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Research Paper

Multiple Job-Holding in Indonesia: Do Years of Schooling Matter?

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Abstract

This study examines the impact of educational attainment, measured by individual years of schooling, on multiple job-holding in Indonesia. Utilizing data from the 2022 National Socio-Economic Survey (Susenas) for individuals aged fifteen and older, it examines both the decision to engage in multiple job-holding and the additional working hours outside the main job. To address potential sample selection bias, Tobit II (Two-Step Heckman) regression models are employed, with comparisons across models without controls, with controls, and with both controls and bias correction. The results show that over a quarter of employed individuals–approximately 27 percent–engage in multiple job-holding, contributing an average of more than four additional hours per week. Results from the Tobit II model suggest that higher levels of schooling are associated with a lower likelihood of multiple job-holding and fewer additional working hours. Multiple job-holding is found to be prevalent across all sectors, particularly in agriculture and informal employment, and is shaped by factors such as gender, working hours, land ownership, and urban-rural status. While education generally reduces multiple job-holding, its effect on additional hours varies across groups. The study recommends expanding educational access, enhancing protections and training for informal workers, and promoting rural and agricultural development to reduce necessity-based multiple job-holding and support more sustainable livelihoods.

Keywords: Multiple Job-Holding; Years of Schooling; Additional Working Hours; Two-Step Heckman.

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1. Introduction

In an imperfect labor market, a person may hold more than one job as a livelihood strategy. This strategy is known as multiple job-holding. For workers, multiple job-holding can be a rational choice to maximize their income and utility. According to several studies (Wu et al., 2009; Sharma & Rautela, 2024; Martinez et al., 2014; Panos et al., 2014), multiple job-holding can be divided into four models. First, the hours-constrained model, where workers have limited working hours in the main job and cannot increase working hours, so they look for other jobs to increase working hours. Second, the target income model, in which workers seek additional work because the wages in their main job are low and unable to meet their daily needs. Third, the main job insecurity model, where the high level of competition in the main job leads to vulnerability and the risk of dismissal (layoff), so they will actively engage in multiple job-holding to avoid the risk of unemployment. The last category is the heterogeneous job model, where workers are incentivized by multiple job-holding because the jobs are imperfect substitutes. This means that the benefit of the additional wage they get from the additional job is greater than the cost of their reduced leisure time.

Multiple job-holding can be done either by choice or necessity. Panos et al. (2014) found that in low-income groups, multiple job-holding is a necessity. This is related to the target income model, where Wu et al. (2009) explained that male workers are generally dissatisfied with the wages of their main job, which motivated them to decide on multiple job-holding. On the other hand, higher-wage jobs encourage an increased supply of working hours in second jobs for both men and women. Shishko & Rostker (1976) explained that the motivation for multiple job-holding is to increase income where workers' decisions are influenced by leisure time and the wage structure in the economy. They also explained that increasing wages in the main job can reduce the number of hours worked outside the main job. Meanwhile, multiple job-holding as a choice is generally a strategy of stable income groups, where they can acquire and develop skills, explore alternative career paths, or learn to be entrepreneurial. Panos et al. (2014) found evidence of this in industrialized countries, which then leads to motivation due to higher employment opportunities. In industrialized countries, additional employment can be part of a portfolio for workers' future career development.

In Indonesia, there have not been many studies on multiple job-holding. Martinez et al. (2014) is arguably the first empirical study on multiple job-holding with Indonesia Family Life Survey (IFLS) data. They found that there was an increase in the proportion of multiple job-holding in Indonesia from 20% (1993, IFLS 1) to 23% (2000, IFLS 3) and 24% (2007, IFLS 4). Another study by Wijayanti & Adrison (2018) using IFLS data from 2007 and 2014 (IFLS 5) noted that multiple job-holding increased again in 2014 to around 28%. This dynamic can also be further explored, whether it is a temporary or permanent strategy. It is a temporary strategy if multiple job-holding is done at a certain time due to limited working hours, uncertainty in the labor market, and financial shocks. In this case, multiple job-holding is considered temporary because it increases wages and utility that have not been obtained in the main job and protects workers from job insecurities and poor working conditions (Wu et al., 2009; Sharma & Rautela, 2024; Panos et al., 2014). Meanwhile, permanent strategies are generally due to heterogeneous employment motives and complementary occupations, such as lecturers who teach and research (Kimmel & Conway, 2001). Related to this, Wijayanti & Adrison (2018) found that around 45% of multiple job-holders in 2007 maintained the same strategy until seven years later (2014) as an indication of a permanent strategy. Furthermore, as an indication of a temporary strategy, around 55% who were multiple job-holders in 2007 switched to a single job in 2014. Otherwise, 23% of workers who were initially single job-holders turned into multiple job-holders. Therefore, these increases and dynamics suggest that multiple job-holding is becoming an important issue in the Indonesian labor market.

The reasons why workers decide to have multiple job-holding in Indonesia can be found in the studies of Martinez et al. (2014), Wijayanti & Adrison (2018), and Wicaksono et al. (2024). They generally use several variables at the individual, household, and regional levels such as gender, age, education level, marital status, proportion of working household members, wage in main job, number of hours worked in main job, employment sector (agriculture/non-agriculture), employment status (paid/unpaid worker), and regional status (urban/rural). As a result, men tend to have more than one job compared to women, although the difference was found to decrease over the years. In terms of age, higher age shows an increased chance of multiple job-holding but then decreases after the age of 45. Regional status also

differentiates multiple job-holding decisions, with urban workers less likely to take on additional jobs than rural workers. In terms of hours worked in the main job, those whose main job is less than 35 hours per week are more likely to hold an additional job than those who work more than 35 hours per week. Similarly, with wages in the main job, the higher the wage in the main job, the lower the tendency of workers to seek additional work. Martinez et al. (2014) specifically found that the poorest 20% of households are about 1.6 times more likely to have an additional job than workers from the richest 20% of households. By comparing the conditions in 2007 and 2014, Wijayanti & Adrison (2018) found that the greater the decline in income in that period, the higher the likelihood of workers maintaining a permanent multiple job-holding strategy. Wicaksono et al. (2024) looked more at the security of the main job and found that the more secure the main job, the lower the chances of multiple job-holding.

An interesting point is the relationship between education level and multiple-job holding decisions. In Indonesia, Martinez et al. (2014) found that those who only completed primary education were 1.2 times more likely to engage in involuntary multiple job-holding (out of necessity) than workers with higher education levels. However, workers with higher education were three times more likely to choose multiple job-holding voluntarily, as a matter of choice, compared to those who only completed primary education. Wijayanti & Adrison (2018) and Wicaksono et al. (2024) analyzed multiple job-holding at an aggregate level (both for necessity and choice). They found that workers who only completed primary education have a lower probability of multiple job-holding than those with university-level education. Previous studies in other countries have yet to reach a consistent conclusion. A positive relationship between education and the likelihood of multiple job-holding has been found in the United States (Hirsch et al., 2016), Canada (Glavin, 2020), the United Kingdom (Wu et al., 2009; Atherton et al., 2016; Conen & Stein, 2021), Germany (Conen & Stein, 2021), the Netherlands (Conen & Stein, 2021), and Ghana (Nunoo et al., 2018). In contrast, Panos et al. (2014) found no relationship between education and the decision to hold multiple jobs in the United Kingdom, while Asravor (2021) found a negative relationship between education and multiple job-holding in Ghana.

The issue of the relationship between education and multiple job-holding needs to be examined carefully. This is because education is a central variable in human capital. As has been studied repeatedly, education has a positive relationship with income levels. The higher the level of education, the better the wage in the main job, which may make workers less interested in taking on additional jobs. The relationship between wages in the main job and multiple job-holding is comprehensively discussed in Wijayanti & Adrison (2018). They found that the higher the wage in the main job, the lower the chance of workers engaging in multiple job-holding. We identified that studies in Indonesia conducted by Martinez et al. (2014), Wijayanti & Adrison (2018), and Wicaksono et al. (2024) measure education level using education level dummies, where this variable is not strong enough to describe the effect of one's educational attainment on multiple job-holding decisions. Therefore, we try to fill the gap by using a measure of individual years of schooling as a more robust proxy in representing the impact of educational attainment. Thus, this study aims to investigate the effect of years of schooling on workers' multiple job-holding decisions in Indonesia. Furthermore, this study also explores how the impact of years of schooling is heterogeneous on multiple job-holding decisions in terms of several worker characteristics such as gender, education level, land ownership, and regional status.

2. Methods

To investigate the impact of years of schooling on multiple job-holding decisions while providing an updated overview of multiple job-holding in Indonesia, this study utilizes data from the 2022 National Socio-Economic Survey (Susenas), unlike previous studies that relied on IFLS data. Susenas provides detailed information on individuals' education status, level, and highest completed grade, allowing for more accurate measurement of years of schooling. It also offers a proxy for multiple job-holding based on total working hours and main job hours. Additionally, Susenas includes individual sampling weights, enabling nationally representative estimates and more precise analysis of individual characteristics. This study focuses on individuals within the working-age population (15 years and older). The final sample consists of 901,091 individuals, representing 72.79% of the total 1,237,946 individuals surveyed, or 339,584 households.

We examine two measures of multiple job-holding: the decision to engage in multiple job-holding and additional working hours outside the main job. The multiple job-holding decision is a binary variable

(0, 1). It was coded as 1 if the total working hours exceeded the hours of the main job and 0 otherwise. The difference between total working hours and main job hours constitutes the additional working hours variable. Meanwhile, the years of schooling measure considers an individual's schooling status, grade, and highest diploma (educational attainment). We choose years of schooling because it provides a more accurate representation of an individual's educational attainment compared to educational dummy variables, as it accounts for the highest grade ever attended or currently being attended. Moreover, a higher level of education corresponds to more years of schooling, making this indicator essential for assessing the quality of human capital (BPS, 2023). Other variables include employment status, gender, age, education, formal/informal job status, agricultural/non-agricultural sector, standard working hours, internet access, land ownership, urban/rural residence, and the regional minimum wage (UMR) policy. The variable description and measurement are presented in Table 1.

Table 1. Research Variables and Data

Variables	Unit	Description/Measurement
Dependent Variable		
Working status	dummy (0,1)	Dummy = 1 if the individual is working, dummy = 0 if not
Probability of multiple job-holding	dummy (0,1)	Dummy = 1 if the total working hours exceeded the hours of the main job, dummy = 0 if otherwise
Additional working hours outside the main job	hours/week	Difference between total working hours and hours of the main job
Independent Variable		
Years of schooling	years	Number of years of study completed by the population aged 15 years and over in formal education (excluding years repeated)
Control/proxy variables: first stage		
Age	years	the age of the individual, where age is restricted to 15 years or older
Age squared	years	The square of the age of the individual, where age is restricted to 15 years or older
Gender	dummy (0,1)	Dummy = 1 if the gender is male, dummy = 0 if female
Internet access	dummy (0,1)	Dummy = 1 if the individual uses the internet, dummy = 0 if not
Land ownership	dummy (0,1)	Dummy = 1 if the individual owns the land, dummy = 0 if not
Urban/rural areas	dummy (0,1)	Dummy = 1 if the individual resides in an urban area, dummy = 0 if in a rural area
Log of minimum wage	IDR (in logarithmic form)	For districts/cities with a minimum wage policy, the District/City Minimum Wage (UMK) is used. If not, the Provincial Minimum Wage (UMP) is used
Control/proxy variables: second stage		
Informal	dummy (0,1)	Dummy = 1 if the individual is employed informally (self-employed, assisted by unpaid family workers, casual workers, and unpaid family workers). Dummy = 0 if employed formally (self-employed with permanent employees, salaried employees)

Specifically, we calculate individual years of schooling following the BPS (2023) guidelines. The years of schooling consider the schooling status, whether never attended school, still in school, or no longer in school. If the status is still in school or no longer in school, it will consider the conversion of diplomas as follows: no diploma (0 years), elementary school (6 years), junior high school (9 years), high school (12 years), diploma level 1/level 2 (14 years), diploma level 3 (15 years), diploma level 4 (16 years), bachelor's degree (17 years), profession (18 years), master's degree (19 years), and doctoral degree (22 years). In addition to the last diploma, the years of schooling are also considered the last class completed. There are generally five rules for estimating years of schooling. First, if the individual has never attended school, then the years of schooling are equal to 0 years. Second, if the individual is still in school at the elementary to undergraduate level, then the years of schooling use the conversion of the last diploma plus the last class minus 1 year. Third, if the individual is still in school at the master or doctoral level, then the years of schooling are equal to the conversion of the diploma plus 1 year. Fourth, if the individual is no longer in school and graduated in the last grade, then the years of schooling are equal to the conversion of the last diploma. Finally, if the individual is no longer in school and did not finish the last grade, then the years of schooling are equal to the conversion of the last diploma plus the last grade minus 1 year.

Given the issue of sample selection bias, as multiple job-holding decisions are only made by those who are employed, we use the Tobit II or Two-Step Heckman models (Greene, 2018). Sample selection bias occurs because the sample is not randomly selected from the overall population but is restricted to

those who are already working, potentially omitting individuals who are unemployed or out of the labor force due to unobserved factors related to education and job opportunities. Therefore, the first stage involves a working/non-working sample selection equation using probit regression as follows:

$$work_i^* = \boldsymbol{Z_i}'\boldsymbol{\gamma} + \mu_i \quad (1)$$

Where $\boldsymbol{Z_i}$ is a matrix of independent variables consisting of age, age squared, gender, internet access, land ownership, urban/rural areas, and log of minimum wage; μ_i is the error term; and subscript i denotes the individual. From this model, the inverse mills ratio ($mills_i$) is calculated to correct the selection bias in the second stage using the model:

$$mjh_i = \alpha_1 + \beta_1 yos_i + \varphi_1 informal_i + \omega_1 mills_i + \varepsilon_{1i} \quad (2)$$

$$t\_mjh_i = \alpha_2 + \beta_2 yos_i + \varphi_2 informal_i + \omega_2 mills_i + \varepsilon_{2i} \quad (3)$$

Where mjh is multiple job-holding decisions, t_mjh additional working hours outside the main job, yos is years of schooling, $informal$ is formal/informal employment status, and ε is error term. Equation (2) is estimated using logit and considers Average Partial Effect (APE) in the interpretation of coefficients, and equation (3) is a multiple linear regression estimated by Ordinary Least Squares (OLS). APE represents the average effect of changes in the independent variable, in this case, years of schooling, on multiple job-holding within the sample population. To show the correction of bias, we compared three models: a model without controls (logit/OLS 1), a model with controls (logit/OLS 2), and a model with controls and selection bias correction (Tobit II/Heckman). We also conduct subsample analysis as a robustness check using several individual characteristics, namely worker gender (male/female), education level (tertiary/non-tertiary education), household land ownership (landowner/landless), and regional status (rural/urban). This subsample analysis can show the heterogeneous effects of years of schooling on multiple job-holding decisions.

3. Results and Discussions

Before investigating the effect of years of schooling on multiple job-holding, we first present an overview of multiple job-holding in Indonesia in 2022 as shown in Table 2. Out of 61.73% of the population aged 15 years and older who are employed, more than a quarter (26.68%) engage in multiple job-holding, with an average additional working hours of 4.51 hours per week. Of this percentage, 14.48% of multiple job holders are household heads. Furthermore, this study finds that among households where the head is employed, only about 16.74% have other household members who engage in multiple job-holding. By gender, men have higher averages for years of schooling, employment rates, multiple job-holding, and average additional working hours per week than women. In fact, of all women aged 15 years and above, those who are working make up just over half of the population (44.05%). Of these, a quarter are involved in multiple job-holding. In terms of education and employment status, those with higher education or working in the formal sector are less likely to engage in multiple job-holding. In terms of education, there is a deviation of about 3 years in the average years of schooling between formal and informal workers. Formal workers have an average years of schooling of 10.93 years (or the equivalent of senior secondary education), while informal workers have only 7.78 years (or the equivalent of junior secondary education). Meanwhile, those who work in agriculture or live in rural areas are much more likely to engage in multiple job-holding with additional working hours of almost 1 hour per week than those who work in non-farm or rural areas. The gap in average years of schooling between agriculture and non-agriculture is also quite extreme, at around 4 years. Interestingly, of those who work less than 35 hours per week (standard working hours), almost half have an additional job with an additional 10 hours of work per week. Meanwhile, those working above standard working hours only have an average of 2.04 hours of additional work outside of their main job per week.

Table 2. Years of Schooling and Multiple Job-Holding by Individual Characteristics

Variable		Years of Schooling (years)	Employed (%)	Multiple Job-Holding (%)	Additional Working Hours/Week (hours)
General		**9.08**	**61.73**	**26.68**	**4.51**
By Gender	Male	9.28	79.24	27.50	4.67
	Female	8.87	44.05	25.19	4.22
By Education	Non-Tertiary Education	8.55	60.41	27.09	4.56
	Tertiary Education	12.48	70.13	24.40	4.25

Variable		Years of Schooling (years)	Employed (%)	Multiple Job-Holding (%)	Additional Working Hours/Week (hours)
General		**9.08**	**61.73**	**26.68**	**4.51**
By Employment Status	Formal	10.93	100.00	22.19	4.30
	Informal	7.78	100.00	30.40	4.69
By Sector	Non-Agriculture	10.41	100.00	21.56	4.22
	Agriculture	6.74	100.00	37.22	5.12
By Working Hours	>= 35 hours/week	9.22	100.00	19.05	2.04
	< 35 hours/week	8.48	100.00	43.59	9.99
By Land Ownership	Landowner	9.32	61.64	22.30	4.65
	Landless	9.00	61.75	27.98	4.47
By Area	Rural	7.89	64.36	35.42	4.95
	Urban	9.95	59.79	19.78	4.16

The results of empirical testing of the effect of years of schooling on workers' decision to do multiple job-holding can be seen in Table 3. A comparison of the three models shows that there is a significant bias correction after controlling for informal status and inverse mills ratio. As a result, years of schooling are shown to have a negative relationship with the decision to engage in multiple job-holding. If an individual's years of schooling increase by 1 year or an individual moves up 1 grade, it will decrease the probability of finding an additional job by 0.49%. These findings suggest that as individuals increase their investment in education, as indicated by more years of schooling, they tend to focus on their primary job and are less interested in taking on additional employment. However, the reduction in the probability of multiple job-holding of no more than 1% is relatively small, and this could explain the residual effects of several mechanisms that may affect multiple job-holding through education level, as suggested by Preston & Wright (2020). Furthermore, those who work in the informal sector are 6.68% more likely to have multiple jobs than those who work in the formal sector. In this case, formal employment status may indicate job security, so those who work informally are more vulnerable and choose to seek additional jobs to reduce the risk of reduced income and unemployment.

Table 3. Effect of Years of Schooling on the Probability of Multiple Job-Holding

Dep. Var. : Prob. of Multiple Job-Holding	Logit (1)		Logit (2)		Tobit II/Heckman	
	Coef.	APE	Coef.	APE	Coef.	APE
Years of Schooling	-0.0394***	-0.0076***	-0.0272***	-0.0052***	-0.0256***	-0.0049***
	(-41.89)	(-42.47)	(-27.30)	(-27.43)	(-25.55)	(-25.66)
Informal (0,1)			0.342***	0.0660***	0.347***	0.0668***
			(-35.31)	(35.84)	-35.81	(36.37)
Inverse Mills Ratio					-0.417***	-0.080***
					(-25.19)	(-25.34)
Constant	-0.656***		-0.961***		-0.758***	
	(-71.33)		(-74.53)		(-50.38)	

Note: The number of observations is 568,711. Logit (1) represents the logit estimation without controls, while Logit (2) refers to the logit estimation with controls. APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, gender, internet access, land ownership, urban/rural, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

Table 4 presents similar findings to Table 3, where there is a negative relationship between years of schooling and additional working hours outside the primary job. The addition of control variables and inverse mills ratio is also seen to produce consistent parameter estimation corrections. As a result, an additional year of schooling reduces the extra working hours by 0.03 hours (1.8 minutes) per week. This implies that individuals who invest more time in their education, although they may be compelled to engage in multiple job-holding, are likely to reduce the additional working hours outside their main job. Similar to the previous finding, although statistically significant, the magnitude of the decrease in average working hours outside the main job due to an additional 1 year of schooling is very small. This indicates that as education level or years of schooling increases, individuals may reduce additional working hours due to necessity, but on the other hand also increase additional working hours because it is an option, for example, for career development. The trade-off between these two factors may be that the impact of years of schooling on multiple job-holding decisions and additional working hours outside the main job is

not so great. Meanwhile, in terms of employment status, those working in the informal sector have an additional 0.29 hours (17.4 minutes) of work per week compared to those working in the formal sector.

Table 4. Effect of Years of Schooling on Additional Working Hours Outside the Main Job

Dep. Var. : Additional Working Hours Outside the Main Job	OLS (1) Coef.	OLS (2) Coef.	Tobit II/Heckman Coef.
Years of Schooling	-0.0459***	-0.0356***	-0.0311***
	(-9.77)	(-6.98)	(-6.10)
Informal (0,1)		0.279***	0.288***
		(-5.55)	(-5.73)
Inverse Mills Ratio			-0.936***
			(-11.26)
Constant	4.934***	4.687***	5.144***
	(-104.76)	(-69.31)	(-65.39)

Note: The number of observations is 568,711. Logit (1) represents the logit estimation without controls, while Logit (2) refers to the logit estimation with controls. APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, gender, internet access, land ownership, urban/rural, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

Since the characteristics of workers differ across employment status and sector, we will describe the depth of multiple job-holding using the matrix shown in Table 5. The row totals show the proportion of workers who engage in multiple job-holding by sector, while the column totals explain the proportion by the 5 categories of employment status. Agriculture constitutes the sector with the highest proportion of multiple job-holding compared to other sectors. A more detailed analysis reveals that agriculture also dominates in terms of the percentage of workers across all employment statuses. In fact, of those who are self-employed in the agricultural sector, 40.22% have an additional job. This finding is in line with Martinez et al. (2014), who found that self-employed agricultural workers are more likely to be multiple job holders than paid workers in the non-agricultural sector. Several factors, such as waiting for the harvest, which indicates a lack of working hours and low-income levels, could be the reason behind the high rate of multiple job-holding, especially in the agricultural sector. Meanwhile, those working in the finance and corporate services sectors show the lowest proportion of multiple job-holding compared to other sectors. In the total column, unpaid workers within all sectors comprise the largest segment of multiple job-holding. Nearly one-third (32.18%) of unpaid workers engage in multiple job-holding, with income being the primary motivating factor. Among all employment statuses, formal employment, specifically regular paid employees, has the lowest proportion of multiple job-holders, at just 21.59%. Notably, only 16.63% of regular workers in the trade, hotel, and restaurant sectors have additional jobs.

Table 5. Multiple Job-Holding by Employment Status and Sector (%)

	Self-Employed	Assisted by Permanent Labor	Salaried Employees	Freelance Workers	Unpaid Workers	Total
Agriculture	40.22	37.55	29.49	34.78	37.26	**37.22**
Mining	28.38	28.82	20.47	32.41	26.68	**23.93**
Manufacturing Industry	26.83	27.89	19.29	23.82	25.16	**21.49**
Electricity, Gas, and Water	20.25	23.58	21.18	17.36	10.58	**20.48**
Construction	26.08	31.47	21.15	22.88	21.97	**22.43**
Trade, Hotel, and Restaurant	21.41	19.45	16.63	24.30	17.17	**19.68**
Transportation and Communication	21.77	23.65	20.38	23.54	25.93	**21.15**
Finance and Corporate Services	18.80	21.92	17.86	26.14	21.30	**18.36**
Other Services	25.08	29.03	23.33	26.39	21.09	**23.92**
Total	**30.25**	**29.93**	**21.59**	**29.19**	**32.18**	**26.68**

Once again, when comparing the results from Table 5 with those from Table 6, which presents the average years of schooling by employment status and sector, a negative relationship between years of schooling and the proportion of multiple job-holding can be observed. The agricultural sector, previously identified as having the highest proportion of multiple job-holding, also has the lowest average years of schooling at 6.74 years. In particular, self-employed individuals and freelance workers in agriculture record the lowest average years of schooling, at 6.51 and 6.23 years, respectively. Meanwhile, those working in the finance and business services sector, which has the lowest incidence of additional employment, have the highest average years of schooling, at 13.01 years (equivalent to a higher education

level). Even salaried employees in this sector have the highest average years of schooling, at 13.50 years. In general, by employment status, freelance workers have the lowest average years of schooling (7.37 years), while salaried employees have the highest (11.07 years).

Table 6. Mean Years of Schooling by Employment Status and Sector (Years)

	Self-Employed	Assisted by Permanent Labor	Salaried Employees	Freelance Workers	Unpaid Workers	Total
Agriculture	6.51	7.15	7.62	6.23	6.87	**6.74**
Mining	7.32	8.53	10.02	7.71	7.35	**9.07**
Manufacturing Industry	8.05	9.86	10.38	8.15	8.58	**9.75**
Electricity, Gas, and Water	7.95	9.84	10.95	7.82	9.76	**9.93**
Construction	8.71	9.42	8.94	8.08	8.10	**8.64**
Trade, Hotel, and Restaurant	8.94	10.69	11.11	9.18	9.77	**9.69**
Transportation and Communication	9.70	10.04	10.97	9.23	9.91	**10.42**
Finance and Corporate Services	11.18	12.23	13.50	10.12	11.35	**13.01**
Other Services	9.66	10.92	12.96	8.49	9.90	**12.04**
Total	**7.93**	**9.09**	**11.07**	**7.37**	**7.61**	**9.08**

We conduct a robustness check by considering individual characteristics, as the effect of years of schooling may vary across different demographic and socioeconomic groups. Table 7 illustrates how years of schooling influence the decision to hold multiple jobs and add extra work hours beyond the primary job, disaggregated by male and female gender groups. The significant inverse Mills ratio indicates a correction for selection bias within each subsample. Based on gender, the impact of additional years of schooling in reducing the probability of doing multiple job-holding between men and women is almost the same, namely 0.54% versus 0.52%. Similarly, concerning additional working hours, one extra year of schooling reduces the additional weekly hours worked by male employees by 0.04 hours and by female employees by 0.03 hours. Meanwhile, both men and women working in informal employment have a higher likelihood of holding multiple jobs compared to those in formal employment. Interestingly, men working in the informal sector work an additional 0.38 hours (or 22.8 minutes) per week compared to those in the formal sector, whereas employment status has no effect on additional working hours for women.

Table 7. Effect of Years of Schooling on Multiple Job-Holding by Gender

Variable	Multiple Job-Holding				Add. Working Hours	
	Male		Female		Male	Female
	Coef.	APE	Coef.	APE	Coef.	Coef.
Years of schooling	-0.0279***	-0.0054***	-0.0282***	-0.0052***	-0.0419***	-0.0303***
	(-21.54)	(-21.65)	(-17.70)	(-17.79)	(-6.15)	(-3.93)
Informal (0,1)	0.369***	0.0723***	0.265***	0.0493***	0.380***	0.0642
	(31.42)	(31.96)	(15.41)	(15.54)	(6.06)	(0.76)
Inverse mills ratio	-0.557***	-0.1093***	-0.494***	-0.0920***	-1.689***	-0.849***
	(-22.33)	(-22.55)	(-13.03)	(-13.14)	(-17.14)	(-4.90)
Constant	-0.791***		-0.590***		5.264***	5.172***
	(-47.51)		(-15.03)		-58.89	-27.92
Obs.	356,961		211,750		356,961	211,750

Note: APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, internet access, land ownership, urban/rural, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

Next, we delve deeper into the impact of years of schooling on multiple job-holding by dividing the sample into highly educated and less-educated workers, as shown in Table 8. The significant inverse Mills ratio indicates a correction for sample selection bias. The results show that the effect of schooling on the probability of multiple job-holding for the highly educated and less-educated groups does not differ substantially. If one additional year of schooling decreases the probability of multiple job-holding by 0.62% for less-educated workers, the probability for highly educated workers decreases by 0.64%. The effect on additional working hours outside the main job is similarly modest. One additional year of schooling reduces additional working hours by 0.04 hours per week for the less-educated, while for the highly educated, the reduction is 0.05 hours per week. This finding reiterates that additional years of

schooling have only a limited impact on reducing extra work hours, even for highly educated individuals. Meanwhile, for highly educated workers, informal employment status increases the likelihood of multiple job-holding by 2.83% but has no significant impact on additional working hours outside the main job. For less-educated workers, informal status increases the probability of multiple job-holding by 7.27% and adds 0.32 hours per week of additional work.

Table 8. Effect of Years of Schooling on Multiple Job-Holding by Education

Variable	Multiple Job-Holding				Add. Working Hours	
	Non-Tertiary		Tertiary		Non-Tertiary	Tertiary
	Coef.	APE	Coef.	APE	Coef.	Coef.
Years of schooling	-0.0321***	-0.0062***	-0.0352***	-0.0064***	-0.0373***	-0.0497***
	(-24.17)	(-24.3)	(-18.72)	(-19.05)	(-5.33)	(-5.05)
Informal (0,1)	0.374***	0.0727***	0.156***	0.0283***	0.319***	-0.0369
	(35.65)	(36.32)	(5.66)	(5.68)	(5.92)	(-0.26)
Inverse mills ratio	-0.370***	-0.0719***	-0.567***	-0.1029***	-0.986***	-1.562***
	(-26.22)	(-26.44)	(-11.46)	(-11.56)	(-14.74)	(-7.53)
Constant	-0.784***		-0.498***		5.146***	5.571***
	(-49.74)		(-12.08)		-61.92	-26.57
Obs.	472,608		96,103		472,608	96,103

Note: APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, gender, internet access, land ownership, urban/rural, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

The decision to engage in multiple job-holding may vary depending on asset ownership as a driving factor. Therefore, we explore the effect of average years of schooling on multiple job-holding among workers whose households do or do not own land, as shown in Table 9. The results indicate that for workers who own land, an increase of one year in schooling is associated with a 0.55% decrease in the likelihood of multiple job-holding and a reduction of 0.04 hours in additional work per week. Conversely, for workers without land, an additional year of schooling only leads to a 0.33% decrease in the likelihood of multiple job-holding and does not have a significant effect on the reduction of additional working hours outside of their primary job. Among workers who own land, informal workers have an average likelihood of multiple job-holding that is 7.16% higher, along with an additional 0.38 hours of work compared to their formal counterparts. For those without land, informal workers have a 3.33% higher likelihood of engaging in multiple job-holding than formal workers. However, the formal-informal status does not significantly differentiate the additional working hours for workers who do not own land. These findings suggest that for workers without land, both years of schooling and employment status do not significantly impact additional working hours outside of their primary jobs.

Table 9. Effect of Years of Schooling on Multiple Job-Holding by Land Ownership

Variable	Multiple Job-Holding				Add. Working Hours	
	Landowner		Landless		Landowner	Landless
	Coef.	APE	Coef.	APE	Coef.	Coef.
Years of schooling	-0.0282***	-0.0055***	-0.0195***	-0.0033***	-0.0411***	-0.00499
	(-25.73)	(-25.87)	(-7.92)	(-7.94)	(-7.55)	(-0.38)
Informal (0,1)	0.362***	0.0716***	0.194***	0.0333***	0.382***	-0.0235
	(33.31)	(33.84)	(8.91)	(8.97)	(7.03)	(-0.20)
Inverse mills ratio	-0.425***	-0.0842***	-0.213***	-0.0368***	-1.170***	-0.737***
	(-28.36)	(-28.65)	(-7.17)	(-7.18)	(-17.01)	(-5.03)
Constant	-0.717***		-1.063***		5.171***	5.043***
	(-45.75)		(-32.71)		-64.77	-28.48
Obs.	449,944		118,767		449,944	118,767

Note: APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, gender, internet access, urban/rural, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

Given that the average years of schooling and the proportion of multiple job-holding differ considerably between rural and urban areas (Table 2), it is important to examine how these effects vary across regions, as shown in Table 10. The significant value of the inverse Mills ratio indicates a correction for sample selection bias between working and non-working individuals in the model. The results show

that, if rural workers gain an additional year of schooling, the likelihood of multiple job-holding decreases by only 0.14%, with no significant reduction in additional working hours outside the main job. Urban workers, however, are more affected. An additional year of schooling reduces the likelihood of taking on extra jobs by 0.3% and decreases additional working hours outside the main job by 0.03 hours per week. Informal workers in urban areas have, on average, a 0.02% higher probability of multiple job-holding compared to those with formal employment, though the difference in additional working hours between them is not significant. In contrast, informal workers in rural areas show a 0.07% higher likelihood of multiple job-holding and work an additional 0.36 hours per week compared to their formal counterparts.

Table 10. Effect of Years of Schooling on Multiple Job-Holding by Area

Variable	Multiple Job-Holding				Add. Working Hours	
	Rural		Urban		Rural	Urban
	Coef.	APE	Coef.	APE	Coef.	Coef.
Years of schooling	-0.00636***	-0.0014***	-0.0195***	-0.0030***	-0.00597	-0.0324***
	(-5.38)	(-5.38)	(-11.06)	(-11.05)	(-1.05)	(-3.95)
Informal (0,1)	0.302***	0.0684***	0.139***	0.0219***	0.357***	0.0314
	(25.47)	(25.69)	(8.78)	(8.8)	(6.13)	(0.41)
Inverse mills ratio	-0.346***	-0.0784***	-0.237***	-0.0374***	-1.356***	-0.698***
	(-23.94)	(-24.08)	(-10.56)	(-10.59)	(-20.84)	(-7.16)
Constant	-0.619***		-1.151***		5.321***	4.827***
	(-38.59)		(-45.54)		-66.52	-39.64
Obs.	340,147		228,564		340,147	228,564

Note: APE, short for Average Partial Effects, is used to interpret the coefficients of the logit model. Numbers in parentheses are t-statistics. Asterisks (*, **, ***) denote significance levels at the 10%, 5%, and 1% levels, respectively. The first-stage Heckman results show that all variables (age, squared age, gender, internet access, land ownership, and minimum wage) are significant at the 5% level in determining employment probabilities used to calculate the inverse Mills ratio (Heckman Lambda) as a correction for sample selection bias.

The findings in this study are in line with several findings from previous studies. Regarding multiple job-holding according to worker gender, Wicaksono et al. (2024) also found that relatively more male workers are involved in multiple job-holding than women. This is because women are often stereotyped as housewives. In Ghana, Asravor (2021) found that as educational attainment increases, the likelihood of women taking on additional work decreases, whereas for men, it increases. Schaner & Das (2016) explain that women are generally responsible for household chores, which can reduce their motivation to have additional jobs. In terms of agriculture and non-agriculture, where many agricultural workers are involved in multiple job-holding is also in line with the findings of Martinez et al. (2014). They found that self-employed agricultural workers are more likely to hold multiple jobs compared to paid workers in the non-agricultural sector. Regarding standard working hours, the number of working hours per week was found to differentiate workers' decision to engage in multiple job-holding. Klinger & Weber (2020) argue that having a full-time primary job tends to reduce the likelihood of taking on additional work compared to those working part-time. Similarly, Martinez et al. (2014) found that workers who hold additional jobs tend to work less than 35 hours in their main job, compared to workers who hold only one job. However, they also found that workers who worked at least 35 hours per week were still involved in multiple job-holding with a relatively high percentage of 19.05%. Moreover, this study utilizes data from 2022, a period following the COVID-19 pandemic, which suggests that digital penetration may have influenced multiple job-holding choices by enabling individuals to work remotely. Regarding regional status, Martinez et al. (2014) also found that geographical location determines differences in multiple job-holding rates. They found that workers who live in urban areas are less likely to have multiple jobs compared to workers in rural areas.

An interesting discussion is the finding on the effect of years of schooling and multiple job-holding. Despite using different education level dummies, Martinez et al. (2014), Wijayanti & Adrison (2018), and Wicaksono et al. (2024) found that the higher the education level, the higher the chance of workers engaging in multiple job-holding. Using a measure of years of schooling, we find that years of schooling decrease the probability of multiple job-holding and additional working hours outside the main job. However, we note that the decrease in the probability of multiple job-holding due to an additional 1 year of schooling is less than 1%, and the decrease in additional working hours outside the main job is no more than 0.05 hours per week. This means that the impact of years of schooling is relatively small. We suspect that years of schooling have an indirect impact on multiple job-holding decisions through income in the

main job (target income model). In this regard, Auray et al. (2021) found a positive correlation between multiple job-holding and income across different education levels; however, the correlation is negative within the same education level. Preston & Wright (2020) also suggest that education has an indirect impact, and in a sense, will capture the residual effects of several mechanisms that may affect multiple job-holding through education. Lo (2023) argues that workers with higher levels of education and skills face a higher opportunity cost of leisure, making them less elastic in labor supply. The finding of Martinez et al. (2014) that increasing education increases the probability of multiple job-holding by choice and decreases the probability of multiple-job holding by necessity could also be key to the findings of this study. The trade-off between the impact of years of schooling on decreasing the probability of multiple job-holding by necessity, which is larger than the increase in probability by choice, might explain why this study finds that additional years of schooling can decrease the probability of multiple job-holding and additional working hours outside the main job by a modest magnitude.

Conclusion

This study shows that educational attainment has an impact on livelihood strategies in terms of multiple job-holding. Years of schooling play an important role in one's decision to have multiple jobs and additional working hours outside the main job. The longer the years of schooling, the less likely they are to engage in multiple job-holding and the fewer additional working hours they will take. However, the magnitude of the decline in multiple job-holding opportunities and additional working hours appears to be modest, reflecting a trade-off between an increase in multiple job-holding opportunities due to choice and a decrease in multiple job-holding opportunities due to necessity as a result of increased years of schooling. We also include formal-informal employment status as a control, and of course, find that those who work informally are more likely to engage in multiple job-holding and longer additional working hours than those who work formally. From these results, we identify that the uncertainty-prone informal sector encourages workers to seek additional employment to protect them from declining income and potential unemployment.

Among the working population, we find that over a quarter were engaged in multiple job-holding. This indicates that holding more than one job remains a strategy for a significant proportion of the Indonesian workforce. Our analysis of multiple job-holding proportions across sectors and employment statuses revealed that at least 10% of workers in every category held multiple jobs. The agriculture sector and informal, unpaid employment exhibited the highest proportions of multiple job-holding compared to other categories. Other characteristics such as gender, standard working hours, land ownership, and urban/rural status also influenced decisions to hold multiple jobs and work additional hours outside the primary job. Male workers were more likely to hold multiple jobs than females, but additional years of schooling had a similar impact on both multiple job-holding decisions and additional working hours. Workers employed below the standard working hours (35 hours per week) were nearly twice as likely to have additional jobs with substantial extra working hours compared to those working above the standard. Nevertheless, we find that even those working above standard hours still engage in multiple job-holding and work additional hours outside their primary job. Land ownership significantly influences the decision to hold multiple jobs. Although more years of schooling reduce the likelihood of multiple job-holding for both landowning and non-landowning workers, the impact of education on reducing additional working hours was insignificant for non-landowners. Regarding regional status, while education reduces the likelihood of multiple job-holding for both rural and urban workers, the more pronounced effect was on reducing additional working hours for rural workers.

Based on these findings, we propose three policy implications. First, increasing access to higher education, particularly for those currently enrolled in school by multiplying scholarships based on sectors. This will equip the workforce with a longer duration of schooling, serving as an educational investment. With this, we expect individuals to obtain higher wage returns on their education, reducing the need for additional jobs due to insufficient income. While increased schooling might still encourage multiple job-holding, this would likely be driven by complementary job roles and opportunities for career development or entrepreneurship. Second, strengthening protections for informal workers, such as expanding public health insurance and pension coverage, can reduce their need for multiple jobs. Given the vulnerabilities of the informal sector, vocational training for informal workers can facilitate their transition to the formal sector and decrease their reliance on multiple jobs out of necessity. Finally, developing the agricultural sector and rural economies is crucial. Agricultural and rural workers are more likely to engage in multiple

job-holding due to the seasonal nature of agriculture and limited rural employment opportunities. Policies such as subsidizing production factors and diversifying income sources, including processing local agricultural products (encouraging multiple job-holding as an entrepreneurial choice), can improve the well-being of agricultural and rural workers. Through subsidies on production, some rural workers can reduce their production expenses and shift it into household consumption.

Limitations

While we have successfully provided new evidence on the impact of years of schooling on multiple job-holding in Indonesia, this study still has several limitations. First, due to data limitations, this study cannot differentiate between multiple job-holding decisions made out of necessity versus choice. Future research could consider these two categories of multiple job-holding using different data sources or approaches to decompose the effect of education on multiple job-holding decisions. Second, given the possibility of an indirect effect of education on multiple job-holding, subsequent studies could focus on exploring the transmission mechanisms of education on multiple job-holding decisions, such as through wage mechanisms or limitations on working hours in the primary job. Third, although we have attempted to correct for bias by adding control variables and the inverse Mills ratio (Two-Step Heckman) and conducting subsample analysis to examine the consistency of parameter estimates, the issue of endogeneity, such as omitted variable bias, can be further explored. The use of quasi-experimental techniques that can reduce or even eliminate bias could be considered in future studies.

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References

Asravor, R. K. (2021). Moonlighting to survive in a pandemic: multiple motives and gender differences in Ghana. *International Journal of Development Issues*, *20*(2), 243–257.

Atherton, A., Faria, J. R., Wheatley, D., Wu, D., & Wu, Z. (2016). The decision to moonlight: does second job holding by the self-employed and employed differ? *Industrial Relations Journal*, *47*(3), 279–299.

Auray, S., Fuller, D. L., & Vandenbroucke, G. (2021). Comparative advantage and moonlighting. *European Economic Review*, *139*, 103897.

Badan Pusat Statistik (BPS). (2023). *Buku 5 Pemanfaatan Data Susenas Kor dan KP*. Badan Pusat Statistik.

Conen, W., & Stein, J. (2021). A panel study of the consequences of multiple jobholding: enrichment and depletion effects. *Transfer: European Review of Labour and Research*, *27*(2), 219–236.

Glavin, P. (2020). Multiple jobs? The prevalence, intensity and determinants of multiple jobholding in Canada. *The Economic and Labour Relations Review*, *31*(3), 383–402.

Greene, W. H. (2018). *Econometric Analysis* (8th ed.). Pearson Education.

Hirsch, B. T., Husain, M. M., & Winters, J. V. (2016). Multiple job holding, local labor markets, and the business cycle. *IZA Journal of Labor Economics*, *5*, 1–29.

Kimmel, J., & Conway, K. S. (2001). Who moonlights and why? Evidence from the SIPP. *Industrial Relations: A Journal of Economy and Society*, *40*(1), 89–120.

Klinger, S., & Weber, E. (2020). Secondary job holding in Germany. *Applied Economics*, *52*(30), 3238–3256.

Lo, S. M. S. (2023). Desired work-leisure balance in a partial equilibrium job search model with multiple job holding. *IZA Journal of Labor Economics*, *12*(1).

Martinez, A., Western, M., Haynes, M., Tomaszewski, W., & Macarayan, E. (2014). Multiple job holding and income mobility in Indonesia. *Research in Social Stratification and Mobility*, *37*, 91–104. https://doi.org/10.1016/J.RSSM.2013.09.008

Nunoo, J., Darfor, K. N., Koomson, I., & Arthur, A. (2018). Employment security and workers' moonlighting behavior in Ghana. *Journal of Economic Studies*, *45*(1), 144–155.

Panos, G. A., Pouliakas, K., & Zangelidis, A. (2014). Multiple job holding, skill diversification, and mobility. *Industrial Relations: A Journal of Economy and Society*, *53*(2), 223–272.

Preston, A., & Wright, R. E. (2020). Exploring the gender difference in multiple job holding. *Industrial Relations Journal*, *51*(4), 301–328.

Schaner, S., & Das, S. (2016). Female labor force participation in Asia: Indonesia country study. *Asian Development Bank Economics Working Paper Series*, *474*.

Sharma, S., & Rautela, S. (2024). Employee moonlighting: a review and research agenda. *Journal of Management Development*, *ahead-of-print*.

Shishko, R., & Rostker, B. (1976). The Economics of Multiple Job Holding. *The American Economic Review*, *66*(3), 298–308.

Wicaksono, P., Sari, D. K., & Sutanto, R. (2024). What made you do moonlighting? A tale from the Indonesian labor force survey. *Cogent Social Sciences*, *10*(1), 2417194.

Wijayanti, N. D., & Adrison, V. (2018). Effect of Wages on Multiple Job Holding Decisions in Indonesia: Evidence from the Indonesian Family Life Survey (IFLS) Data of 2007 and 2014. *Journal of Indonesian Economy and Business*, *33*(1), 1–22. http://journal.ugm.ac.id/jieb

Wu, Z., Baimbridge, M., & Zhu, Y. (2009). Multiple job holding in the United Kingdom: evidence from the British Household Panel Survey. *Applied Economics*, *41*(21), 2751–2766.

Appendix

Summary Statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
Multiple job-holding	568,711	0.292569	0.454942	0	1
Add. working hours	568,711	4.474904	10.3089	0	97
Years of schooling	901,091	8.854911	4.547597	0	22
Informal	568,711	0.61159	0.487389	0	1
Age	901,091	40.17077	16.39261	15	97
Gender	901,091	0.496563	0.499989	0	1
Internet	901,091	0.61033	0.487676	0	1
Land	901,091	0.791069	0.406545	0	1
Urban	901,091	0.420005	0.49356	0	1
Log min. wage	901,091	14.81432	0.222934	14.41426	15.38765

First Step – Two Step Heckman

Variable	Obs.	Age	Age squared	Gender	Internet	Landowner	Urban	Log min. wage	Constant
All sample	901,091	0.180***	-0.001***	1.153***	0.211***	-0.036***	-0.162***	-0.356***	1.435***
		(219.59)	(-200.15)	(238.14)	(35.5)	(-6.17)	(-35.28)	(-36.75)	(10.05)
Gender:	447,448	0.259***	-0.002***	-	0.240***	-0.093***	-0.394***	-0.287***	0.230
Male		(171.54)	(-151.71)	-	(19.79)	(-9.26)	(-50.64)	(-18.02)	(0.98)
Gender:	453,643	0.116***	-0.001***	-	0.149***	0.013*	-0.030***	-0.409***	3.514***
Female		(123.04)	(-116.24)	-	(20.75)	(1.83)	(-5.18)	(-33.21)	(19.25)
Educ: Non-	769,837	0.182***	-0.001***	1.231***	0.181***	-0.053***	-0.172***	-0.379***	1.694***
Tertiary		(209.89)	(-189.66)	(230.97)	(28.45)	(-8.29)	(-34.6)	(-35.81)	(10.85)
Educ:	131,254	0.119***	-0.001***	0.768***	0.315***	-0.024	-0.202***	-0.301***	2.447***
Tertiary		(42.59)	(-46.05)	(59.7)	(17.69)	(-1.52)	(-15.19)	(-12.27)	(6.71)
Location:	522,628	0.181***	-0.001***	1.313***	0.189***	0.0001	-	-0.336***	0.924***
Rural		(183.44)	(-165.91)	(215.32)	(26.53)	(0.02)	-	(-22.92)	(4.24)
Location:	378,463	0.183***	-0.001***	1.057***	0.245***	-0.042***	-	-0.370***	1.551***
Urban		(142.53)	(-128.79)	(153.02)	(26.79)	(-5.56)	-	(-30.89)	(8.77)
Landowner	712,825	0.180***	-0.00***	1.142***	0.196***	-	-0.16***	-0.39***	1.969***
		(200.78)	(-184.3)	(211.04)	(29.48)	-	(-32.56)	(-35.67)	(12.14)
Landless	188,266	0.181***	-0.00***	1.192***	0.266***	-	-0.13***	-0.23***	-0.42
		(89.07)	(-78.45)	(111.25)	(19.94)	-	(-13.46)	(-11.64)	(-1.44)