unpaid family worker (5) is considered as a different status since this study mainly focuses on examining whether self-employed workers in Indonesia can be seen within the same framework of the mainstream entrepreneurial model similar to that of developed economies. Those who mainly take control and responsibility for the business are of primary interest.

Theories on Self-Employment Dynamics

Views on the nature of self-employment dynamics in developed countries are reflected in the theories of the dynamics (entry, exit, and growth) of firms. In his static framework, Lucas (1978), assumes that each sector of the workforce in the economy has a given and known managerial ability. Individuals then compare the return from establishing a firm given their ability to the wage they would receive if they become paid employees. If the return of becoming an entrepreneur is higher, they will become firm owner. If the return is lower, they will become paid employees.

This framework was later upgraded by Jovanovic (1982) to allow for the dynamic aspect of firms. The dynamic comes from the assumption that individuals do not know their managerial ability and the true cost structure of the firm. They can only gradually learn them by establishing and running a business. After doing that, they will get revised estimates of the true cost and adjust the size of the firms to maximise the profit. Firms with sufficiently high costs will shut down. This model implies that older firms tend to have lower growth since they have more accurate estimates of their true cost and hence are closer to their optimal size. Furthermore, older firms will also be less likely to shut down. If we take an individual's point of view, this model also implies that the rate of entry into self-employment is positively correlated with age, as older workforces have a more precise estimate of their entrepreneurial ability.

Another elaboration of Lucas' model came from Evans and Jovanovic (1989). Their model offers a possibility of the existence of liquidity constraints that prevent individuals with a low capital level from opening a business because it requires a fixed cost. The liquidity constraints force the would-be business owner to use their own assets to cover this. This model has several possible implications. First, there will be a negative correlation between an individual's assets and the level of remuneration of the previous job on one hand, and the probability of entering self-employment on the other. Second, contrary to the previous models, older individuals are more likely to enter self-employment as they have more time to accumulate the required capital.

In addition to the theories about firm dynamics, other theories specifically relate individual characteristics to self-employment entry. Lévesque and Minniti (2006) developed a model in which age has a negative effect on entry into self-employment. This is because, as individuals get older, the discount rate of future earnings will also get higher, making the relative return of self-employment (in which profit is delayed) less than that of wage employment (in which income is realised instantaneously). The effect of education is less clear, as several opposing explanations exist (Simoes et al. 2016). Higher level of schooling leads to higher opportunities in finding wage employment, thereby lowering the likelihood of being self-employed. On the other hand, individuals with higher education are also more likely to have a better managerial ability and better capability to identify business opportunities. Bates (1990) found that, in the United States, the survivability of small firms is positively correlated with the education of their owners. Lastly, as being self-employed is a risky venture, the characteristics that are associated with risk preference (such as gender and marital status) will correlate with the probability of self-employment entry. Women are less likely to set up new businesses since they are more risk-averse (Simoes et al. 2016), and this is also true for married men (Carrasco 1999).

All of the previous theories stress the entrepreneurial aspect of self-employment. They also assume that all members of the workforce have equal access to a single labour market, which means that the decision of choosing self-employment is voluntary and optimal for themselves. Meanwhile, the literature that emerged to explain employment in developing countries stress the co-existence of two different labour markets. These theories were started by Lewis (1954), who argued that there is a capitalist sector preferred by the workforce to a subsistence sector given their ability. The wage differentials between those sectors then induce migration from the subsistence sector to the capitalist sector. Harris and Todaro (1970) proposed a more detailed model in which there is an urban sector with a minimum wage policy and a rural sector with a competitive wage. The minimum wage policy in the urban sector attracts workers from the rural sector, causing a surplus of labour and unemployment in the urban sector. This model was then expanded by adding another sector as a transitory place for the urban surplus labour, called the 'urban informal sector' (Fields 1990) or 'urban subsistence sector' (Cole and Sanders 1985)–characterised by lower-quality jobs compared to the urban formal sector. Another dualistic model was also developed by Stiglitz (1976).

Dualistic models generally consider the 'rural', 'traditional', 'subsistence', or 'informal' sector as inferior to the 'urban', 'modern', 'capitalist', or 'formal' sector. The former

is viewed as an unproductive and stagnant sector, serving mainly as a buffer to absorb surplus labour from the latter sector and acts as an entry point for newly arrived migrants (Montes-Rojas 2010). It consists of low-quality jobs–mostly microenterprises–that serve as a means of survival. In this regard, self-employment can be seen as a characterisation of the inferior sector, while paid employment is in the superior sector. Of course, this view differs diametrally from the entrepreneurial view of self-employment. In the dualistic market framework, individuals with characteristics that constrain them from entering the paid employment market (such as those with few years of schooling and the young with little job experience) are less likely to be absorbed by the paid employment sector and, therefore, have no options other than being self-employed. In this framework, being self-employed is also easier than acquiring a paid employment job for the unemployed and those existing outside of the labour force, implying a higher self-employment entry rate from those groups than from paid workers.

Distinguishing which of those two opposing views apply to a particular economy requires an examination of self-employment dynamics–particularly the relationship between individual characteristics and the employment type transitions. In the dualistic model, younger, less-educated, low-paid workers, as well as the unemployed and out-of-labour-force individuals are all more likely to enter self-employment as they are in a worse position to find jobs in the paid employment sector (Fajnzylber et al. 2006). This model also implies that self-employment rate is countercyclical (Cichocki 2012). The entrepreneurial model suggests otherwise, with an additional prediction that older, more experienced, self-employed individuals with better education and a higher return from businesses are less likely to exit from this sector. The entrepreneurial model also suggests a negative correlation between age and the size of a firm with its growth rate.

Previous Empirical Findings

Rather than pointing to a single conclusion, previous researches on the nature of self-employment in developing countries show heterogeneity–not only across but also within countries. Montes-Rojas (2010) found that in Argentina, self-employment is a means of survival strategy instead of an act of entrepreneurship as entry into self-employment is more common during a recession. The same conclusion was reached by Temkin (2009) using the data from the Mexican *World Value Survey*.

Several studies support the entrepreneurial model instead. Fajnzylber et al. (2006) found that the dynamics of entry, survival, and growth of Mexican microenterprises show similarity to that of developed countries. This conclusion is supported by Bosch and Maloney (2007), as the self-employment rate in Mexico shows an acyclical behaviour. In Peru, it was found that the self-employment sector has competitive earnings (Yamada 2005), and that it would grow if sufficient liquidity is available (Dodlova et al. 2015).

Globally, it is estimated that only one-third of those in self-employment in developing countries are true entrepreneurs, while the rest are driven by the lack of other alternatives (Grimm et al. 2012; Gindling and Newhouse 2014). The fact that there exist two different kinds of self-employment (true entrepreneurs versus survivalists) is also applicable within a single country. The two kinds are usually attributed to different self-employment types, such as

between own-account workers versus employers (Montes Rojas and Siga 2009; Mandelman and Montes-Rojas 2009), and between self-employment in agriculture versus self-employment in other sectors (Cichocki 2012).

The diversity of findings is not only limited to developing countries. There is evidence that self-employment can also act as a survival strategy in industrialised countries (Alba-Ramirez 1994; Carrasco 1999; Moore and Mueller 2002; Ritsilä and Tervo 2002) as it provides jobs amid economic downturn. Taken together, these findings suggest that careful examination should be made for each different economy if one wants to understand the nature of the self-employment sector.

In the context of Indonesia, studies on this particular topic are even more limited. As far as we know, the only study that is explicitly related to this issue is by Kwon and Sohn (2017), which compared job satisfaction between self-employed and paid workers. Using data from the fourth wave of the Indonesian Family Life Survey, they found that the self-employed are less satisfied with their job than paid workers. According to Kwon and Sohn, this can be explained by the dual labour market theory. Studies can be found in the literature on the effect of minimum wages on informal employment rates, such as Comola and De Mello (2011) and Hohberg and Lay (2015). However, the results of these studies can not be generalised into self-employment since informal employment consists of other employment types besides self-employment. The common practice of testing the dual market hypothesis by examining the correlation between individual characteristics and the probability of entry and exit into self-employment has not been conducted using Indonesian data. This study, therefore, aims to fill this gap.

3. Empirical Model and Estimation Techniques

To examine the determinants of self-employment dynamics, this study follows the strategy used by Fajnzylber et al. (2006) as well as Montes-Rojas and Siga (2009). Suppose that each individual in the economy has a particular employment status *E* that can take two possible conditions: either being self-employed (*s*) or being a paid worker (*p*). An entry into self-employment is then defined as a transition from *E=p* in the initial period to *E=s* in the subsequent period, while an exit is defined as the opposite. The conditional probability of an individual entering self-employment takes the functional form:

$$P(E_{t+1} = s|E_t = p, \boldsymbol{X}_t) = \boldsymbol{X}_t\boldsymbol{\beta} + a + u_t \quad (1)$$

while the conditional probability of exit is:

$$P(E_{t+1} = p|E_t = s, \boldsymbol{X}_t) = \boldsymbol{X}_t\boldsymbol{\beta} + a + u_t \quad (2)$$

where **X** is a set of observable characteristics related to the individual. The probability is also determined by unobservable characteristics *a*, including entrepreneurial or managerial ability as well as a random component *u*. Equation 1 and 2 are estimated using logistic regression.

The unobservable *a* is arguably correlated with variables in **X**. Thus, $\boldsymbol{\beta}$ should not be interpreted as causal relationships, except for obviously exogenous covariates, such as age and gender. The level of education, income, and assets are all most likely to have a positive

correlation with managerial ability, thus implying upward bias in the ceteris paribus interpretation of the coefficients. Nevertheless, establishing causality is not the purpose of this study.[2] Rather, the correlation between the covariates would provide a general picture of who enters and exits this sector. The dual market model predicts that age, years of schooling, and the level of income will all have a negative relationship with the likelihood of entering self-employment, while the entrepreneurial model predicts the opposite. Meanwhile, the entrepreneurial model also predicts that age and years of schooling correlate negatively with exit. The positive correlation between some variables in **X** (such as years of schooling, income, and assets) and a is useful because it can give us an insight into the relationship between managerial ability and entry. A negative correlation between managerial ability and entry would support the dual market model since those who enter the self-employment sector are not the best potential entrepreneurs.

Since individuals can be neither self-employed nor paid worker, the model could be elaborated. As described in the previous chapter, the dualistic market framework predicts that unemployed and out-of-labour-force individuals are more likely to enter self-employment than be paid workers (Fajnzylber et al. 2006). Allowing for a broader sample, including the unemployed, those outside of the labour force, and workers with other types of employment in the initial period, equation 1 is then expanded into:

$$P(E_{t+1} = s | E_t = n, \boldsymbol{X}_t) = \boldsymbol{X}_t\beta + a + u_t. \quad (3)$$

Here, employment status E can take two values: either self-employed (s) or non-self-employed (n) (consisting of paid workers, unpaid family workers, unemployed workers, and out-of-labour-force individuals). The difference in the probability of entering self-employment between paid workers and other employment types (including unemployed and out-of-labour-force) is estimated by adding dummy variables in **X**. This model is also estimated using logistic regression.

Furthermore, previous studies in several countries found that different types of self-employment, particularly between own-account workers[3] and employers, have different nature (Mandelman and Montes-Rojas 2009; Montes Rojas and Siga 2009). To allow for a more detailed examination of entry into self-employment, Equation 1 and Equation 3 are expanded into a multiple outcomes model, separating entry into own-account workers and entry into employers. The equation of exit is also expanded into a multiple outcomes model, separating exit into paid workers, exit into unpaid family workers, and exit into not working. The multiple outcomes models are estimated using multinomial logistic regression.

4. Data

This study utilises the data from the Indonesian Family Life Survey (IFLS), an ongoing longitudinal survey that gathers information on many socioeconomic and health indicators at the individual, household, and community levels. The base sampling scheme of this survey was

[2] Establishing causality between asset and entry is, in fact, needed for testing the liquidity constraint hypothesis, but this study limits the estimation to not tackle the endogeneity problem as it needs more elaborate techniques.
[3] Own-account workers are self-employed individuals without employees.

designed to represent 83 per cent of the Indonesian population in 1993. IFLS was conducted five times from 1993 to 2014. The first wave (IFLS1) was fielded from late 1993 to early 1994, covering 7,224 households and over 22,000 individuals, followed by IFLS2 (1997–98), IFLS3 (2000), IFLS4 (2007–08), and IFLS5 (2014–15). Because split-off households were also surveyed, IFLS5 contains 13,535 households and over 50,000 individuals. This includes the 6,647 original households from 1993, implying re-contact rates of over 90 per cent. All of the IFLS waves are used in this study to get a large pool of samples and, therefore, more statistical power of the estimation. The long period covered by IFLS would also capture the ups and downs of the macroeconomic conditions–thereby enabling us to get a more generalised result. Since the samples are pooled, the same individuals might be recorded in more than one observation. To account for the unobserved correlations within individuals, the standard errors of the estimations were clustered at the individual level.

Since this study focuses on employment status, the unit of observation is individuals. The main variable of this study is constructed from questions about employment types in Book 3A (or Book 3 in IFLS1), Section TK. Based on BPS classification, IFLS classifies employment status into eight categories: (1) "Self-employed"; (2) "Self-employed with unpaid family worker/temporary worker"; (3) "Self-employed with permanent worker"; (4) "Government worker"; (5) "Private worker"; (6) "Unpaid family worker"; (7) "Casual worker in agriculture"; and (8) "Casual worker not in agriculture". This classification is identical to that of BPS, except that employee is broken down further into government worker and private worker.

This study classifies categories 1–3 as self-employed and categories 4, 5, 7, and 8 as paid worker. Category 6 is not considered to belong to either group but rather a different status, for the reason that has been explained in Section 2.1. To capture the different nature of self-employed in the multiple outcomes model, own-account worker (category 1) is differentiated from employer (category 2). Outside these status categories, individuals could also be either unemployed or out-of-the-labour-force.

Besides collecting information about current employment status, the IFLS also asked about the employment status during each of the years prior to the survey up until the previous IFLS wave year. To construct entry and exit, this study links the then-current employment status of a certain IFLS wave with the then-current employment status two years after the subsequent IFLS wave.[4] The linked samples from all waves are then pooled to get the complete sample. Previous studies on employment status dynamics usually use annual panel data, hence entry and exit are observed within a span of one year. This study could not follow this practice since many ILFS waves were fielded within two years. Consequentially, the minimum span of observing entry and exit should be two years after the first year of the initial survey. This method of linking information from two survey waves also causes individuals who are not resurveyed after a certain wave to be dropped from the sample.

[4] The exception is IFLS1 (1993), which is linked to the information on the employment status in 1996, the farthest employment status asked in the IFLS3. This is because the information on the employment status in 1995 can only be found in IFLS4, which does not break down the self-employment types, thereby not enabling the estimation of exit in the multiple outcomes model.

The explanatory variables used in this study are individuals' age, years of schooling, sex, marital status, head of household dummy, annual income, household non-business asset, and urban dummy. To capture the nonlinear effect as well as to ease the interpretation, age and years of schooling are converted to category dummies. Annual income is constructed from annual net profit (if the initial status is self-employed) or annual wage/salary (if the initial status is paid worker). Dummies of the IFLS waves are also included to capture the changing probability over time. This is important since the dynamics from the IFLS2 sample (1997-98 to 1999) deserve our interest because, within this span, Indonesia faced a dramatic political and economic crisis. Province dummies and province-waves interaction dummies are included to capture unobserved heterogeneity across provinces. Lastly, the month of the interview is also controlled since it is found to be correlated with individual employment status.

5. Results and Discussion

The Characteristics and Dynamics of the Indonesian Self-Employment Sector

Table 5-1 compares the characteristics of self-employed and paid workers from the pooled sample. The share of paid workers in total employment is slightly higher than that of self-employed workers. This is not in line with the national employment data due to the sampling scheme of IFLS, which oversampled urban areas (Strauss et al. 2014). Since self-employment is less prevalent in urban than in rural areas, the number is biased. It should also be noted that the shares do not add up to 100 per cent since unpaid family worker is considered as a different status from the other two.

It seems clear from the figures that self-employed workers are significantly older, less educated, and less wealthy than their paid worker counterparts. The average self-employed workers are about eight years older than the average paid workers. The median paid workers have an education level equivalent to a middle school graduate, while the median self-employed workers only have an education level equivalent to an elementary school graduate, or one level lower. In terms of economic wellbeing, average self-employed workers are also worse-off than paid workers, as indicated by lower median annual income and lower median household asset value. The exception is the mean value of self-employed annual income which is very high due to the outliers. More than 60 percent of paid workers live in urban areas, while only about 36 percent of self-employed workers do. This fact indicates that self-employment is a rural phenomenon, where production is conducted mostly in a small-scale unit, even household-based, compared to industrialised, large-scale production units that mostly exist in urban areas. Furthermore, self-employed workers are more likely to have a second job than paid workers. This could be caused by either an attempt to generate more income or a risk-coping strategy to anticipate the loss or failure of the main business.

Table 5-1: Summary Statistics of the Two Employment Types

Factor	**Self-employed**	**Paid worker**
Share of total employment	42.14%	44.31%
Age		
Mean	42.73	34.87

Median	41.00	33.00
Years of schooling		
Mean	5.65	8.59
Median	6.00	9.00
Annual income (Millions of Rp)		
Mean	33.97	4.68
Median	1.78	3.09
Household asset (Millions of Rp)		
Mean	40.43	54.09
Median	13.99	16.69
Married	85.98%	74.07%
Female	36.92%	34.43%
Household head	64.58%	52.80%
Urban	36.23%	60.55%
Has a second job	27.72%	19.61%

Notes: Calculated from pooled IFLS data (1993-2007). Monetary values are adjusted to the 2000 price level.

From Table 5-2 we can see that self-employed workers are concentrated in two sectors: agriculture, and trade and restaurants. The first sector is mainly based in rural areas, while the second exists both in the urban and rural areas–mostly in the form of small shops and street food restaurants. Meanwhile, paid workers are more dispersed among several sectors, but mostly in social services and manufacturing. The share of paid workers in the agriculture sector is also significant, however, the majority are possibly casual workers who have very volatile incomes. Taken together, these descriptive statistics consistently show that average self-employed workers are characterised by poorer economic conditions and lower human capital compared to paid workers. These facts align well with the survival strategy view (dualistic market model), in which the self-employed are indeed comprised of those unabsorbed by the formal paid-employment labour market.

Table 5-2: Employment Type by Sector

Sector	**% of total employment**			
	Self-employed	**Paid worker**		**Total**
Agriculture, forestry, fishing, and hunting	41.53	16.46		28.03
Mining and quarrying	0.42	0.83		0.64
Manufacturing	8.47	20.84		15.13
Electricity, gas, water	0.08	0.55		0.33
Construction	1.24	9.13		5.49
Wholesale, retail, restaurants, hotels	35.19	12.12		22.77
Transport, storage, communication	4.39	3.83		4.09
Finance, real estate, business services	0.08	1.30		0.74
Social services	8.56	34.80		22.70
Others	0.04	0.12		0.08

Total	**100.00**	**100.00**		**100.00**

Notes: (i) Calculated from pooled IFLS data (1993-2007). (ii) Totals may not equal to 100 per cent due to the effect of rounding.

The dynamic aspects, namely entry and exit of the self-employment sector, are presented in Table 5-3 and Figure 5-1. Table 5-3 reports the transition of individuals' employment status from the time of surveys to about 2–4 years later (depending on the survey waves). About 73 per cent of the self-employed workers stayed in the same sector, implying an exit rate of about 27 per cent. These statistics are very similar for paid workers who have a staying rate and exit rate of about 75 per cent and 25 per cent respectively. Looking more closely, it can be seen that the percentage of self-employed workers who exit into paid work is strikingly close to the percentage of exit into the opposite direction (about 14 per cent). A significant difference between the two employment types can only be seen in the rate of exit into unpaid family work, where the self-employed workers are more likely to become unpaid family workers than paid workers are. Overall, the turnover rates of those two types of employment are generally dissimilar. Meanwhile, on the entry side, nonworking individuals (both unemployed and out-of-labour-force individuals) are more likely to move into paid work than into self-employment (26 per cent vs 18 per cent).

If the sample is restricted to the transition during the economic crisis from 1997 to 1999 (Appendix 1), we can see several differences. Compared to the overall transition, the staying rate of self-employed workers during the crisis rises to 78 per cent, while the paid workers drops only slightly to 74 per cent. For the self-employed workers who exit, fewer enter paid employment (11 per cent). In the opposite direction, for those initially in paid employment, there are more of them who enter self-employment (17 per cent). This is an indication that the self-employment sector acted as a buffer during the crisis, a factor that is confirmed by the regression results in the next section.

Table 5-3 Transition Matrix of Employment Status (in %)

From	**To**				
	Not working	**Self-employed**	**Paid worker**	**Unpaid family worker**	**Total**
Not working	42.19	17.59	25.60	14.62	100.00
Self-employed	6.79	72.80	13.65	6.75	100.00
Paid worker	8.47	14.35	74.68	2.49	100.00
Unpaid fml. worker	15.04	26.40	14.33	44.23	100.00
Total	**16.30**	**35.37**	**37.33**	**11.01**	**100.00**

Notes: (i) The numbers show the share of subsequent employment condition from each initial employment condition. The initial conditions were taken from the then current condition during each survey of IFLS1 (1993), IFLS2 (1997), IFLS3 (2000), and IFLS4 (2007). The subsequent conditions (about 2 years later) were retrieved from the retrospective employment data in the next survey wave. The samples were then pooled. (ii) Totals may not equal to 100 per cent due to the effect of rounding.

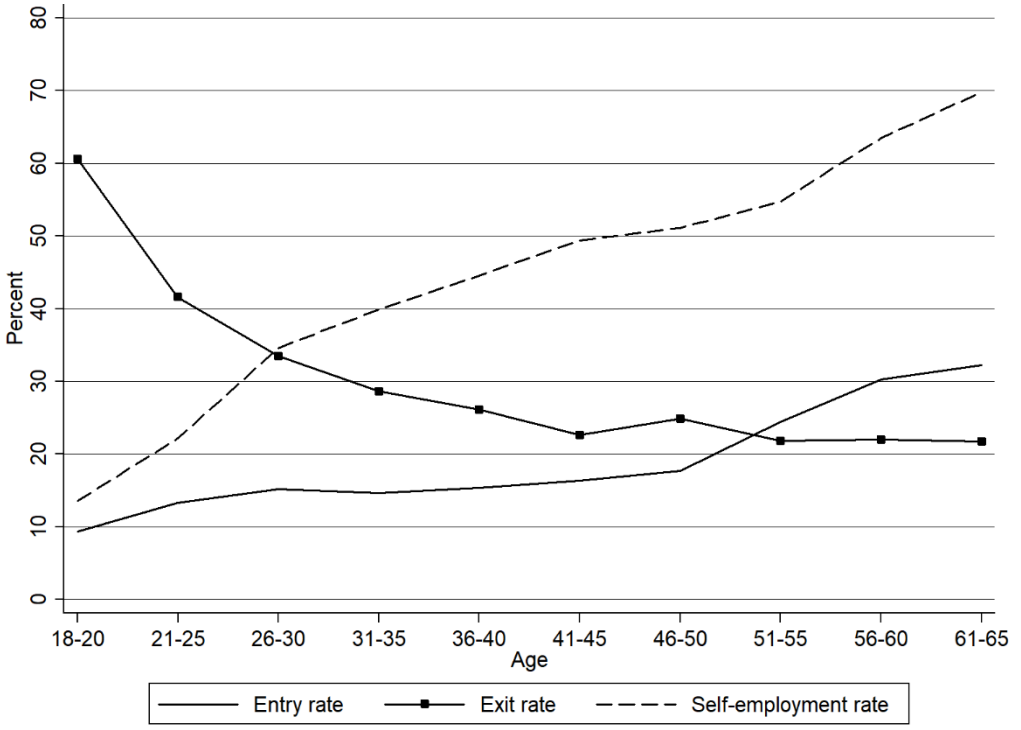
Figure 5-1 plots the share of self-employed workers who enter/exit into total employment, the share of paid workers who enter self-employment, and the share of self-employed workers who exit into paid work by age group. The patterns of the three measures

show remarkable similarity to the findings in Mexico (Fajnzylber et al. 2006) and even the United States (Evans and Leighton 1989). Although the self-employment rate, as well as entry and exit rate, are far higher in Indonesia in every age group compared to that of those two countries, the age pattern is the same. The entry rate tends to be higher while the exit rate tends to be lower in the higher age groups, and self-employment is more prevalent in older workers. This age pattern is compatible with the entrepreneurial view, as older workers have a more precise estimate of their managerial ability, thereby lowering the probability of failure in business than younger workers. Nevertheless, a more careful examination shows that the pattern does not hold universally to all the self-employed workers, which will be explained in the next section.

The Determinants of Entry into Self-Employment

The estimation results of the determinants of entry into self-employment can be seen in Appendices 4, 5, and 6, while the descriptive statistics of the variables can be seen in Appendix 2. Besides estimating the entry from all statuses other than self-employed, a more restrictive case is also estimated to examine the transition from paid worker into self-employment.

Figure 5-1: Patterns of Entry and Exit into Self-Employment by Age Group



An almost consistent monotonic increasing pattern emerges in the relationship between age and the probability of entering self-employment from another employment status. The possibility that this variable is confounded by a cohort effect has been ruled out by controlling the survey waves. Compared to the individuals in the 16–25 age bracket, the probability of entering self-employment for those aged 26–35, 36–45, 46–55, and 56 and older are about 7, 8, 10, and 15 percentage points higher, respectively. The increasing pattern is also consistent after splitting the sample into rural and urban areas, and splitting entry into own-account worker and employer, except for the pattern with entry into own-account worker in rural areas. This

positive relationship between age and entry is consistent with the entrepreneurial frameworks, both from Jovanovic's (1982) learning model and Evans and Jovanovic's (1989) liquidity constraint model, but the possibility of the latter is ruled out since household asset has been controlled.

Meanwhile, the monotonic pattern disappears if the sample is restricted to only include paid workers in the initial period. The probability of urban paid workers becoming own-account workers rises slightly in the 26–35 age bracket but decreases to the base level again in the 36–45 age bracket. This could be caused by the inability of paid workers in this age bracket who lost their job to reenter paid employment. The probability starts rising again as workers get older–with the highest likelihood among workers aged 55 years or older. Rather than a learning effect, this is more likely the reflection of the fact that many retired paid workers set up businesses to maintain their income streams. Taken together, the age pattern suggests that the learning model of self-employment might be true but only among those who are not paid workers. Thus, there seems to be a barrier between the paid-employment sector and the sectors beyond it, as explained by the dualistic market model (survival strategy view).

The schooling effect is even more obvious, as the result is consistent across model specifications and sample restrictions. The more educated individuals are, the less their likelihood of entering self-employment be. Individuals finishing at least elementary school, junior high school, and senior high school have the probability of entering self-employment of 3, 7, and 12 percentage points lower, respectively, than individuals who do not finish elementary school or have no schooling at all. This finding is in line with the survival strategy view, in which less-educated individuals are worse positioned in entering the paid-employment market and, therefore, have no other options than choosing self-employment as their livelihood for survival. The effect is also stronger in the entry from paid workers, implying that paid employment is more preferred to self-employment. Furthermore, if we assume that managerial ability is positively associated with level of education, this pattern implies negative selection into self-employment. That is, individuals with higher skills are less likely to enter self-employment, hence opposing the mainstream view that self-employed workers are true entrepreneurs.

Nonworking individuals (that is, unemployed and out-of-labour-force individuals) have a higher likelihood of entering self-employment, either becoming an own-account worker or employer, compared to paid workers. This evidence is again in line with the survival strategy view, where self-employment acts as an easy choice for those who seek a livelihood. This is because entering self-employment is easier than entering paid employment for those who are constrained from entering the formal labour market.

For paid workers, the initial level of remuneration correlates negatively with the probability of entering self-employment, although the magnitude is considerably smaller. In general, doubling workers' annual income would decrease their probability of entering self-employment by about 0.1 percentage point. This relationship could exist for at least two reasons. The first is that higher remuneration reflects higher job stability so that high-paid workers have a low turnover rate. The view that true entrepreneurs would not hesitate to leave their stable high-paid job to establish their own business is, of course, not supported by this

finding. Secondly, if ability correlates positively with income, this is also a sign of negative selection into self-employment, in the sense that those who enter self-employment are not the best potential entrepreneurs. It is once again contrary to the entrepreneurial view, but supportive of the survival strategy view.

The wave dummies can give an insight into the propensity of entry over time. Special attention is given to the coefficients of the second wave dummy. This period is important as it is a time when the huge Asian economic crisis struck Indonesia. Compared to the transition happening between 1993 and 1996, individuals were more likely to enter self-employment in this 1997-99 period. However, this only happened in urban areas, particularly in terms of entry into own-account work. In rural areas, meanwhile, the probability of being an employer dropped. This reflects the hardship that occurred during the crisis, in which the economic downturn pushed the industries that were located mainly in urban areas to reduce the number of their workers. The dismissed workers then took the self-employment option as a last resort. The drop in demand also hindered the establishment of businesses with employees in rural areas. In this case, the higher prevalence of entry into self-employment can not be interpreted as a rise in entrepreneurial activities.

The sign and magnitude of household non-business assets can give an insight into the liquidity constraint model. If the endogeneity issue has been tackled, a positive correlation between assets and the probability of entering self-employment would reflect the lack of access of entrepreneurs to financial intermediaries. As a result, they need to use their assets as capital (Evans and Jovanovic 1989). The estimation result shows that significant positive correlations only occur in terms of entry into employer, with a very small magnitude. In general, doubling the value of assets would only raise the probability of entering self-employment with employee(s) by 0.2 to 0.6 percentage points. This result is, however, insufficient to conclude that the presence of liquidity constraint is insignificant or even non-existent since the estimated coefficient is highly susceptible to bias because of unobserved managerial ability. Previous predictors show the possibility of negative selection into self-employment. If this is indeed true, the coefficient would be downward biased as individuals with higher ability tend to be wealthier and, at the same time, are less likely to enter self-employment. This possibility is supported by the negative coefficient in entry into own-account work, in which negative selection is more likely to occur. At best it can, therefore, be concluded that there is weak evidence of liquidity constraints in entering self-employment.

Other covariates also deserve our attention. Women are consistently less likely to enter self-employment. This is in line with previous findings (Simoes et al. 2016), and is possibly related to the fact that women are more risk-averse than men. Married individuals are generally more likely to enter self-employment than unmarried individuals, except in entry from paid-work into own-account work. This is most probably because married couples can pool their resources, which is important in business creation, particularly in establishing businesses with employee(s). Individuals living in rural areas have a higher propensity of entry into self-employment because they have fewer options in entering paid employment, as there are fewer paid-employment jobs in the rural areas.

Being a household head is associated with a higher likelihood of entry into self-employment, but this is not the case in the urban sample and in entry into own-account work from paid work. This is possibly related to the high prevalence of household businesses in rural areas, in which the head is the owner. Lastly, for those whose initial status is paid-worker, having a second job consistently raises the probability of entry, potentially because the second job is a self-employment job which is taken as the main job after leaving a paid employment. Another possibility is that having a second job is an indication that the individuals do not possess a fixed job so their turnover rate is high.

To sum up, the signs of the main covariates consistently conform to the predictions of the survival strategy hypothesis (dualistic market model). Individuals with less education, low remuneration, as well as those who are unemployed and exist outside of the labour force are all more likely to enter self-employment. The results are generally a little different, regardless of whether the individuals turn into self-employed with or without employees. This is in contrast with previous findings that the survival strategy view is applicable only to entry into own-account work but not to entry into employer (Montes Rojas and Siga 2009; Mandelman and Montes-Rojas 2009). The surge of entry into own-account work during times of crisis also strengthens the view that the self-employment sector acts as a survival means during an economic hardship, which is in line with previous findings (Alba-Ramirez 1994; Carrasco 1999; Moore and Mueller 2002; Ritsilä and Tervo 2002). The positive age-entry relationship suggested by the learning model does occur but only when the sample is not restricted to paid workers. This implies that the process of entrepreneurial learning may take place but only in a market that is segregated from the formal-paid employment market. In addition, the findings also suggest weak evidence of the liquidity constraint hypothesis although it is inconclusive as the coefficient is biased due to endogeneity problem.

The Determinants of Exit from Self-Employment

The determinants of the other side of the dynamics, namely exit from self-employment, can be seen in Appendices 7, 8, and 9, while the descriptive statistics of the variables can be seen in Appendix 3. In addition to the main model that defines exit as a transition from self-employment to non-self-employment, multiple outcomes models are also estimated to look closely at the specific status after the exit, whether not working (either unemployed or out of the labour force), being paid workers, or being unpaid family workers. Furthermore, the sample is also disaggregated between rural and urban areas.

As self-employed workers get older, their likelihood of leaving their jobs is decreasing. The effect is monotonic and considerably strong. Compared to the self-employed aged 15–25 years, the probability of exit into non-self-employment for those aged 26–35, 36–45, 46-55, and older than 55 years are 11.1, 15.6, 15.8, and 16.1 percentage points lower, respectively. After disaggregating the exit, the same monotonic pattern is only seen in exit into paid work. For those who exit work, the effect of age is U-shaped, with the lowest likelihood in the 36–45 age bracket. Meanwhile, for those who become unpaid family workers, the probability drops slightly in the 26–35 and 36–45 age brackets, then returns to the level of the base category. The result is consistent in rural and urban subsamples. There is a possibility that this negative association is a sign of the learning effect, where older self-employed workers have more

experience in doing business and are, therefore, more settled. Nevertheless, this explanation is weakened by the fact that the pattern only happens in terms of exit into paid work. It is more natural to think that entering the paid-employment labour market is generally harder for older individuals so that older self-employed workers are less likely to enter paid employment since their chance of entering it is more constrained, not because they are more settled in their business.

Moving to the next covariate, the probability of exit is the same across the years of schooling, except for those with higher education. Compared to self-employed workers not finishing elementary school or have no education at all, those with higher education are more likely to exit. Looking more closely, a monotonic increasing pattern occurs in exit into not working, and this only happens in the urban areas. This seems counterintuitive at first but, in fact, this is in line with the findings that unemployment is more prevalent among workers with high education (Irawan et al. 2000), as they are possibly in the process of searching for high-paid jobs (Suryadarma et al. 2007). In all specifications, there is no significant negative effect of education on exit. Assuming that there exists a positive correlation between managerial ability and years of schooling, this result contradicts the entrepreneurial view, in which self-employed with higher ability have a higher chance of surviving in running businesses.

The level of income generated from self-employment has a negative association with the likelihood of exit, and is consistent across specifications, although the effect is small. In general, doubling annual income would decrease the probability of exit by 1.9 percentage points. Assuming that income is correlated with managerial ability, this would imply that those with the best abilities would survive–in line with the entrepreneurial view. In the previous section, however, it is also found that the income of paid workers also correlates negatively with entry into self-employment. This result is, therefore, best understood as an indication that higher income would lower the rate of job turnover.

Having a second job does not correlate with the likelihood of exit, but in the multiple outcomes specification, different effects occur. Self-employed workers who have a second job are less likely to become not working but are more likely to become paid workers. The first is obvious since having more than one job would enable such workers to switch to another job easily when their main job is in trouble, hence providing them with the ability to escape unemployment. The second is possibly reflecting a strategy in which the self-employed keep running their business while looking for a paid-employment job. After getting such job, they would not instantly close their business. If this is indeed true, it would imply that a paid-employment job is the preferred one, while self-employment is merely a form of buffer to keep the continuity of income stream.

Additionally, compared to rural residents, the probability of exit into not working and into paid work is higher for those living in urban areas, while the probability is lower for exit into unpaid family work. As formal paid-employment jobs are more available, self-employed workers will more easily be able to enter this sector in urban areas. This evidence strengthens the view that self-employment is not a voluntary choice but rather a waiting place for surplus labour until they get a job in the paid employment sector.

Taking these results together, there is not enough evidence from the determinants of exit to say that self-employed workers in Indonesia conform to the entrepreneurial framework. The negative age-exit relationship does exist as suggested by Jovanovic's (1982) learning model, however, further examination finds that this only happens in the exit into paid work, where older, inexperienced individuals have more difficulty to enter. If the entrepreneurial ability is assumed to be related to education, there would be a negative association between years of schooling and exit, and the finding does not suggest that. The finding is also in contrast with that of Bates (1990).

6. Conclusion

Self-employment is an important sector in Indonesia, as it absorbs more than one-third of the labour force. This is not an issue if the sector comprises entrepreneurs who voluntarily take the risk of creating a business that fosters growth and progress. Other literature and findings provide different views that self-employment in developing countries is a consequence of a segregated dualistic labour market, in which it merely acts as a survival means employed by surplus labour who are not absorbed into the formal labour market. This study has tried to unravel the nature of the self-employment sector in Indonesia, particularly by looking at the dynamics of entry, exit, and their determinants, using a rich individual-level panel dataset from the first to the fifth wave of the Indonesian Family Life Survey (1993 to 2014).

This study finds that, in Indonesia, self-employed workers are characterised by poorer economic conditions and lower human capital compared to paid workers. Self-employed individuals are typically older, less educated, less wealthy, and earn less income, compared to their paid worker counterparts. This sector is also more prevalent in rural areas and concentrated in the agriculture as well as trade and restaurant sectors. The stay and exit rates of this sector show, however, a striking similarity to the paid-employment sector, implying that it is not less stable than the paid-employment sector.

The estimation results of the determinants of entry and exit from self-employment generally point toward the dualistic labour market model, in which self-employment acts as a survival means rather than entrepreneurial activity. Individuals who are less educated, have lower income, as well as those who are unemployed and exist outside of of the labour force are all more likely to enter self-employment as predicted by the dualistic market framework. During times of crisis, there is a surge in the probability of entry into own-account work, which is a sign that the self-employment sector serves as an employment buffer in times of economic hardship. The positive age-entry relationship suggested by the learning model in the entrepreneurial view does occur but only when the sample is not restricted to paid workers, indicating a barrier between the self-employment sector and the paid-employment sector. Furthermore, these results are generally consistent regardless of breaking entry further down into own-account work or employer.

Unlike the findings in other developing countries (Montes Rojas and Siga 2009; Mandelman and Montes-Rojas 2009), therefore, the act of establishing a business with employees in Indonesia cannot be directly attributed to the manifestation of entrepreneurship.

Likewise, from the exit side, there is no evidence to support the entrepreneurial model. The negative age-exit relationship only exists in exit into paid work, in which it is more possible due to higher constraints when older and inexperienced individuals want to enter the formal paid employment sectors. There is also no negative relationship between years of schooling and the probability of exit, contrary to the entrepreneurial framework and the findings in developed countries. This study also finds weak evidence of liquidity constraints faced by those who set up businesses with employees. Nevertheless, this result is not conclusive since it is prone to endogeneity problems.

The results of this study are preliminary and are open to further discussions. Due to the data limitation, the time span of entry and exit are not exactly comparable between individuals as each of the survey waves can take almost a year to complete. Future studies should, therefore, utilise individual longitudinal data which has a more uniform time range whenever possible. Other than that, further attempts to test the entrepreneurial model with liquidity constraints should be undertaken by using more robust techniques to tackle the endogeneity problem.

7. Policy Implications

The vast majority of the labour force in Indonesia are employed in micro and small enterprises (MSEs). The result of this study suggests that those who enter the self-employment sector, mostly in the form of MSEs, choose to do so because there are insufficient jobs in the formal paid employment sector for them. Moreover, individuals in the self-employment sector are characterised by low human capital and economic welfare, at least lower than the paid workers.

This implies that any policy that places too much emphasis on unleashing the growth potential of MSEs is rather misdirected or at least inefficient since survival-oriented self-employed businesses are very hard to grow (Berner et al. 2012). As the dualistic model suggests, the original problem lies in the regulation governing the formal labour market. Relaxing the barrier to entering the formal labour market, together with providing more decent jobs, would be an appropriate approach. In the meantime, a more important initiative is protecting the existing self-employed. As self-employment is probably their only way to survive, any measures to sustain the viability of their business are very important. It can be done, for instance, either directly by providing microcredit or indirectly by creating a conducive environment and providing better infrastructure to ensure the survivability of their MSEs.

Appendices

Appendix 1: Transition Matrix of Employment Status During the 1997-99 Crisis

From	To				
	Not working	**Self-employed**	**Paid worker**	**Unpaid family worker**	**Total**
Not working	23.08	23.25	30.90	22.77	100.00
Self-employed	4.07	77.73	10.64	7.56	100.00
Paid worker	5.82	16.64	74.23	3.30	100.00
Unpaid family worker	6.15	28.80	13.05	52.00	100.00
Total	9.73	39.52	37.15	13.60	100.00

Source: The initial conditions are taken from IFLS2 (1997) while the subsequent conditions (1999) are retrieved from IFLS3.

Notes: (i) The numbers show the share of subsequent employment condition from each initial employment condition (in %). (ii) Numbers have been rounded up to 100% in some instances.

Appendix 2: Descriptive Statistics for Entry Equation

VARIABLES	Initial status: Non-self-employed						Initial status: Paid worker				
	Obs.	Mean	Std. Dev	Min.	Max.		Obs.	Mean	Std. Dev	Min.	Max.
Age	39,170	33.21	13.18	11	99		17,669	35.26	11.21	11	98
Years of schooling	38,827	7.80	4.47	0	18		17,495	8.76	4.56	0	18
Not working	39,173	0.34	0.47	0	1		n.a.	n.a.	n.a.	n.a.	n.a.
Unpaid family worker	39,173	0.51	0.50	0	1		n.a.	n.a.	n.a.	n.a.	n.a.
Annual income (Millions of Rp)	n.a.	n.a.	n.a.	n.a.	n.a.		17,362	4.94	7.67	0	532.46
Log (Rp annual income)	n.a.	n.a.	n.a.	n.a.	n.a.		17,362	14.63	2.07	0	20.09
Household non-business asset (Millions of Rp)	39,165	48.94	149.59	0	5749.21		17,667	55.33	161.55	0	5749.21
Log (Rp household non-business asset)	39,165	16.36	2.04	0	22.47		17,667	16.45	2.11	0	22.47
Married	39,173	0.68	0.47	0	1		17,672	0.76	0.43	0	1
Female	39,173	0.54	0.50	0	1		17,672	0.31	0.46	0	1
Household head	39,173	0.32	0.47	0	1		17,672	0.56	0.50	0	1
Urban	39,169	0.51	0.50	0	1		17,670	0.61	0.49	0	1
Has a second job	n.a.	n.a.	n.a.	n.a.	n.a.		17,672	0.20	0.40	0	1

Note: All monetary values are adjusted to 2000 price level.

Appendix 3: Descriptive Statistics for Exit Equation

VARIABLES	Obs.	Mean	Std. Dev	Min.	Max.
Age	18,875	42.73	12.93	15	101
Years of schooling	18,648	5.65	4.11	0	18
Has a second job	18,878	0.28	0.45	0	7
Annual income (Millions of Rp)	17,025	33.98	2741.39	-149.09	319473.50
Log (Rp annual income)	16,880	14.07	2.22	0	26.49
Household non-business asset (Millions of Rp)	18,874	40.38	132.43	0	5395.64
Log (Rp household non-business asset)	18,874	16.31	1.85	0	22.41
Married	18,878	0.86	0.35	0	1
Female	18,878	0.37	0.48	0	1
Household head	18,878	0.65	0.48	0	1
Urban	18,878	0.36	0.48	0	1

Note: All monetary values are adjusted to 2000 price level. Negative income reflects business loss.

Appendix 4: Determinants of Entry into Self-Employment (Urban and Rural)

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
Age 26–35	0.074***	0.037***	0.037***	0.018**	0.015**	0.003
	(0.006)	(0.005)	(0.004)	(0.009)	(0.007)	(0.007)
Age 36–45	0.079***	0.032***	0.047***	0.006	-0.001	0.006
	(0.007)	(0.005)	(0.005)	(0.010)	(0.008)	(0.007)
Age 46–55	0.100***	0.044***	0.056***	0.035***	0.017*	0.017**
	(0.008)	(0.006)	(0.006)	(0.011)	(0.009)	(0.008)
Age >55	0.149***	0.076***	0.072***	0.085***	0.043***	0.041***
	(0.010)	(0.008)	(0.007)	(0.016)	(0.013)	(0.012)
Schooling, 7–9 years	-0.032***	-0.031***	-0.001	-0.048***	-0.032***	-0.016**
	(0.006)	(0.005)	(0.005)	(0.010)	(0.007)	(0.007)
Schooling, 10–12 years	-0.074***	-0.047***	-0.027***	-0.111***	-0.066***	-0.046***
	(0.006)	(0.004)	(0.004)	(0.008)	(0.006)	(0.005)
Schooling, >12 years	-0.118***	-0.077***	-0.042***	-0.152***	-0.096***	-0.057***
	(0.007)	(0.005)	(0.005)	(0.008)	(0.006)	(0.006)
Not working	0.092***	0.044***	0.049***	n.a.	n.a.	n.a.
	(0.006)	(0.004)	(0.004)	n.a.	n.a.	n.a.
Unpaid family worker	0.136***	0.028***	0.108***	n.a.	n.a.	n.a.
	(0.007)	(0.005)	(0.006)	n.a.	n.a.	n.a.
Log (Annual income)	n.a.	n.a.	n.a.	-0.013***	-0.007***	-0.006***
	n.a.	n.a.	n.a.	(0.001)	(0.001)	(0.001)
Log (Household non-business asset)	0.005***	0.000	0.005***	0.001	-0.002*	0.004***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Married	0.039***	0.009**	0.030***	0.015*	-0.003	0.019***
	(0.006)	(0.005)	(0.004)	(0.008)	(0.007)	(0.006)
Female	-0.073***	-0.032***	-0.041***	-0.053***	-0.029***	-0.024***

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
	(0.006)	(0.005)	(0.005)	(0.008)	(0.006)	(0.006)
Household head	0.038***	0.012**	0.027***	0.025***	0.006	0.020***
	(0.007)	(0.005)	(0.005)	(0.008)	(0.006)	(0.006)
Urban	-0.037***	-0.010***	-0.027***	-0.067***	-0.030***	-0.037***
	(0.005)	(0.004)	(0.003)	(0.007)	(0.005)	(0.005)
Wave 2	-0.002	0.002	-0.005	0.009	0.013**	-0.005
	(0.005)	(0.004)	(0.004)	(0.008)	(0.007)	(0.006)
Wave 3	-0.056***	-0.041***	-0.015***	-0.040***	-0.031***	-0.010
	(0.007)	(0.006)	(0.005)	(0.010)	(0.007)	(0.008)
Wave 4	-0.018**	-0.033***	0.014**	-0.021*	-0.016*	-0.007
	(0.008)	(0.006)	(0.006)	(0.011)	(0.009)	(0.008)
Has second job	n.a.	n.a.	n.a.	0.070***	0.031***	0.037***
	n.a.	n.a.	n.a.	(0.008)	(0.006)	(0.005)
Pseudo R-squared	0.085	0.080	0.080	0.113	0.103	0.103
Observations	38,768	38,768	38,768	17,186	17,186	17,186

Note: (i) The reported figures are average marginal effects. Standard errors (clustered at individual level) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) Column 1–3: from all status other than self-employed. Column 4–6: from paid worker only. (iii) The unreported controls are province dummies, province-wave interraction dummies, and month of interview dummies. (iv) Base category for age is 15–25 years old, 0–6 years for schooling, and paid worker for initial employment status.

Appendix 5: Determinants of Entry into Self-Employment (Urban)

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
Age 26–35	0.068***	0.041***	0.027***	0.021**	0.019**	0.003
	(0.007)	(0.006)	(0.005)	(0.010)	(0.007)	(0.007)
Age 36–45	0.082***	0.045***	0.036***	0.014	0.007	0.006
	(0.009)	(0.007)	(0.006)	(0.011)	(0.008)	(0.008)
Age 46–55	0.101***	0.052***	0.048***	0.033**	0.021**	0.011
	(0.011)	(0.008)	(0.008)	(0.013)	(0.010)	(0.009)
Age >55	0.137***	0.075***	0.061***	0.066***	0.029**	0.036***
	(0.014)	(0.011)	(0.010)	(0.020)	(0.015)	(0.014)
Schooling, 7–9 years	-0.022***	-0.028***	0.006	-0.031***	-0.029***	-0.002
	(0.008)	(0.006)	(0.006)	(0.011)	(0.009)	(0.008)
Schooling, 10–12 years	-0.054***	-0.037***	-0.018***	-0.079***	-0.052***	-0.027***
	(0.007)	(0.006)	(0.005)	(0.009)	(0.007)	(0.006)
Schooling, >12 years	-0.082***	-0.063***	-0.020***	-0.107***	-0.075***	-0.034***
	(0.008)	(0.006)	(0.006)	(0.010)	(0.007)	(0.007)
Not working	0.106***	0.065***	0.041***	n.a.	n.a.	n.a.
	(0.007)	(0.006)	(0.005)	n.a.	n.a.	n.a.
Unpaid family worker	0.211***	0.069***	0.137***	n.a.	n.a.	n.a.
	(0.014)	(0.011)	(0.012)	n.a.	n.a.	n.a.
Log (Annual income)	n.a.	n.a.	n.a.	-0.011***	-0.007***	-0.003***
	n.a.	n.a.	n.a.	(0.001)	(0.001)	(0.001)
Log (Household non-business asset)	0.002*	-0.000	0.003***	-0.000	-0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Married	0.045***	0.014**	0.031***	0.007	-0.002	0.008

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
	(0.007)	(0.006)	(0.005)	(0.010)	(0.008)	(0.007)
Female	-0.035***	-0.024***	-0.011**	-0.042***	-0.029***	-0.012**
	(0.007)	(0.006)	(0.005)	(0.008)	(0.006)	(0.006)
Household head	0.006	0.004	0.002	0.012	0.005	0.007
	(0.008)	(0.006)	(0.006)	(0.009)	(0.007)	(0.006)
Wave 2	0.001	-0.000	0.001	0.020**	0.015**	0.005
	(0.007)	(0.006)	(0.005)	(0.009)	(0.008)	(0.006)
Wave 3	-0.059***	-0.046***	-0.015**	-0.022**	-0.021**	-0.003
	(0.009)	(0.007)	(0.006)	(0.011)	(0.008)	(0.008)
Wave 4	-0.038***	-0.040***	0.001	-0.010	-0.016*	0.006
	(0.010)	(0.008)	(0.007)	(0.012)	(0.009)	(0.009)
Has a second job	n.a.	n.a.	n.a.	0.066***	0.034***	0.031***
	n.a.	n.a.	n.a.	(0.010)	(0.008)	(0.007)
Pseudo R-squared	0.101	0.096	0.096	0.079	0.080	0.080
Observations	19,890	19,890	19,890	10,547	10,547	10,547

Note: (i) The reported figures are average marginal effects. Standard errors (clustered at individual level) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) Column 1–3: from all status other than self-employed. Column 4–6: from paid worker only. (iii) The unreported controls are province dummies, province-wave interraction dummies, and month of interview dummies. (iv) Base category for age is 15–25 years old, 0–6 years for schooling, and paid worker for initial employment status.

Appendix 6: Determinants of Entry into Self-Employment (Rural)

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
Age 26–35	0.077***	0.032***	0.045***	0.014	0.008	0.006
	(0.009)	(0.007)	(0.007)	(0.017)	(0.013)	(0.013)
Age 36–45	0.079***	0.020**	0.059***	-0.001	-0.013	0.011
	(0.011)	(0.008)	(0.008)	(0.019)	(0.015)	(0.014)
Age 46–55	0.109***	0.040***	0.069***	0.046**	0.012	0.033**
	(0.013)	(0.009)	(0.010)	(0.021)	(0.017)	(0.016)
Age >55	0.171***	0.080***	0.090***	0.111***	0.058**	0.053**
	(0.015)	(0.012)	(0.011)	(0.028)	(0.023)	(0.021)
Schooling, 7–9 years	-0.044***	-0.032***	-0.011	-0.068***	-0.034**	-0.035***
	(0.009)	(0.007)	(0.007)	(0.017)	(0.014)	(0.012)
Schooling, 10–12 years	-0.089***	-0.055***	-0.034***	-0.164***	-0.089***	-0.075***
	(0.009)	(0.006)	(0.007)	(0.014)	(0.010)	(0.010)
Schooling, >12 years	-0.162***	-0.092***	-0.070***	-0.224***	-0.131***	-0.095***
	(0.011)	(0.007)	(0.009)	(0.015)	(0.010)	(0.012)
Not working	0.072***	0.017***	0.055***	n.a.	n.a.	n.a.
	(0.008)	(0.007)	(0.007)	n.a.	n.a.	n.a.
Unpaid family worker	0.123***	0.010	0.116***	n.a.	n.a.	n.a.
	(0.009)	(0.007)	(0.008)	n.a.	n.a.	n.a.
Log (Annual income)	n.a.	n.a.	n.a.	-0.016***	-0.008***	-0.008***
	n.a.	n.a.	n.a.	(0.002)	(0.001)	(0.001)
Log (Household non-business asset)	0.006***	0.001	0.006***	0.003	-0.003	0.006**

Status	From non-self-employed			From paid worker		
	Logit	Multinomial logit		Logit	Multinomial logit	
	into self-employed	into own-account	into employer	into self-employed	into own-account	into employer
	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Married	0.035***	0.005	0.032***	0.028*	-0.006	0.037***
	(0.009)	(0.007)	(0.007)	(0.015)	(0.013)	(0.011)
Female	-0.113***	-0.038***	-0.077***	-0.073***	-0.028***	-0.044***
	(0.009)	(0.007)	(0.008)	(0.014)	(0.011)	(0.011)
Household head	0.075***	0.021***	0.056***	0.047***	0.008	0.039***
	(0.011)	(0.008)	(0.010)	(0.015)	(0.012)	(0.012)
Wave 2	-0.010	0.006	-0.018***	-0.017	0.008	-0.027**
	(0.008)	(0.007)	(0.006)	(0.016)	(0.013)	(0.012)
Wave 3	-0.054***	-0.033***	-0.022**	-0.076***	-0.048***	-0.026*
	(0.012)	(0.009)	(0.009)	(0.020)	(0.015)	(0.016)
Wave 4	0.004	-0.028***	0.032***	-0.031	-0.020	-0.012
	(0.014)	(0.010)	(0.011)	(0.023)	(0.018)	(0.018)
Has a second job	n.a.	n.a.	n.a.	0.079***	0.032***	0.044***
	n.a.	n.a.	n.a.	(0.012)	(0.010)	(0.009)
Pseudo R-squared	0.077	0.076	0.076	0.111	0.106	0.106
Observations	18,878	18,878	18,878	6,639	6,639	6,639

Note: (i) The reported figures are average marginal effects. Standard errors (clustered at individual level) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) Column 1–3: from all status other than self-employed. Column 4–6: from paid worker only. (iii) The unreported controls are province dummies, province-wave interraction dummies, and month of interview dummies. (iv) Base category for age is 15–25 years old, 0–6 years for schooling, and paid worker for initial employment status.

Appendix 7: Determinants of Exit from Self-Employment (Urban and Rural)

Status	Logit		Multinomial logit		
	into non self-emp.		into not working	into paid worker	into unpaid fml. worker
Age 26–35	-0.111***		-0.043***	-0.047***	-0.024***
	(0.015)		(0.009)	(0.013)	(0.008)
Age 36–45	-0.156***		-0.061***	-0.077***	-0.022***
	(0.016)		(0.009)	(0.014)	(0.008)
Age 46–55	-0.158***		-0.051***	-0.098***	-0.012
	(0.017)		(0.010)	(0.014)	(0.009)
Age >55	-0.161***		-0.026**	-0.131***	0.003
	(0.018)		(0.011)	(0.014)	(0.010)
Schooling, 7–9 years	0.003		0.010*	-0.005	-0.001
	(0.011)		(0.006)	(0.008)	(0.006)
Schooling, 10–12 years	0.008		0.016**	-0.004	-0.004
	(0.011)		(0.006)	(0.008)	(0.007)
Schooling, >12 years	0.110***		0.029**	0.074***	-0.001
	(0.023)		(0.013)	(0.018)	(0.015)
Has second job	0.000		-0.026***	0.027***	-0.004
	(0.008)		(0.004)	(0.006)	(0.005)
Log (Annual income)	-0.019***		-0.006***	-0.010***	-0.003***
	(0.002)		(0.001)	(0.001)	(0.001)
Urban	0.024***		0.026***	0.040***	-0.042***
	(0.009)		(0.005)	(0.007)	(0.004)
Pseudo R-squared	0.062		0.114	0.114	0.114
Observations	16,692		16,692	16,692	16,692

Note: The reported figures are average marginal effects. Standard errors (clustered at individual level) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) The unreported controls are natural log of household nonbusiness asset, marital status, sex, household head dummy, survey waves, province dummies, province-wave interraction dummies, and month of interview dummies.(iii) Base category for age is 15─25 years old and 0─6 years for schooling.

Appendix 8: Determinants of Exit from Self-Employment (Urban)

Status	Logit		Multinomial logit		
	into non self-emp		into not working	into paid worker	into unpaid fml. worker
Age 26–35	-0.168***		-0.079***	-0.063***	-0.024*
	(0.027)		(0.019)	(0.023)	(0.014)
Age 36–45	-0.215***		-0.100***	-0.090***	-0.024
	(0.028)		(0.019)	(0.024)	(0.015)
Age 46–55	-0.229***		-0.093***	-0.114***	-0.021
	(0.030)		(0.020)	(0.025)	(0.015)
Age >55	-0.226***		-0.063***	-0.143***	-0.013
	(0.031)		(0.022)	(0.025)	(0.017)
Schooling, 7–9 years	0.011		0.019*	-0.009	0.000
	(0.017)		(0.011)	(0.013)	(0.008)
Schooling, 10–12 years	0.011		0.027**	-0.016	-0.000
	(0.016)		(0.011)	(0.012)	(0.008)
Schooling, >12 years	0.110***		0.044**	0.069***	-0.009
	(0.028)		(0.020)	(0.023)	(0.013)
Has second job	0.024		-0.033***	0.042***	0.012
	(0.016)		(0.009)	(0.013)	(0.008)
Log (Annual income)	-0.033***		-0.014***	-0.016***	-0.001
	(0.004)		(0.002)	(0.003)	(0.002)
Pseudo R-squared	0.066		0.108	0.108	0.108
Observations	6,149		6,149	6,149	6,149

Note: (i) The reported figures are average marginal effects. Standard errors (clustered at individual level) are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) The unreported controls are natural log of household nonbusiness asset, marital status, sex, household head dummy, survey waves, province dummies, province-wave interraction dummies, and month of interview dummies. (iii) Base category for age is 15─25 years old and 0─6 years for schooling.

Appendix 9: Determinants of Exit from Self-Employment (Rural)

Status	Logit		Multinomial logit		
	into non self-emp		into not working	into paid worker	into unpaid fml. worker
Age 26–35	-0.082***		-0.026***	-0.036**	-0.026**
	(0.019)		(0.010)	(0.016)	(0.010)
Age 36–45	-0.124***		-0.043***	-0.065***	-0.024**
	(0.020)		(0.010)	(0.017)	(0.011)
Age 46–55	-0.120***		-0.031***	-0.086***	-0.008
	(0.021)		(0.011)	(0.018)	(0.012)
Age >55	-0.126***		-0.011	-0.120***	0.009
	(0.021)		(0.011)	(0.017)	(0.013)
Schooling, 7–9 years	0.004		0.004	0.004	-0.003
	(0.015)		(0.007)	(0.011)	(0.009)
Schooling, 10–12 years	0.015		0.006	0.020	-0.010
	(0.017)		(0.009)	(0.013)	(0.010)
Schooling, >12 years	0.094**		0.004	0.091**	0.004
	(0.045)		(0.019)	(0.037)	(0.026)
Has second job	-0.005		-0.021***	0.020***	-0.011*
	(0.009)		(0.005)	(0.007)	(0.006)
Log (Annual income)	-0.014***		-0.003***	-0.007***	-0.004***
	(0.002)		(0.001)	(0.001)	(0.001)
Pseudo R-squared	0.075		0.131	0.131	0.131
Observations	10,543		10,543	10,543	10,543

Note: (i) The reported figures are average marginal effects. Standard errors (clustered at individual level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (ii) The unreported controls are natural log of household nonbusiness asset, marital status, sex, household head dummy, survey waves, province dummies, province-wave interraction dummies, and month of interview dummies. (iii) Base category for age is 15─25 years old and 0─6 years for schooling.

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