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Health insurance and self-employment transitions in Vietnam: A multinomial analysis

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Abstract

Health insurance can have important effects on self-employment and self-employment transitions. However, there is a literature gap on the relationship between health insurance and self-employment in low and middle income countries, especially in the context of the rapid expansion of health insurance in these countries. This paper examines this relationship in Vietnam with a focus on the comparison between the voluntary scheme for the informal sector (mostly self-employed workers) and the compulsory insurance for the formal sector (mostly wage workers). We employ a Multinomial Logit Model on a panel from the Vietnamese Household Living Standards Surveys 2010-2014 to investigate the association between health insurance and self-employment entry and exit over time. We show that those with compulsory health insurance in Vietnam, the formal workers, do not have the incentive to start a business compared to those having voluntary insurance. This effect holds true over time in 2012 and 2014. The effect is partly explained by the better enforcement of the compulsory health insurance scheme in Vietnam, making staying out of self-employment (often informal self-employment) a preferred choice. Regarding the effect of health insurance on self-employment exit, we do not find any conclusive evidence on this matter. The rigidity of the economy is highlighted, suggesting important policy implications in the areas of health and labour policies in Vietnam.

JEL Classifications: I13, J22

Key words: health insurance, self-employment, Vietnam
self-employment entry, self-employment exit

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1 Introduction

There is a gap in health insurance coverage between self-employed workers and wage earners in Vietnam. This is largely a result of the insurance gap between formal and informal workers (Somanathan et al., 2014), whereby informal workers are over-represented among the self-employed in Vietnam (Cling et al., 2011) while those in the formal sector are often wage employees and public workers. In 2011, informal workers and their families represented around 50 percent of those uncovered in Vietnam while the share of formal workers was around 19 percent (Somanathan et al., 2014). The enrolment rate of informal workers in 2011 was only 26 percent compared to 56 percent of formal ones (ibid.). Even though the current health insurance system has been pooled into a single programme called Social Health Insurance (SHI), it still inherits the targeting approach from its predecessors which depend on employment status for working-age individuals who are not assistance recipients. Therefore, different employment groups get enrolled into the SHI programme via different sub-schemes with different enforcement mechanisms. Formal workers get enrolled via the compulsory scheme while informal workers have an option to join via the voluntary scheme. As a formal worker, one would get the insurance coverage by default, whereby health insurance premiums are paid by employers out of the payroll. On the contrary, informal workers have to pay for the premium out-of-pocket at a local insurance agency. Even though the two schemes share the same benefit package in SHI, this design has consequently led to the aforementioned discrepancy in enforcement between the formal and informal sector, possibly due to risk aversion among the self-employed (Somanathan et al., 2014). Notably, even in the formal sector, where health insurance coverage is arranged by employers, the enforcement is rather weak (ibid.), not to say anything about the voluntary scheme where there is no such enforcement mechanism. This leads one to argue that Vietnamese workers are more likely to have health insurance if they are working in the public sector or for ‘good’ companies which are normally in the formal sector and large enough. This enforcement issue creates a link between health insurance coverage and the institutional sector (formal/informal), which is then translated into a link between health insurance and employment category (i.e. self and wage employment) due to the structure of the Vietnamese labour market.

Despite its important policy implications (Fairlie et al., 2011; Gumus and Regan, 2015; Fossen and König, 2017; Heim and Lurie, 2010; Velamuri, 2012), the effect of health insurance on self-employment and self-employment mobility in low and middle income countries (LMIC) is rather under-researched (Lê et al., 2017). The rapid expansion of health insurance coverage in LMIC (Rodin and de Ferranti, 2012; Lagomarsino et al., 2012) and the vital role of self-employment in these economies (Gindling and Newhouse, 2014) highlight the urgent need for more research on this issue. For Vietnam, given the role of the self-employment sector in the country - accounting for more than 58 percent of total employment in 2017 (World Bank, 2018) - coupled with the aforementioned gap in health insurance coverage between self-employed workers and wage earners (Somanathan et al., 2014), it is relevant to investigate the association between insurance and self-employment. This paper examines the relationship between health insurance and self-employment mobility in Vietnam with a focus on the comparison between the voluntary scheme for the informal sector (mostly self-employed workers) and the compulsory scheme for the formal sector (mostly wage workers). We employ a Multinomial Logit Model on a panel from the Vietnamese Household Living Standards Surveys (VHLSS) 2010-2014 to investigate the association between health insurance coverage and self-employment entry

and exit over time. To our knowledge, this study will be the first to shed some lights on this topic in Vietnam.

The relationship between health insurance and the nexus of self and wage employment (especially self-employment mobility) is an important policy issue because of its potential impact on the labour market. One of the growing concerns is about ‘entrepreneurship lock’ (Fairlie et al., 2011), which is believed to keep people in wage employment and hence potentially reduce job search and job matching, triggering labour market inefficiencies by impeding entrepreneurial activities if health insurance is linked to wage employment (Gumus and Regan, 2015). The term was coined by Fairlie et al. (2011) to distinguish it from ‘job lock’ (i.e. the effect of health insurance on job mobility in general). This perspective is influenced by the job-lock literature pioneered by Madrian (1994) and Gruber and Madrian (1994) on the American labour market, which, in turn, is based on the idea of the ‘match specific component of productivity’ by Jovanovic (1979). It is argued that the productivity of the whole economy is reduced if a better job match is impeded because someone who wants to move chooses to stay in his or her current job just because of the health benefit attached (Madrian, 1994). In that logic, Holtz-Eakin et al. (1996) examine the effect of health insurance on entrepreneurial activity and hypothesise that employer-sponsored health insurance impedes people from leaving their wage job for self-employment. However, he finds no significant evidence to support the hypothesis (Holtz-Eakin et al., 1996). Since then, the body of literature on entrepreneurship lock has been developed further with several studies on the US. In examining labour force transition in the middle age, Zissimopoulos and Karoly (2007) study working individuals aged over 51 and suggest that having a retirement health coverage in the current job reduces the likelihood of moving into self-employment in the next period. However, Zissimopoulos and Karoly (2007) investigate the effects of many factors on the transition to self-employment rather than mainly focusing on health insurance. Fairlie et al. (2011) use a regression discontinuity approach to examine the effect of employer-provided health insurance on entrepreneurship in the elderly group at the retirement age cut-off of 65 and find an increase in the business ownership rate from just under to just above 65 years old. Outside the US, Fossen and König (2017) suggest that the public health insurance scheme in Germany, which is only mandatory for public sector workers, tends to decrease the probability of self-employment entry. They find that a cost difference in the health insurance premium of 10 Euro per month can reduce the annual entry rate by 1.7 percent (Fossen and König, 2017).

Contrary to the entrepreneurship lock argument, health insurance can also have a entrepreneurship promotion effect, depending on the portability of the health insurance package (i.e. whether health insurance is tied to employment or not) (Lê et al., 2017). Health insurance access either via the employer or a spousal package has been shown to be a significant determinant of being self-employed (Wellington, 2001; Gai and Minniti, 2015). Health insurance reforms that improve access to health insurance for the self-employed through fiscal tools (tax deductibility or tax subsidies) have been shown to increase the probability of self-employment (Heim and Lurie, 2010; Velamuri, 2012; Gumus and Regan, 2015). Similarly, state-level coverage expansion has been found to promote self-employment (Niu, 2014; DeCicca, 2007). In another study on 28 countries in Eastern Europe and Central Asia, Wagstaff and Moreno-Serra (2015) use aggregate data for the period 1990-2004 to show that social health insurance expansion seems to increase the self-employment share of total employment.

As mentioned above, the literature for LMIC is rather thin, and exiting studies

are mainly concentrated on the US (ibid.). The high level of formal self-employment of the American economy is rather distinctive from the situation in low and middle income economies, which are often characterised by large proportions of informal self-employment. Therefore, the American literature is not very useful for LMIC. Importantly, the finding for Germany (Fossen and König, 2017) suggests that even in a country with universal health coverage, the health insurance differential between employment categories can negatively affect self-employment entry and hinder labour market efficiency. In other words, the effect is not exclusively relevant for the American health system where health insurance is tied to employment. This raises the question of the relationship between health insurance and self-employment mobility in other health systems where health insurance schemes differ between wage and self-employment. This paper aims to answer the question in Vietnam, where there are differences in health coverage between the two employment sectors.

2 The Vietnamese health insurance system

In Vietnam, the first social health insurance was introduced as a compulsory contribution-based scheme in 1992 for the formal sector to include public servants, people working in state-owned enterprises and private companies (Palmer, 2014). Since then, different schemes have been introduced to different groups of the population. Finally, in 2008, all schemes were consolidated into one national SHI programme under the first Health Insurance Law (Socialist Republic of Vietnam, 2008). The latest policy change was the Health Insurance Law Amendment in 2014 (Socialist Republic of Vietnam, 2014) which revised some of the articles in the previous bill and explicitly endorsed universal health coverage by stating that ‘health insurance is compulsory for all individuals under this law’ (Article 1, Health Insurance Law, 2014). Until 2014, the last period of this study, the majority of insurance holders were part of the SHI under different categories which used to form its predecessors. These included compulsory insurance for the formal sector, free health insurance for the poor, subsidized insurance for the near-poor, free insurance for social assistance recipients (the disabled, veterans and mothers of war martyrs), free insurance for children under six, voluntary insurance for students, the informal self-employed (i.e. farmers and non-farm self-employed workers) and dependants of those in the compulsory scheme. In addition to the SHI, there were also other types of health insurance in the financial market. However, these were often more expensive and exclusively for those who could afford it. These insurances were not managed by the public system and we unfortunately do not have data about their share in the total enrolment.

Despite all schemes having been pooled into one single payment programme, its management remains fragmented (Somanathan et al., 2014), with differences in enforcement mechanism, premium and co-payment rate. Due to risk aversion in the voluntary scheme (ibid.), the government has been trying to enrol more informal self-employed workers using monetary incentives. The policy consolidation in 2008 together with its implementation guideline in 2009 (Socialist Republic of Vietnam, 2009) set the premium of the voluntary scheme in 2010 slightly lower than that of the compulsory scheme to incentivise informal self-employed workers to participate. Formal employees were required to pay six percent of their net salary, four percent and two percent of which were paid by employees and employers respectively (Socialist Republic of Vietnam, 2008).

By contrast, contribution by those in the voluntary scheme was set to 4.5 percent of the current minimum wage (Socialist Republic of Vietnam, 2009) which is by default lower than the net salary of an average formal worker. However, voluntary health insurance remains unpopular in Vietnam mostly due to risk aversion and a lack of trust in the effectiveness and the value of the SHI package (Somanathan et al., 2014). The weak enforcement of this scheme is another explanation for the gap in health insurance coverage between the informal self-employed and formal workers. In 2011, SHI covered over 64.8 percent of the total population, leaving 35.2 percent uncovered (31.9 million people) (Somanathan et al., 2014). Self-employed workers and their families accounted for nearly 50 percent (15.7 million people) of the uncovered individuals, whereas the share of formal workers was more than 19 percent (6.2 million people) (ibid.).

3 Data and Methodology

We use three waves of a panel from the Vietnamese Household Living Standards Surveys (VHLSS) 2010-2014. VHLSS is a representative household survey conducted every two years to collect individual level data on many topics including health, labour, demographics and so on. However, because of the broad purpose, the surveys do not have detailed information on job characteristics, spousal characteristics (Zissimopoulos and Karoly, 2007) or risk attitude (Van Praag and Cramer, 2001), which have been shown to significantly affect self-employment.

Each survey round collects information of around 9,000 households in 3,000 communes in Vietnam. To ensure the representativeness of each cross-section, a rotating approach is used wherein only half of the sample each wave is repeated in the next wave. This significantly reduces the sample size when the panel structure is used. After data cleaning and verification, the original panel includes approximately 1,850 households each wave. We only examine individuals aged 16-65 and individuals surveyed in all three periods. Notably, it is not possible to separate students aged above 16 in the working-age sample because the surveys in 2010 and 2012 did not ask why someone was not working over the last 12 months. Therefore, after attrition checks, we use the legal working age cut-off in Vietnam (16 years old) and the universally accepted working age (16-65) in the literature to draw a sub-sample of working-age people. Importantly, because our method requires the use of a balanced panel to track self-employment transitions over time, this sample excludes those who were surveyed repeatedly in all waves but were outside the age range. The final panel is balanced and consists of 3,696 observations each wave.

Unlike the self-employment sector in advanced countries, which is mainly represented by formal workers and entrepreneurs, this employment category in LMIC denotes a complex taxonomy of workers. In this paper, we define someone as self-employed (SE) if the person reported working as a self-employed worker ‘over the last 12 months’ (either in agriculture or the non-farm sector). This category, in the Vietnamese context, includes not only farmers, own account workers, unregistered workers working in household businesses (the informal workers) but also formal entrepreneurs (the formal workers). Unfortunately, the data allow us to separate the self-employed by industry (farm and non-farm) but not by legal status (formal/informal). This data limitation implies more caution in interpreting our results because the eligibility of the two health insurance schemes of interest (voluntary and compulsory insurance) is mainly based on the legal status of the employee. Wage employment (WE) and dual employment (DE, i.e. engaged

in both self-employment and wage employment simultaneously) are specified based on the self-reported work status ‘over the last 12 months’.

We define entry into SE as moving from WE or DE to SE from the baseline year (2010) to the later periods (2012 or 2014). SE exit is defined as moving from SE in the baseline to WE or DE later. We use a Multinomial Logit Model for two different dependent variables, i.e. SE entry and exit which are categorical variables that capture the time when an individual enters or exits SE relative to the baseline. SE entry takes the value of 0 if the individual stayed in WE or DE for all three periods, and respectively takes the value of 1 or 2 if he or she transitioned to SE in 2012 or 2014. SE exit equates 0 if the person stayed in SE in all years and then takes the value of 1 or 2 if moving out of SE (and hence into WE or DE) in 2012 or 2014.

We do not include non-working individuals (unemployed, retired, or not participating in the labour force) in the definitions because the mechanisms behind SE entry or exit are necessarily different from transitions in and out of the labour market. Thus respondents who are not working in at least one data period are disregarded. The definitions of the two variables are summarised in Table 1.

Table 1: Definitions

	2010	2012	2014	Value	Description
Entry	WE /DE	WE /DE	WE / DE	0	Stay in WE/DE
	WE / DE	SE	SE / WE /DE	1	Enter SE in 2012
	WE / DE	WE / DE	SE	2	Enter SE in 2014
Exit	SE	SE	SE	0	Stay in SE
	SE	WE / DE	SE /WE /DE	1	Exit SE in 2012
	SE	SE	WE /DE	2	Exit SE in 2014

SE : Self-employment only, WE : Wage employment only, DE : Dual employment

We only keep the baseline observations for the analysis, thus transforming the panel into a cross-section which consists of 3,696 observations in 2010. Notably, in our definition, DE also includes self-employment. Thus, in this paper, we measure the mobility in and out of sole self-employment (SE) from sole wage employment (WE) or dual employment (DE).

Because SE in Vietnam comprises both formal and informal sectors while voluntary insurance is designed for the informal self-employed, the underlying mechanism of employment mobility (or immobility) in the case of entrepreneurship lock (if any) can be varied and aligns with the process of formalisation. We expect that those with a compulsory health insurance in the formal sector (i.e. those working in the public sector or in the formal private sector) will have the tendency to stay in WE or DE, whereas those with a voluntary health insurance (farmers and the informal self-employed in the non-farm sector) are expected to be more likely to move out of SE to WE or DE with a more secured health scheme. The mechanisms are summarised in Table 2.

Our dependent variables consist of mutually exclusive choices, i.e. the decision to enter or exit SE in 2012 is independent of the decision in 2014 if both decisions are referring to the same baseline period. Therefore, the IIA (Independence of Irrelevant Alternatives) assumption in the Multinomial Logit Model holds true in this case.

We regress SE entry and exit (relative to the baseline year 2010) on health insurance coverage, individual and household characteristics in the baseline, such as gender, marital status, educational attainment, the annual healthcare utilisation (proxied for health

Table 2: Entrepreneurship lock mechanisms

Movement	Mechanisms	Variable
	-Informal WE to formal WE	
Stay in WE/DE	-Informal WE to DE (at least one job is formal)	Entry=0
	-Informal DE (both jobs are informal) to formal WE	
	-DE (both are informal) to DE (at least one job is formal)	
SE exit	-Informal SE to DE (at least one job is formal)	Exit=1
	-Informal SE to formal WE	

SE : Self-employment only, WE : Wage employment only, DE : Dual employment

status), self-reported household poverty status, household size, dependency ratio ¹, work industry (agriculture/non-agriculture). Notably, we do not have information on health status, therefore it is proxied by health care utilization. We only use the first type of health insurance reported for this analysis as the majority of the surveyed people only have one health insurance scheme.

To take advantage of the time dimension of the panel, we also account for changes in the time-variant control variables over time. We transform the control variables into change dummies that take the value of 1 if there was any change during 2010-2014 of the respective variable. We use change dummies for the followings: education, marital status, type of insurance coverage, healthcare utilisation, household size, dependency ratio, urban, poverty status, and work industry. Change in age is not included because there is no variation in this change among individuals over time.

4 Results

4.1 Descriptive statistics

Health insurance coverage

Table 3 provides information on health insurance coverage in Vietnam during 2010-2014. As suggested, health insurance was expanding rapidly during the period, from nearly 60 to 67 percent of the total population. Coverage also increased sharply for working-age people, from around 47 percent in 2010 to 57 percent in 2014. However, despite the rapid pace of coverage expansion, the results seem to be consistent with that of Somanathan et al. (2014) regarding the low enforcement of SHI, especially the contribution-based schemes (voluntary and compulsory schemes). Importantly, other types of private insurance outside the SHI programme were more popular than these contribution-based schemes, suggesting that the SHI programme might not be well received by the general public. This is explained by the observation that people do not have trust in the effectiveness of the system (Somanathan et al., 2014).

¹ Dependency ratio is defined as the total number of children under 16 and elderly family members above 65 divided by the household size.

Table 3: Health insurance coverage 2010-2014 (%)

	2010	2012	2014
Total population			
No insurance	41.37	36.99	33.07
Free health insurance for children under 6	8.23	5.81	3.22
Subsidized health insurance for the poor and the near poor*	14.07	16.87	16.07
Free Health insurance for assistance recipients	5.61	6.46	9.64
Compulsory health insurance for the formal sector	9.63	10.63	11.12
Voluntary insurance	6.78	7.83	10.75
Others (private insurances)	14.31	15.41	16.13
Number of observations	6,062	6,090	5,636
Working-age population (balanced panel)			
No insurance	53.48	48.80	43.02
Subsidized health insurance for the poor and the near poor*	13.91	15.56	14.72
Free health insurance for assistance recipients	4.98	6.01	8.89
Compulsory health insurance for the formal sector	13.04	14.03	15.21
Voluntary insurance	8.50	10.32	13.81
Others (private insurances)	6.09	5.28	4.35
Number of observations	3,696	3,696	3,696

This table reports weighted statistics. In this paper, we only use the first type of health insurance reported.* Until 2014, the poor were entitled to free health insurance, while the near-poor could benefit from a half-price premium reduction.

The self-employed in Vietnam

Table 4 shows the employment categories in Vietnam during 2010-2014 using the final panel of the working-age population. Similar to other LMIC, Vietnam is characterised by a large share of self-employment, at approximately 53 to 54 percent of total working population during 2010 and 2014. Another important feature is the role of dual employment which makes up around 22 to 23 percent of the total working population.

Table 4: Employment categories 2010-2014 (%)

Year	2010	2012	2014
Total sample (working-age population)	3,696	3,696	3,696
Working population rate	86.41	87.39	86.97
Total sample of the working population	3,226	3,250	3,265
WE only	23.85	23.48	24.68
DE	23.11	21.66	22.40
SE only	53.04	54.85	52.92

DE (Dual employment) denotes the combination of both WE and SE. This summary table uses the final balanced panel and sampling weight.

Table 5 provides information on the self-employed in Vietnam. As discussed in section 3, the SE sector in a developing country like Vietnam does not only include formal entrepreneurs - the concept of SE is broader and also comprises farmers, own account workers, and employees working for household businesses. Therefore, among those engaging in SE in Vietnam (both DE and SE only) during 2010-2014, only about 32 percent worked in the non-farm sector while over 68 percent were in agriculture. This suggests the dominance of farmers, own account workers and employees in agricultural

household businesses in the self-employed population. Additionally, because the majority of agricultural household businesses in Vietnam are informal (Cling et al., 2011) while farmers and own account workers are informal by definition, the self-employed population in our data mostly represents informal workers. This is consistent with Cling et al. (2011) who suggest that a majority of the self-employed in Vietnam is in the informal sector. This is an important finding given that data limitations do not allow us to distinguish formal workers from informal ones within the self-employed. Therefore, the voluntary health insurance scheme which is designed for informal workers is actually targeted to the informal self-employed.

Table 5: The profile of the self-employed in Vietnam, 2010-2014 (%)

Year	2010	2012	2014
By sector			
SE in agriculture	68.28	69.23	68.09
SE in the non-farm sector	31.72	30.77	31.91
Total	100	100	100
By sector and employment category			
- SE only in agriculture	40.81	43.13	41.48
- DE (with SE in agriculture)	27.46	26.10	26.60
- SE only in the non-farm sector	28.84	28.56	28.78
- DE (with SE in the non-farm sector)	2.88	2.21	3.13
Total	100	100	100
Total sample of those engaged in SE *	2,526	2,542	2,528

DE (Dual employment) denotes the combination of both WE and SE. * This include both both DE and sole SE. This table uses the final balanced panel and sampling weight.

Employment mobility in Vietnam

Table 6 shows the patterns of mobility in employment status in Vietnam during 2010-2014. As illustrated, the rigidity of the economy was relatively strong, with more than 72 percent of those in WE or DE in 2010 never entering SE in later periods. Similarly, more than 78 percent of those self-employed in 2010 did not exit SE during 2012-2014. The rigidity is shown very clearly with non-poor working age population. More than 93 percent of those having compulsory insurance in 2010 never entered SE in either 2012 or 2014. Similarly, more than 86 percent of those who had voluntary insurance coverage did not exit SE. Interestingly, the exit rate of formal entrepreneurs (self-employed workers having compulsory insurance) was relatively high at over 75 percent. This exit rate of formal self-employed workers suggests that serial entrepreneurship, a phenomenon to describe constant entry and exit of entrepreneurs, is common in Vietnam.

Table 6: Self-employment entry and exit by health insurance (%)

	No entry	Entry in 2012	Entry in 2014
No insurance	69.72	20.27	10.01
Health insurance for the poor and the near poor	63.03	29.13	7.84
Health insurance for assistance recipients	55.04	35.05	9.91
Compulsory insurance in the formal sector	93.49	3.72	2.79
Voluntary health insurance	52.46	32.23	15.31
Others	60.06	39.94	0.00
Total	73.86	18.19	7.95
Observations	1,031	254	111
SE exit	No exit	Exit in 2012	Exit in 2014
No insurance	80.41	11.30	8.29
Health insurance for the poor and the near poor	68.19	17.59	14.22
Health insurance for assistance recipients	83.78	11.20	5.02
Compulsory insurance in the formal sector	75.84	9.90	14.26
Voluntary health insurance	86.09	6.70	7.21
Others	65.14	14.43	20.43
Total	78.91	11.86	9.24
Observations	1,268	191	148

This table reports weighted statistics and only includes the baseline observations in 2010.

4.2 Estimation results

Table 7 shows the results of the Multinomial Logit model of entry decisions in 2012 and 2014 compared to the baseline with a particular focus on the effects of health insurance. The models compare the mobility into SE with the decision to stay outside SE. We gradually include the control variables in models 1, 2 and 3, with model 1 controlling for individual characteristics (i.e. age, gender, education, marital status, health insurance, healthcare utilization), model 2 and 3 respectively adding household characteristics (household size, dependency ratio, urban, household poverty status) and job characteristics (work sector). Models 4-6 accordingly add change dummies into models 1-3.

We estimate standard errors using clustering on the household level, clustering on the individual level and the bootstrap method. However, because the results are consistent across different methods of standard error estimation, we only report bootstrap standard errors in the tables.

Table 7: Self-employment entry

Base category: no entry (entry=0)	(1)	(2)	(3)	(4)	(5)	(6)
Entry in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.268 (0.34)	-0.295 (0.29)	-0.358 (0.38)	-0.308 (0.36)	-0.351 (0.35)	-0.481 (0.33)
Health insurance for the poor and the near poor	0.079 (0.38)	0.437 (0.37)	0.232 (0.47)	0.035 (0.37)	0.389 (0.47)	0.052 (0.38)
Health insurance for assistance recipients	0.782 (0.54)	0.876* (0.52)	0.638 (0.49)	0.724 (0.49)	0.815 (0.52)	0.505 (0.48)
Compulsory insurance in the formal sector	-1.772*** (0.49)	-1.782*** (0.41)	-1.798*** (0.42)	-1.814*** (0.44)	-1.833*** (0.49)	-1.836*** (0.42)
Others	0.318 (3.36)	0.312 (2.63)	0.191 (2.63)	0.241 (4.19)	0.248 (10.46)	0.091 (0.89)
Change in health insurance (dummy)				-0.072	-0.121	-0.143
Entry in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.456 (0.44)	-0.573 (0.51)	-0.657 (0.46)	-0.417 (0.48)	-0.533 (0.55)	-0.772* (0.46)
Health insurance for the poor and the near poor	-0.273 (0.48)	-0.324 (0.59)	-0.593 (0.62)	-0.273 (0.46)	-0.275 (0.71)	-0.768 (0.64)
Health insurance for assistance recipients	0.182 (0.65)	0.063 (0.73)	-0.265 (2.27)	0.170 (0.74)	0.070 (0.84)	-0.396 (0.58)
Compulsory insurance in the formal sector	-1.509** (0.59)	-1.566** (0.69)	-1.575*** (0.54)	-1.403** (0.66)	-1.456* (0.74)	-1.417** (0.65)
Others	-16.256*** (0.94)	-16.635*** (0.87)	-17.652*** (0.78)	-16.230*** (0.89)	-15.403 (11.70)	-50.601*** (12.71)
Change in health insurance (dummy)				0.170	0.166	0.124

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Number of observations: 1,503. Model 1 controls for individual characteristics (age, age squared, gender, educational attainment, marital status, healthcare utilization). Model 2 adds household characteristics into model 1 (household size, dependency ratio, urban, household poverty status). Model 3 adds work industry into model 2. Model 3-6 respectively add change dummies of the according control variables in models 1-3.

As suggested, those having compulsory health insurance (the formal workers) in 2010 are significantly less likely to move into SE later compared to those with voluntary insurance (the informal workers). The odd ratios of compulsory health insurance in both years are negative and significant and relatively similar in magnitude (from -1.77 to -1.84 in 2012, and -1.40 to -1.57 in 2014). The probability of moving into SE in 2012 relative to staying outside SE for those with compulsory insurance is 83-84 percent less than that of individuals with voluntary insurance (the exponential values of -1.77 and -1.81 are 0.17 and 0.16 respectively). In 2014, the figure stands at 76-80 percent when calculating the exponential values. Additionally, those having other types of insurance not listed in the public categories are less likely to enter SE from DE or WE in 2014. The ‘others’ category represents private and premium insurance services in the financial market which is managed by the government. The very large effect size of other insurance in 2014 is explained by the small number of observations in this category. Unsurprisingly, SE entry is not driven by any change in health insurance scheme. This means formal workers tend to stay out of SE but if they decide to move into SE, health insurance is not the main reason for the mobility.

Table 8 reports exit patterns in 2012 and 2014 compared to the baseline year in 2010. The models compare the SE exit with the decision to stay inside SE during the period 2010-2014. As in Table 7, we control for the same variables and report only bootstrap standard errors.

Table 8: Self-employment exit

Base category: no exit (exit=0)	(1)	(2)	(3)	(4)	(5)	(6)
Exit in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	0.494*	0.509	0.493	0.603	0.597	0.516
	(0.27)	(0.41)	(0.30)	(0.38)	(0.38)	(0.45)
Health insurance for the poor and the near poor	0.778**	0.783*	0.704**	0.861**	0.825*	0.771
	(0.33)	(0.46)	(0.35)	(0.39)	(0.44)	(0.53)
Health insurance for assistance recipients	0.484	0.489	0.420	0.475	0.419	0.357
	(0.54)	(0.59)	(0.41)	(0.44)	(0.64)	(0.65)
Compulsory insurance in the formal sector	0.942	1.015	0.963	0.915	0.999	0.846
	(4.61)	(4.54)	(4.72)	(4.75)	(9.86)	(4.91)
Others	0.715	0.790	0.748	0.692	0.686	0.499
	(0.67)	(3.47)	(0.73)	(2.43)	(2.17)	(0.91)
Change in health insurance (dummy)				0.468***	0.450**	0.355*
Exit in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.040	-0.039	-0.052	0.035	0.049	0.024
	(0.35)	(0.31)	(0.36)	(0.34)	(0.42)	(0.37)
Health insurance for the poor and the near poor	0.504	0.298	0.226	0.569	0.394	0.346
	(0.40)	(0.34)	(0.46)	(0.42)	(0.40)	(0.47)
Health insurance for assistance recipients	-0.118	-0.184	-0.249	-0.138	-0.194	-0.292
	(0.55)	(0.47)	(0.56)	(0.51)	(0.53)	(0.55)
Compulsory insurance in the formal sector	1.512***	1.562	1.511	1.521	1.645*	1.563**
	(0.57)	(2.00)	(2.17)	(3.68)	(0.97)	(0.67)
Others	0.915	0.914	0.893	0.742	0.745	0.704
	(2.36)	(2.15)	(0.60)	(0.61)	(0.79)	(2.84)
Change in health insurance (dummy)				0.346*	0.359**	0.291

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Number of observations: 1,503. Model 1 controls for individual characteristics (age, age squared, gender, educational attainment, marital status, healthcare utilization). Model 2 adds household characteristics into model 1 (household size, dependency ratio, urban, household poverty status). Model 3 adds work industry into model 2. Model 3-6 respectively add change dummies of the according control variables in models 1-3.

As suggested, in 2012 and 2014, any change in health insurance status is associated with SE exit decisions and the effect is statistically significant across models. Notably, this effect is stronger than that in the case of SE entry, indicating that SE exit is more driven by health insurance coverage than SE entry. However, the relative probability of exiting rather than staying in SE is not significantly different between those covered by the two schemes in 2012. In the second period, the effect is statistically significant only in several regressions, suggesting that the effect is not very robust. The insignificant effect of having the compulsory scheme relative to the voluntary scheme might be due to the very small number of observations of these two categories as our definition of SE exit only includes self-employed workers in 2010 who were less likely to be covered in either of the schemes.

Because more than 68 percent of the self-employed in our data are in the agriculture sector (see Table 5), we separate the effects by work sector (agriculture/non-farm sector) and region (rural/urban). The results are reported in the appendices. In general, there is no noticeable variation in the results on SE exit by work sector and geographical region. The conclusion for these broken-down calculations are consistent with that for the general sample. On the contrary, the negative effect of compulsory insurance on SE entry is more pronounced in the non-farm sector and in rural areas.

5 Discussion

In this study, we have shown that health insurance has a strong association with SE entry and that this relationship tends to persist over time. In particular, those insured by compulsory health insurance are less likely to enter SE compared to those having the voluntary insurance. The probability of moving into SE in 2012 and 2014 relative to staying outside SE for those with compulsory insurance is around 76-84 percent less than that of individuals with voluntary insurance. These effects are very large in size and statistically significant given that all insurance schemes have the same basket of health services covered (Socialist Republic of Vietnam, 2008). Notably, this effect is more evident for those working in the non-farm sector in rural areas, probably due to lower wage job opportunities in rural areas compared to cities. Additionally, in rural areas of Vietnam where jobs are mostly in the informal agriculture sector (farmers, informal agricultural household businesses) or the formal public sector (teachers in public schools, civil servants and so on), it is sensible that those with non-farm wage jobs - which are better off - do not want to quit for SE opportunities.

The probability of exiting SE by compulsory insurance holders is not significantly different from that of voluntary insurance holders. We initially hypothesised that self-employed workers with voluntary insurance - those in the informal sector - are more likely to exit SE to find a more secure job with a more guaranteed health insurance but we do not find evidence to support this. This might be due to the very small number of observations of these two insurance categories as our SE exit definition by default only includes self-employed workers in 2010 who were less likely to be covered in either of the schemes. Albeit insignificant in most regressions, the positive effect of compulsory insurance on SE exit suggests that self-employed workers with compulsory insurance in the formal sector (entrepreneurs) tend to exit more than the self-employed in the informal sector (farmers, own account workers, unregistered household employees). This seems to suggest that it is easier for the formal self-employed to move out of the high risk sector and find other job opportunities in WE or DE while the informal self-employed are somehow stuck where they are. The positive sign is consistent with Gindling and Newhouse (2014) who suggest that the self-employed in developing countries are pushed into lower paid self-employment out of necessity rather than opportunity. This might be the case for Vietnam, since in our regressions we only controlled for educational attainment, excluding many other important individual characteristics that determine SE exit like experience, social network and so on due to data limitations.

Because, to our knowledge, this is the first study that looks at the relationship between health insurance and self-employment in LMIC, it is difficult to compare our results with other studies which are mainly about the US. Additionally, health regimes are very varied even within LMIC, so any attempt to compare the results should be done with caution. Wagstaff and Moreno-Serra (2015)'s study on Central Asian and Eastern European countries with very similar SHI systems examines the issue from a macro perspective and hence is not necessarily comparable to our micro analysis. The closest study is by Zissimopoulos and Karoly (2007) who use a Multinomial Logit model and track the transition into SE from one data wave to the next. They suggest a 0.7 and 0.1 percentage point decrease in transition to SE for salary men and women. Fairlie et al. (2011) report an increase of 0.013 percentage points in transition into SE for the elderly at the age cut off of 65. These two studies seem to suggest very small effect sizes compared to our results - probably because they focus on older workers, while we

examine the whole working-age population. It is intuitive that the effect size for the elderly is smaller than the general working-age population as the former are less likely to participate in the labour market in general and as a self-employee in particular.

Additionally, entrepreneurship lock is more relevant for the US (Zissimopoulos and Karoly, 2007; Fairlie et al., 2011) due to the institutional link between health insurance and employment. In Vietnam, the effect caused by health insurance might not be that strong by design, owing to the availability of the voluntary health insurance for informal workers. Therefore, our analysis might overestimate the effect size as it could not distinguish health insurance from other fringe benefits which are normally attached to formal jobs and the public sector. This is caused by data limitations, enabling us to capture only the correlation between health insurance and SE mobility rather than causality. Therefore, the interpretation of our results should emphasise that people with compulsory insurance are locked in WE and DE due to the benefits attached to the job (job security, other fringe benefits, income prospects), and that insurance coverage is just one reason among them. The large effect seems to suggest the rigidity of the Vietnamese labour market between the formal and informal sector and hence between the SE and WE due to the over-representation of informal jobs in SE in Vietnam.

The biggest limitation of this study lies in the potential omitted variable bias due to the cross-sectional nature of our analysis. Even though we tried to incorporate the time trend by adding changes in time-variant regressors, the risk of omitted variable bias was not avoidable as we could not control for many characteristics (e.g. characteristics and employment status of the spouse, self-employment experience, risk attitude) which have been shown to impact SE decisions (Gai and Minniti, 2015; Van Praag and Cramer, 2001).

Despite the limitation, we can show the correlation between health insurance and SE mobility. In Vietnam, because SE is highly overlapping with the informal sector, this suggests a relationship between health insurance and the formality of employment. In other words, the design of the SHI that separates the formal sector from the informal sector, which then has been translated into the enforcement issue and coverage gap, seems to contribute to the rigidity of the labour market. Our evidence suggests that the differential between various health insurance schemes can have an important effect on self-employment mobility and the effect is not a unique feature of the American health system where health insurance is exclusively locked to employment.

The labour market rigidity suggested leads one to discuss the potential economic inefficiency as well as the role of entrepreneurship in the Vietnamese economy. Based on the efficiency argument (Jovanovic, 1979), it is recommended to tackle the link between health insurance and employment. Even though the voluntary insurance for the informal workers is designed to remove this link, the weak enforcement of this scheme compared to the compulsory package seems to fortify this undesirable link in the labour market. Therefore, a financial incentive to encourage insurance enrolment might not be sufficient. Awareness raising, which has been shown to increase the willingness to pay for SHI premium (Nguyen and Hoang, 2017), is needed to tackle the enforcement issue. Additionally, efficiency improvement of the SHI system as well as improved quality of care is vital when people do not trust the effectiveness of SHI (Somanathan et al., 2014).

Moreover, one should be cautious in using the efficiency argument to promote self-employment in Vietnam because better job matching and more flexibility in an economy of high concentration of the informal sector might imply moving out of the formal sector. SE in Vietnam is normally associated with the informal sector with smaller firms/economic

formations and less labour protection. By contrast, the related literature, due to its focus on the US with a very high level of economic formalisation, tend to ignore labour protection while promoting entrepreneurship with the aim of improving market efficiency and flexibility. With increasing concern regarding the erosion of labour protection due to weak compliance and disguised employment in LMIC (ILO, 2015), the policy choice may be pushing for the formalisation of the informal economy, combined with entrepreneurship promotion policies for the formal self-employment sector. In the context of Vietnam, where a large proportion of workers are working in the shadow economy (Cling et al., 2011), the transition toward the formal economy might be challenging in the short term. Therefore, in the short run, the focus should be on improving the depth and breath of the SHI coverage to discourage risk aversion, tackling the enforcement issue of the voluntary scheme via a compulsory mandate to reduce the rigidity and inflexibility of the economy induced by health insurance benefits.

6 Conclusion

Even though the relationship between health insurance and self-employment mobility can have important labour market implications, we know very little about this in the context of LMIC. In this paper, we used a Multinomial Logit model to estimate the association between health insurance in Vietnam and the mobility in and out of SE over time. Even though we were not able to identify causal effects, we managed to show that those with compulsory health insurance in Vietnam, the formal workers, did not have the incentive to start a business compared to those having voluntary insurance. This effect held true over time in 2012 and 2014. The effect was partly explained by the higher enforcement of the compulsory health insurance scheme in Vietnam which made staying out of SE (often informal SE) a preferred choice. Regarding the effect of health insurance on SE exit, we did not find any conclusive evidence on this matter. The rigidity of the economy was highlighted, suggesting the need to tackle the enforcement issue of the SHI programme in Vietnam in addition to other labour policies.

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Table A1: Self-employment entry by region

Base category: no entry (entry=0)	(1)	(2)	(3)	(4)	(5)	(6)
Rural(N=949)						
Entry in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.168 (0.43)	-0.129 (0.44)	-0.213 (0.39)	-0.187 (0.43)	-0.165 (0.50)	-0.338 (0.35)
Health insurance for the poor and the near poor	0.218 (0.48)	0.648 (0.51)	0.428 (0.47)	0.197 (0.48)	0.638 (0.57)	0.251 (0.42)
Health insurance for assistance recipients	1.043 (0.66)	1.224** (0.62)	0.943 (0.61)	1.002 (0.66)	1.189* (0.68)	0.798 (0.51)
Compulsory insurance in the formal sector	-1.815** (0.76)	- (0.62)	- (0.69)	- (0.69)	- (0.60)	- (0.64)
Others	1.185 (3.03)	1.284 (2.87)	1.164 (0.90)	1.226 (3.20)	1.404 (1.00)	1.294* (0.77)
Change in health insurance (dummy)				0.019 (0.15)	-0.042 (0.19)	-0.074 (0.20)
Entry in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.852 (0.56)	-0.878* (0.52)	- (0.32)	-0.770 (0.61)	-0.809 (0.50)	-1.104* (0.62)
Health insurance for the poor and the near poor	-0.456 (0.61)	-0.375 (0.68)	-0.662 (0.48)	-0.417 (0.70)	-0.322 (0.63)	-0.886 (0.65)
Health insurance for assistance recipients	0.030 (0.84)	0.075 (0.85)	-0.293 (2.36)	0.057 (1.08)	0.078 (0.71)	-0.488 (0.85)
Compulsory insurance in the formal sector	-1.271 (0.80)	-1.305* (0.72)	-1.348** (0.62)	-1.121 (0.80)	-1.127 (0.83)	-1.127 (0.72)
Others	16.271*** (0.93)	16.272*** (0.93)	16.391*** (0.76)	16.153*** (0.95)	16.175*** (0.83)	16.501*** (1.04)
Change in health insurance (dummy)				0.335* (0.20)	0.343 (0.28)	0.282 (0.28)
Urban (N=393)						
Entry in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.405 (0.82)	-0.282 (0.73)	-0.289 (0.69)	-0.683 (0.68)	-0.543 (0.86)	-0.482 (0.92)
Health insurance for the poor and the near poor	-0.170 (0.90)	1.223 (9.83)	1.181 (5.93)	-0.206 (2.69)	1.313 (11.31)	1.754 (7.90)
Health insurance for assistance recipients	16.172*** (2.78)	16.059*** (4.07)	17.681*** (5.09)	16.158*** (3.68)	17.543** (7.12)	17.581*** (2.32)
Compulsory insurance in the formal sector	-1.714** (0.76)	-1.538** (0.78)	-1.539* (0.84)	-2.089* (1.07)	-1.932* (1.03)	-1.868* (1.09)
Others	16.875*** (1.21)	16.744*** (3.28)	18.413*** (3.64)	16.767*** (1.57)	17.966** (7.17)	18.818*** (4.11)
Change in health insurance (dummy)				-0.327 (0.75)	-0.344 (0.65)	-0.356 (0.71)
Entry in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	1.189 (4.32)	1.156 (6.33)	1.115 (5.90)	1.122 (6.68)	1.130 (5.21)	0.898 (73.88)
Health insurance for the poor and the near poor	16.140*** (5.16)	-35.394* (18.44)	- (15.19)	16.075*** (6.13)	50.165** (25.06)	-51.089 (305.23)
Health insurance for assistance recipients	-13.915* (8.02)	-14.020 (12.81)	-15.630* (7.98)	-13.605 (11.69)	-14.900 (11.28)	-15.108 (210.81)
Compulsory insurance in the formal sector	-2.791 (9.60)	-2.932 (9.54)	-2.920 (6.94)	-3.162 (10.06)	-3.658 (13.32)	-3.620 (75.88)
Others	-15.189* (8.37)	-15.403 (12.08)	-16.813* (9.98)	-14.827 (11.72)	-16.225 (15.44)	-17.004 (129.53)
Change in health insurance (dummy)				-1.002 (3.21)	-0.902 (3.06)	-0.943 (90.48)

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Models 1-3 are without change dummies

Table A2: Self-employment exit by region

Base category: no entry (exit=0)	(1)	(2)	(3)	(4)	(5)	(6)
Rural (N=1,199)						
Exit in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	0.862*	0.902*	0.889*	0.967**	0.993	0.918*
	(0.45)	(0.53)	(0.52)	(0.39)	(3.36)	(0.53)
Health insurance for the poor and the near poor	1.097**	1.190**	1.141**	1.191***	1.246	1.231**
	(0.51)	(0.60)	(0.57)	(0.43)	(3.38)	(0.54)
Health insurance for assistance recipients	0.766	0.843	0.801	0.725	0.769	0.809
	(0.71)	(0.64)	(0.64)	(0.47)	(3.32)	(0.65)
Compulsory insurance in the formal sector	1.884	1.838	1.791	1.786	1.749	1.613
	(4.59)	(5.42)	(4.26)	(4.28)	(5.65)	(4.61)
Others	0.358	0.434	0.397	0.226	0.195	-0.103
	(3.06)	(5.72)	(5.07)	(4.83)	(4.33)	(4.32)
Change in health insurance (dummy)				0.554***	0.507**	0.395*
				(0.18)	(0.24)	(0.24)
Exit in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	0.136	0.176	0.152	0.230	0.299	0.259
	(0.43)	(0.42)	(0.39)	(0.35)	(0.48)	(0.42)
Health insurance for the poor and the near poor	0.536	0.407	0.316	0.627*	0.556	0.505
	(0.43)	(0.47)	(0.51)	(0.37)	(0.48)	(0.45)
Health insurance for assistance recipients	-0.744	-0.757	-0.833	-0.726	-0.709	-0.723
	(0.63)	(2.26)	(2.07)	(3.53)	(4.17)	(2.33)
Compulsory insurance in the formal sector	0.580	0.529	0.443	0.649	0.667	0.522
	(6.45)	(6.95)	(7.03)	(6.75)	(6.82)	(6.97)
Others	0.734	0.801	0.766	0.663	0.759	0.647
	(3.93)	(4.04)	(4.69)	(3.15)	(3.50)	(2.57)
Change in health insurance (dummy)				0.392	0.375	0.276
				(0.25)	(0.24)	(0.27)
Urban (N=304)						
Exit in 2012						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.368	-0.370	-0.307	-0.274	-0.191	-0.297
	(0.53)	(0.78)	(0.60)	(0.73)	(2.70)	(3.93)
Health insurance for the poor and the near poor	-0.328	-0.893	-1.096	-0.339	-0.776	-1.158
	(8.65)	(7.75)	(8.12)	(8.20)	(8.52)	(27.61)
Health insurance for assistance recipients	0.213	0.235	0.250	0.415	0.460	-0.074
	(10.22)	(10.86)	(11.19)	(9.86)	(9.48)	(10.50)
Compulsory insurance in the formal sector	-14.962*	-16.516*	-14.702	-14.663	-15.007	-16.298
	(8.36)	(8.70)	(9.69)	(9.08)	(9.97)	(67.73)
Others	1.563	1.779	1.637	2.032	2.469	1.908
	(11.37)	(10.31)	(14.68)	(12.64)	(9.35)	(91.02)
Change in health insurance (dummy)				0.071	0.098	0.296
				(0.79)	(1.06)	(15.20)
Exit in 2014						
Health insurance scheme (base: Voluntary health insurance)						
No insurance	-0.964	-0.933	-0.929	-1.164	-1.277	-1.311
	(4.58)	(3.36)	(5.51)	(1.24)	(42.67)	(142.85)
Health insurance for the poor and the near poor	0.390	0.324	0.344	0.434	0.361	0.357
	(5.46)	(16.96)	(6.76)	(3.15)	(16.56)	(168.42)
Health insurance for assistance recipients	1.536	1.596	1.642	2.039	2.137	2.050
	(4.53)	(101.75)	(6.19)	(1.49)	(72.34)	(174.48)
Compulsory insurance in the formal sector	2.997	3.066	3.080	2.953	3.222	3.179
	(7.03)	(94.87)	(10.52)	(16.30)	(57.51)	(260.27)
Others	1.845	1.949	1.895	2.350	2.471	2.300
	(13.30)	(229.92)	(24.56)	(16.92)	(26.45)	(270.39)
Change in health insurance (dummy)				0.024	0.177	0.146
				(0.80)	(23.10)	(93.26)

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Models 1-3 are without change dummies

Table A3: Self-employment entry by sector

Base category: no entry (entry=0)	(1)	(2)	(3)	(4)
Agricultural sector (N=427)				
Entry in 2012				
Health insurance scheme (base: Voluntary health insurance)				
No insurance	-0.271 (0.67)	-0.298 (0.73)	-0.318 (4.22)	-0.390 (4.96)
Health insurance for the poor and the near poor	-0.220 (0.70)	0.113 (0.77)	-0.264 (4.26)	0.044 (4.99)
Health insurance for assistance recipients	0.502 (0.83)	0.643 (0.92)	0.444 (4.38)	0.569 (5.01)
Compulsory insurance in the formal sector	-1.444 (3.14)	-1.549 (3.59)	-1.517 (5.77)	-1.703 (5.88)
Others	0.839 (5.25)	1.038 (5.59)	0.847 (9.52)	1.154 (6.07)
Change in health insurance (dummy)			-0.064 (0.24)	-0.085 (0.26)
entry in 2014				
No insurance	- 1.817*** (0.70)	- 1.790*** (0.61)	-1.779* (0.91)	-1.708 (2.20)
Health insurance for the poor and the near poor	-1.475** (0.69)	-1.559** (0.75)	-1.501 (0.97)	-1.533 (2.13)
Health insurance for assistance recipients	-1.509 (2.22)	-1.551 (2.18)	-1.563 (2.45)	-1.611 (2.21)
Compulsory insurance in the formal sector	-1.424* (0.86)	-1.436* (0.79)	-1.398 (2.47)	-1.336 (3.06)
Others	- 13.807*** (4.26)	- 12.410*** (3.78)	- 14.080*** (5.00)	- 14.514** (6.63)
Change in health insurance (dummy)			0.434 (0.34)	0.506 (0.44)
Non-farm sector (N=915)				
Entry in 2012				
Health insurance scheme (base: Voluntary health insurance)				
No insurance	-0.443 (0.43)	-0.429 (0.38)	-0.522 (0.40)	-0.597* (0.36)
Health insurance for the poor and the near poor	-0.016 (0.46)	0.472 (0.57)	-0.075 (0.42)	0.362 (0.58)
Health insurance for assistance recipients	0.507 (5.63)	0.630 (2.63)	0.444 (5.78)	0.454 (7.17)
Compulsory insurance in the formal sector	- 1.880*** (0.48)	- 1.914*** (0.47)	- 1.969*** (0.58)	- 2.026*** (0.68)
Others	-0.283 (7.37)	-0.355 (8.50)	-0.378 (8.14)	-0.671 (20.65)
Change in health insurance (dummy)			-0.194 (0.30)	-0.311 (0.29)
entry in 2014				
No insurance	0.334 (4.02)	0.286 (2.33)	0.259 (4.88)	0.292 (3.34)
Health insurance for the poor and the near poor	-0.405 (6.18)	-0.135 (4.39)	-0.420 (4.92)	0.005 (7.78)
Health insurance for assistance recipients	1.345 (9.46)	1.349 (6.19)	1.399 (8.16)	1.496 (18.43)
Compulsory insurance in the formal sector	-1.303 (3.98)	-1.346 (2.58)	-1.379 (4.86)	-1.391 (3.45)
Others	- 15.245*** (3.93)	- 15.345** (7.23)	- 14.982*** (5.02)	- -13.577 (13.15)
Change in health insurance (dummy)			-0.171 (0.34)	-0.133 (0.40)

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Models 1-2 are without change dummies

Table A4: Self-employment exit by sector

Base category: no exit (exit=0)	(1)	(2)	(3)	(4)
Agricultural sector (N=928)				
Exit in 2012				
No insurance	0.828 (3.88)	0.832 (0.66)	0.959 (2.39)	0.990 (0.62)
Health insurance for the poor and the near poor	1.043 (3.84)	1.159* (0.70)	1.157 (2.37)	1.288* (0.66)
Health insurance for assistance recipients	0.928 (3.89)	0.987 (0.62)	0.965 (2.33)	1.040 (0.70)
Compulsory insurance in the formal sector	0.991 (7.51)	0.935 (7.42)	0.879 (7.27)	0.833 (12.28)
Others	-0.054 (8.28)	-0.030 (6.45)	-0.085 (7.29)	-0.057 (9.16)
Change in health insurance (dummy)			0.492* (0.26)	0.477** (0.22)
Exit in 2014				
No insurance	-0.393 (0.42)	-0.414 (0.39)	-0.330 (0.49)	-0.332 (0.58)
Health insurance for the poor and the near poor	0.163 (0.46)	-0.072 (0.42)	0.221 (0.51)	0.033 (0.62)
Health insurance for assistance recipients	-0.567 (0.53)	-0.611 (0.48)	-0.581 (0.67)	-0.605 (0.75)
Compulsory insurance in the formal sector	0.766 (5.31)	0.778 (5.34)	0.873 (5.75)	0.881 (7.78)
Others	0.119 (5.91)	0.065 (4.69)	0.031 (6.75)	-0.020 (7.55)
Change in health insurance (dummy)			0.344 (0.27)	0.341 (0.33)
Non-farm sector (N=575)				
Exit in 2012				
No insurance	0.171 (0.54)	0.275 (0.42)	0.279 (0.53)	0.384 (0.62)
Health insurance for the poor and the near poor	0.374 (0.73)	-0.054 (2.40)	0.410 (0.74)	0.037 (0.98)
Health insurance for assistance recipients	- 13.759***	- 14.746***	- 13.831***	-14.090 (14.25)
Compulsory insurance in the formal sector	1.322 (8.22)	1.686 (8.24)	1.314 (8.38)	1.797 (15.65)
Others	1.351 (8.19)	1.558 (7.01)	1.204 (8.45)	1.411 (2.46)
Change in health insurance (dummy)			0.454 (0.47)	0.446 (0.41)
Exit in 2014				
No insurance	0.557 (4.50)	0.632 (2.24)	0.652 (3.09)	0.808 (3.86)
Health insurance for the poor and the near poor	0.988 (4.44)	1.028 (2.39)	1.048 (2.96)	1.104 (3.96)
Health insurance for assistance recipients	0.909 (7.04)	1.046 (4.57)	0.780 (4.47)	0.889 (6.20)
Compulsory insurance in the formal sector	2.650 (7.90)	2.740 (3.12)	2.642 (5.15)	3.005 (14.06)
Others	1.852 (5.49)	2.034 (4.54)	1.627 (3.96)	1.851 (3.84)
Change in health insurance (dummy)			0.481 (0.40)	0.549 (0.34)

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Models 1-2 are without change dummies

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