

Minimum Wage and Educational Pathways in Indonesia: General or Vocational Tracks?

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This study investigates the relationship between minimum wage policies and educational choices, specifically the decision between vocational and general school enrollment. While higher minimum wages often attract students to vocational education as a faster route to employment, our analysis of Indonesia Family Life Survey data finds little evidence of increased enrollment in vocational education. This suggests that hikes in the minimum wage are unlikely to divert students away from general education. Our findings reveal notable heterogeneity, showing that an increase in the minimum wage is associated with a statistically significant reduction in the likelihood of men and individuals in rural areas to opt for vocational education. These findings underscore the critical need for Indonesia to revitalize its vocational education system, striking a balance between general and vocational pathways to equip its workforce with the skills required for a rapidly changing environment.

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I. Introduction

Minimum wage policy may have broader implications beyond its primary goal of enhancing the livelihoods of low-wage workers. While there is extensive literature documenting its impact on the labor market (Brown, Gilroy, and Kohen 1982; Card and Krueger 2000; Neumark and Wascher 2004), the effects on educational choices—potentially leading to long-term consequences for the structural transformation of the labor market—remain relatively understudied. These effects are considered part of the policy's indirect impact on labor supply and demand. An increase in the minimum wage could raise the opportunity cost of continuing education, potentially leading individuals to leave school prematurely (Mincer and Leighton 1980). Furthermore, from the demand perspective, educational decisions may be influenced by how the minimum wage policy alters employment prospects or changes the skill requirements from the employers' side (Clemens, Kahn, and Meer 2021).

Most studies examining the impact of minimum wage on human capital investment primarily focus on developed countries. This research falls into three main categories: (i) one strand of literature examines the impact on high school enrollment and completion (e.g., Chaplin, Turner, and Pape 2003; Neumark and Wascher 2003; Pacheco and Cruickshank 2007; Rice 2010); (ii) another focuses on post-secondary enrollment (e.g., Alessandrini and Milla 2021; Schanzenbach, Turner, and Turner 2023); and (iii) a third strand explores the effects on job training (e.g., Neumark and Wascher 2001, Acemoglu and Pischke 2003). However, empirical evidence from developing countries is notably scarce. It is essential to understand how minimum wage policies intersect with educational decisions in developing countries, as these countries often struggle to build sufficient human capital to meet their evolving economic needs at different development stages.

Our paper examines the relationship between minimum wage policy and educational choices in Indonesia, utilizing variations in the minimum wage across provinces from 2000 to 2014. During this period, the provincial minimum wage saw an average annual increase of 15.3% in nominal terms and 8.2% in real terms. Concurrently, Indonesia enforced 9 years of compulsory education, consisting of 6 years of primary school and 3 years of junior high school. Previous studies, such as those by Colombé (2016) and Pritadrajati (2021), have indicated that higher minimum

wages are associated with lower educational attainment, deterring individuals from pursuing schooling beyond the period of compulsory education. Our study delves further into this issue by exploring the choices of individuals who continued their education into senior high school, examining how the increased minimum wage affected their selection between either a general or vocational track. This period also aligns with the Ministry of Education and Culture's (MOEC) efforts to expand vocational schools beginning in 2006 (MOEC 2007).

In the context of Indonesia, higher minimum wages could potentially attract students to vocational education, which is seen as a faster route to employment than general education. However, this shift may result in a labor market dominated by individuals with highly specialized skills but possibly lacking in the adaptability needed for rapidly changing environments. Additionally, given the relatively limited supply of tertiary education with vocational tracks and the lack of de facto mobility within the education system (Kadir and Bachrul 2016, Triyono and Moses 2019), an increase in vocational high school enrollment might impede Indonesia's efforts to boost its share of workers with tertiary qualifications, which remains behind that of many other emerging economies.¹

Our paper employs data from the Indonesia Family Life Survey (IFLS), which provides comprehensive details on individual and household characteristics.² The process of setting minimum wages in Indonesia is decentralized, allowing provincial governments to set their own rates. This results in considerable variation in minimum wages across provinces and over time. We estimate the relationship between this variation in the minimum wage and school-type choice using a probit regression model and address sample selection bias through the Heckman selection method. Our findings indicate that variations in the minimum wage do not significantly affect individuals' decisions regarding their choice of school type. Specifically, we discover no substantial link between increases in the minimum wage and the probability of individuals opting for vocational education.

However, our analysis reveals significant heterogeneity. For males and individuals in rural areas, we found a negative and statistically significant relationship between higher minimum wages and vocational education enrollment, suggesting a decreased likelihood of choosing vocational programs as minimum wages rise.

¹In 2018, Indonesia had the smallest proportion of its labor force aged 15 and older with a tertiary education (12.0%) among a sample of emerging economies. In contrast, Peru led with 29.9%, followed by Colombia at 28.6%, Malaysia at 28.3%, the Philippines at 25.5%, Brazil at 20.7%, Thailand at 16.4%, South Africa at 15.9%, and Viet Nam at 12.5% (World Bank 2020).

²RAND Corporation. "Indonesian Family Life Survey." <https://www.rand.org/well-being/social-and-behavioral-policy/data/FLS/IFLS.html> (accessed 1 August 2023).

The shift toward a service-oriented economy in Indonesia may impact gendered educational choices, with men's preference for technical majors facing reduced demand, whereas fields like business management or tourism, preferred by women, may see more stable demand (Newhouse and Suryadarma 2011). This economic transition, coupled with the limited availability of vocational education, especially in rural areas, is likely to push individuals toward general education, which is seen as more adaptable and aligned with available resources.

Even though rising minimum wages might technically increase the opportunity cost of remaining in school, the marked preference against choosing a vocational path highlights the necessity for Indonesia to rejuvenate its vocational education system. Currently, vocational education faces numerous challenges, including negative stigmatization, lack of funding, insufficient availability of quality vocational teachers and lecturers, inadequate industry involvement incentives, and poor coordination between relevant agencies (Indrawati and Kuncoro 2021). It is essential for Indonesia to find the right balance between promoting general education and vocational pathways to ensure its workforce possesses the skills needed to navigate a constantly evolving environment. The policy insights from this study are relevant for other developing countries undergoing various stages of structural transformation, each requiring the development of a sufficiently skilled workforce to fuel sustainable economic growth and development.

Our paper contributes to the literature on minimum wage, particularly regarding its potential impact on human capital investment. As previously mentioned, existing studies predominantly focus on developed countries, highlighting a gap in comprehensive analysis across different contexts. We extend the research beyond the insights provided by Colombé (2016) and Pritadrajati (2021) by exploring how an increase in the minimum wage might influence the decision of senior high school students to pursue either general or vocational education tracks. To the best of our knowledge, the relationship between minimum wage policies and educational choices in developing countries has not been thoroughly examined, a gap we aim to address in the literature.

Our paper also relates to a broader body of literature that examines how various policies and economic transformations that alter the opportunity cost of education can influence educational choices in developing countries. For instance, Shah and Steinberg (2021) observed a decline in school enrollment among adolescents aged 13–16 in India that was attributed to the National Rural Employment Guarantee Scheme, which offers 100 days of employment annually to rural households willing to perform unskilled manual labor. Similarly, studies by Fiszbein and Schady (2009), Chen et al. (2017), and Liu and Rozelle (2020) demonstrate that structural economic

transformation in the People's Republic of China has led to increased wages for unskilled labor and thereby altered the opportunity cost of education. This shift encourages individuals to prioritize work over schooling, prompting them to cut short their stint in the education system.

The remainder of this paper is organized as follows. Section II presents background on secondary and vocational education, and the minimum wage in the Indonesian context. Section III outlines the data and methodology employed for our analysis. Section IV presents and discusses the results. Lastly, section V offers concluding remarks along with policy implications.

II. Background Context

A. Secondary Education in Indonesia

Upon finishing 9 years of primary and junior secondary education, typically at around the age of 15 or 16, students in Indonesia face a choice between pursuing further studies in high school or entering the workforce. Those who opt for continued education can select between academically oriented schooling, known as *Sekolah Menengah Atas* (SMA), or vocational education, known as *Sekolah Menengah Kejuruan* (SMK), with both programs spanning 3 years. Both SMAs and SMKs can be either public or private. In 2022, the distribution of SMAs and SMKs was almost equal, but with a significant difference in administration: About 74% of SMKs were privately managed versus 50% of SMAs, leading to a greater presence of SMKs in urban areas due to their private administration.

SMAs emphasize academic preparation for higher education, while SMKs are tailored for career readiness, providing students with targeted vocational subjects that develop specific technical skills, alongside the core academic subjects. SMK curricula cover a variety of subjects aimed at equipping students with practical skills and knowledge pertinent to specific industries and professions, including roles such as automotive technician, electrician, plumber, carpenter, graphic designer, culinary chef, hair stylist, and barber, among others. Furthermore, SMKs issue skill-based competency certificates, providing students with a solid foundation for entering the job market. Some vocational schools even have established partnerships with companies, allowing their graduates to secure immediate employment within these companies.

Nevertheless, SMK graduates make up less than 15% of the total workforce and significantly contribute to unemployment, with the unemployment rate for SMK graduates peaking at 9.4% in 2022, according to the Indonesia National Labor Force

Survey (Sakernas).³ There is also a negative stigmatization for SMK, with the vocational track viewed as less prestigious than SMA, and SMK graduates more likely to be negatively perceived by employers (Suharno, Pambudi, and Harjanto 2020). Therefore, it is not surprising that Newhouse and Suryadarma (2011) observed diminishing returns to vocational education, with male graduates in particular experiencing a significant wage penalty. Similarly, Pritadrajati (2022) found that vocational school graduates fare poorly in terms of formal sector employment and income. Various factors may contribute to this assessment—such as a narrower curriculum, a less motivated peer environment, and less focus on core cognitive skills—all of which are often exacerbated by SMK teachers lacking experience (Chen 2009).

B. Minimum Wage Policy in Indonesia

Indonesia presents a compelling case study when examining the impacts of minimum wage policies, owing to several factors. Firstly, although the initial introduction of minimum wage legislation during the early 1970s lacked legal binding and enforcement, the government took significant steps to enforce it from the 1990s onward, when it also began vigorously advocating for these policies as a pivotal element of labor regulation (Hohberg and Lay 2015). Secondly, the minimum wage setting in Indonesia has created a rich variation in minimum wages across different parts of the country over time. Many studies have been exploiting this variation to estimate the minimum wage impact. Initially, the minimum wage varied mostly at the provincial level; however, with decentralization in 2001, more district governments established their own minimum wage, contributing to an even richer variation of the minimum wage within Indonesia.

In Indonesia, tripartite wage councils—which include representatives from the government, employers, and unions—convene yearly to determine minimum wage levels. According to the Regulation of the Minister of Manpower and Transmigration No. 7 of 2013 regarding Minimum Wage, the process of setting the minimum wage is rooted in the concept of *Kebutuhan Hidup Layak*, which refers to the cost of a consumption bundle necessary for maintaining a decent standard of living. This

³As of August 2022, the workforce predominantly comprised individuals with an elementary education or below, accounting for 38.8%. Junior high school graduates made up 18.3%, followed by SMA graduates (9.5%), SMK graduates (11.8%), and those with a tertiary education (12.3%). Meanwhile, unemployment rates stood at 3.6% for those with an elementary education or less, 6.0% for junior high graduates, 8.6% for SMA graduates, 9.4% for SMK graduates, and 4.7% for those with higher education. Data were taken from Statistics Indonesia. "National Labor Force Survey August 2022." <https://silastik.bps.go.id/v3/index.php/mikrodata/view/UVNCRFpQcXdDQW85MGZ4a21mV1NNdz09> (accessed 1 August 2023).

amount is adjusted in alignment with productivity and economic growth factors. A decent standard of living encompasses both physical and nonphysical aspects, as well as social considerations, that an individual worker should be able to afford for a month. However, beyond the basic cost of living, the setting of minimum wage levels may be significantly influenced by political considerations, often aimed at satisfying a broad constituency rather than reflecting the precise economic conditions or demands of various sectors (Caraway, Ford, and Nguyen 2019). The decentralized decision-making process also further politicizes the issue, as local governments can come under pressure from local interest groups and may use minimum wage policies to gain political support (Pepinsky and Wihardja 2011).

III. Data and Methodology

This study utilizes the comprehensive IFLS as its primary data source. The IFLS, which samples over 30,000 individuals across 13 of Indonesia's 27 provinces, represents about 83% of the country's population. It provides a detailed snapshot of various aspects of Indonesian life, including senior secondary school attendance, and includes numerous individual- and household-level controls. Notably, the IFLS is characterized by minimal household attrition, losing only about 5% of households in each survey wave (Strauss, Witoelar, and Sikoki 2016). The IFLS has been conducted five times: 1993, 1997, 2000, 2007, and 2014. Our analysis focuses on the three most recent waves: 2000, 2007, and 2014. The focus on these years aligns with significant political and economic changes in Indonesia, including decentralization and the resultant increased administrative responsibilities of local governments. During this period, compulsory education in Indonesia remained at 9 years (6 years of primary education and 3 years of junior secondary education).⁴ Additionally, the analysis integrates macroeconomic variables from the Indonesian Bureau of Statistics, encompassing provincial minimum wages and gross domestic product (GDP) growth and poverty rates. The provincial real minimum wage is calculated by adjusting the nominal minimum wage with the provincial GDP price deflator, indexed to the value of the rupiah in 2000.

The analysis is focused on individuals aged 15–18 years. This age range was selected because (i) 15 is commonly the minimum age when students complete junior

⁴Although an extension to 12 years of compulsory education was implemented in 2015, the adoption of this program has been limited (the dropout rate at the senior secondary education level is notably high, surpassing 20%, which is three times greater than the dropout rate at the junior secondary education level).

secondary school and commence their senior secondary education, and (ii) 18 is generally the age at which they conclude their senior secondary schooling. To investigate the potential relationship between minimum wage and school choice, the regression will be estimated based on the following specification:

$$Y_{i,j,t} = \alpha_0 + \alpha_1 \ln(MW_{j,t}) + X'_{i,t} \alpha_3 + X'_{h,t} \alpha_4 + X'_{j,t} \alpha_5 + \delta_j + \mu_t + \varepsilon_{i,t}. \quad (1)$$

The dependent variable, Y , denotes the choice of school type and takes on a value of 1 ($Y = 1$) if individual i was enrolled in a vocational school and 0 ($Y = 0$) if individual i was enrolled in a general school during year t .⁵ The study's focus is on the coefficient of the monthly real minimum wage MW in province j at time t , examining its impact on education choices. We test the correlation between changes in the minimum wage with the likelihood of individuals opting for either the vocational track or the general track in their senior high school education. $X_{i,t}$, $X_{h,t}$, and $X_{j,t}$ denote control variables specific to individuals, households, and provinces, respectively. δ_j is the province fixed effect, and μ_t is the year dummy, accounting for provincial and temporal variations. The analysis uses clustered standard errors at the district level due to the limited number of provinces (fewer than 30) in the IFLS data, which could increase standard error bias with province-level clustering. Summary statistics for these variables are detailed in Table 1.

Our study focuses on the choice between vocational and general education pathways, a decision observable only among individuals who have completed junior secondary education and are currently enrolled in senior secondary school. It is likely that this subsample is not randomly selected from the population and that unobserved factors influencing school-type choice may be correlated with those affecting the likelihood of school enrollment. To address this, we employ a probit sample-selection model specifically designed to analyze school-type choice while accounting for the selection bias associated with being enrolled in school. This methodological approach allows us to delve deeper into how economic factors, especially the opportunity costs shaped by variations in minimum wage, influence educational decisions. By applying the Heckman correction, we aim to provide a more precise evaluation of minimum wage effects, effectively reducing selection bias by comparing students with similar educational commitments. This correction involves a two-step procedure: (i) initially modeling the enrollment decision with a probit model to estimate the probability of

⁵Our analysis includes schools overseen by the MOEC as well as their equivalents under the Ministry of Religious Affairs. The senior secondary schools overseen by the Ministry of Religious Affairs are known as *Madrasah Aliyah* for general academic education and *Madrasah Aliyah Kejuruan* for vocational education.

Table 1. Summary Statistics

Variable	All Sample		General		Vocational		Difference	
	Observations	Mean	Observations	Mean	Observations	Mean	Mean	SE
Outcome								
Enrolled in vocational education (= 1)	4,166	0.44						
Individual control								
Age	4,166	16.41	2,323	16.34	1,843	16.50	-0.15	0.031
Female (= 1)	4,166	0.51	2,323	0.55	1,843	0.46	0.08	0.016
Married (= 1)	4,166	0.00	2,323	0.00	1,843	0.00	0.00	0.001
Rural (= 1)	4,166	0.36	2,323	0.40	1,843	0.30	0.10	0.015
Household control								
Total family members in the household	4,166	6.49	2,323	6.59	1,843	6.36	0.22	0.089
Number of children under age 15 in the household	4,166	1.20	2,323	1.19	1,843	1.22	-0.04	0.036
Log of monthly household expenditure per capita	4,166	15.02	2,323	15.04	1,843	14.99	0.06	0.028
Mother has no education (= 1)	4,166	0.09	2,323	0.09	1,843	0.10	-0.01	0.009
Mother has primary education (= 1)	4,166	0.32	2,323	0.28	1,843	0.36	-0.07	0.014
Mother has junior secondary education (= 1)	4,166	0.25	2,323	0.24	1,843	0.27	-0.03	0.014
Mother has senior secondary education (= 1)	4,166	0.26	2,323	0.28	1,843	0.24	0.04	0.014
Mother has tertiary education (= 1)	4,166	0.08	2,323	0.11	1,843	0.03	0.08	0.008
Father has no education (= 1)	4,166	0.12	2,323	0.10	1,843	0.14	-0.04	0.010
Father has primary education, or lower (= 1)	4,166	0.28	2,323	0.27	1,843	0.30	-0.03	0.014
Father has junior secondary education (= 1)	4,166	0.24	2,323	0.23	1,843	0.26	-0.03	0.013
Father has senior secondary education (= 1)	4,166	0.27	2,323	0.28	1,843	0.25	0.03	0.014
Father has tertiary education (= 1)	4,166	0.09	2,323	0.12	1,843	0.05	0.07	0.009

Continued.

Table 1. *Continued.*

Variable	All Sample			General			Vocational			Difference	
	Observations	Mean	Observations	Mean	Observations	Mean	Observations	Mean	SE	Mean	SE
Provincial control											
Log of monthly real minimum wage (2,000 rupiah)	4,166	12.78	2,323	12.76	12.76	12.80	12.76	12.80	0.015	-0.05	0.015
Log of real GDP per capita (2,000 rupiah)	4,166	15.81	2,323	15.76	15.76	15.89	15.76	15.89	0.018	-0.13	0.018
Poverty rate	4,166	13.52	2,323	14.10	14.10	12.79	14.09	12.79	0.266	1.30	0.266
Subsample											
Bottom 40% (= 1)	4,166	0.30	2,323	0.27	0.27	0.33	1,843	0.33	0.014	-0.07	0.014
Middle 40% (= 1)	4,166	0.44	2,323	0.43	0.43	0.46	1,843	0.46	0.015	-0.03	0.015
Top 20% (= 1)	4,166	0.26	2,323	0.31	0.31	0.21	1,843	0.21	0.014	0.10	0.014

GDP = gross domestic product, SE = standard error.

Notes: This table presents summary statistics for the sample, with N indicating the number of observations, mean showing average values, and SE representing standard errors. Differences are calculated between general and vocational education groups across individual, household, and provincial variables.

Source: Authors' calculations.

sample inclusion, (ii) followed by an estimation of the school-type choice while adjusting for selection bias.

The summary statistics presented in Table 1 shed light on the demographic and educational landscape of vocational students, particularly highlighting the socioeconomic background and geographical distribution of these students. Notably, a higher proportion of vocational students are found in urban areas, suggesting that vocational education might be more accessible or preferred in these regions, possibly due to better employment opportunities or the availability of vocational institutions. Furthermore, the data reveal that the parents of these students are more likely to have attained less than a senior secondary education, indicating that vocational education may be seen as a more viable or attractive option for families with lower educational backgrounds. Moreover, vocational students disproportionately represent both the bottom 40% and middle 40% income brackets, underscoring the potential role of vocational education in providing accessible educational opportunities and career pathways for students from lower- and middle-income families.

This study hypothesizes that increasing the minimum wage has two distinct effects—the substitution and income effects—on the choice of senior secondary school among currently enrolled students, conditional on individual and demographic characteristics. A rise in the minimum wage reduces the skill premium by boosting the wages of low-skilled workers. Consequently, this elevates the opportunity cost and diminishes the relative advantages of attending academically focused general schools, prompting a shift toward vocational schools due to the substitution effect. At the same time, a higher minimum wage eases the financial constraints, particularly for those from lower-income families. This change increases the likelihood of opting for general schools, as it enables greater potential investment in higher education, with a potentially higher labor market return. Moreover, given the existing negative stigmatization of vocational graduates, employers may prefer hiring general high school graduates. All of this may affect individuals' decisions in choosing their education track.

IV. Results and Analysis

A. Main Results

In our main analysis, we explore the impact of the minimum wage on the selection of senior secondary school types by utilizing linear probability models

(LPMs) and probit models, with a Heckman selection correction method. This approach is executed through a two-step process: (i) first, we model the enrollment decision using a probit model to calculate the likelihood of inclusion in the sample; and (ii) we subsequently assess the choice of school type, correcting for selection bias identified in the initial stage.

Table 2 presents the initial findings from the Heckman selection approach, focusing on the factors influencing individuals' enrollment in senior secondary education. In this step, we analyze the enrollment decision, where the dependent variable indicates whether an individual was enrolled in any type of senior secondary

Table 2. **First-Step Probit Estimates for Selection in the Sample**

Outcome:	Enrolled in Senior Secondary School	
	Probit	
Model:		
Variable:	(1)	(2)
Age	-0.104*** (0.005)	-0.104*** (0.005)
Female	-0.007 (0.010)	-0.007 (0.010)
Married	-0.827*** (0.068)	-0.824*** (0.068)
Rural	-0.086*** (0.010)	-0.100*** (0.011)
Total family members in the HH	-0.023*** (0.002)	-0.022*** (0.002)
Number of children under age 15 in the HH	0.007 (0.005)	0.005 (0.005)
Log of monthly household expenditure per capita	0.046*** (0.006)	0.058*** (0.006)
Mother has primary education	0.027 (0.018)	0.031* (0.018)
Mother has JSS education	0.031 (0.020)	0.035* (0.020)
Mother has SSS education	0.075*** (0.020)	0.082*** (0.020)
Mother has tertiary education	0.090*** (0.028)	0.090*** (0.028)
Father has primary education	0.039** (0.017)	0.036** (0.016)

Continued.

Table 2. *Continued.*

Outcome:	Enrolled in Senior Secondary School	
	Probit	
Model:	(1)	(2)
Variable:		
Father has JSS education	0.062*** (0.018)	0.059*** (0.018)
Father has SSS education	0.116*** (0.018)	0.114*** (0.018)
Father has tertiary education	0.143*** (0.026)	0.136*** (0.026)
Log of real GDP per capita		-0.045*** (0.012)
Poverty rate		0.001 (0.001)
Wald χ^2	869.35***	1,066.53***
Pseudo R^2	0.1713	0.1745
Observations		7,589

GDP = gross domestic product, HH = household, JSS = junior secondary school, SSS = senior secondary school.

Notes: The dependent variable is the enrollment in senior secondary school, taking on a value of 1 ($Y = 1$) if individual i was enrolled in a senior secondary school (any type) and 0 ($Y = 0$) if individual i was not enrolled in any senior secondary school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses (number of clusters = 251). Each regression includes year and province fixed effects. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Source: Authors' calculations.

school ($Y = 1$) or not ($Y = 0$) during a specific year. The results reveal a positive correlation between enrollment in senior secondary education and several variables: (i) the logarithm of monthly household expenditure per capita, and (ii) the education level of both the mother and the father. Meanwhile, the estimation suggests a negative correlation between senior secondary school enrollment and factors such as age, marital status, rural residency, and the number of family members. From the initial probit estimation, we derive an inverse Mills ratio to correct for selection bias. This inverse Mills ratio is incorporated into our second-step analysis to account for potential skewness in our sample selection.

Table 3 presents the second-step findings from our analysis, where we examine the relationship between minimum wage and school-type selection, employing LPM and probit models with a Heckman selection correction. This phase investigates how the choice between vocational and general school enrollment—indicated by a binary

Table 3. Second-Step Linear Probability Model and Probit Estimates with Heckman Selection, All Sample

Outcome:	Vocational Senior Secondary School Enrollment			
	LPM with Heckman Selection		Probit with Heckman Selection	
Model:	(1)	(2)	(3)	(4)
Variable:	(1)	(2)	(3)	(4)
$\ln(MW)$	-0.086 (0.072)	-0.113 (0.073)	-0.051 (0.047)	-0.076 (0.049)
Individual variables	✓	✓	✓	✓
Household variables	✓	✓	✓	✓
Province variables		✓		✓
ρ	0.951	0.925	0.871	0.881
λ	0.617***	0.583***	1.721***	1.631***
Wald χ^2	421.09***	421.42***	2151.48***	2312.07***
Observations		7,589		7,589
Selected		4,166		4,166
Non-selected		3,423		3,423

LPM = linear probability model, MW = minimum wage.

Notes: The dependent variable is the school enrollment choice, taking on a value of 1 ($Y = 1$) if individual i was enrolled in a vocational school and 0 ($Y = 0$) if individual i was enrolled in a general school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses (number of clusters = 251). Each regression includes year and province fixed effects. In the Heckman model, ρ represents the correlation between selection and outcome errors, indicating potential selection bias, while λ (inverse Mills ratio) adjusts for this bias in the outcome equation. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$. See Appendix Table A.1 for detailed estimation results.

Source: Authors' calculations.

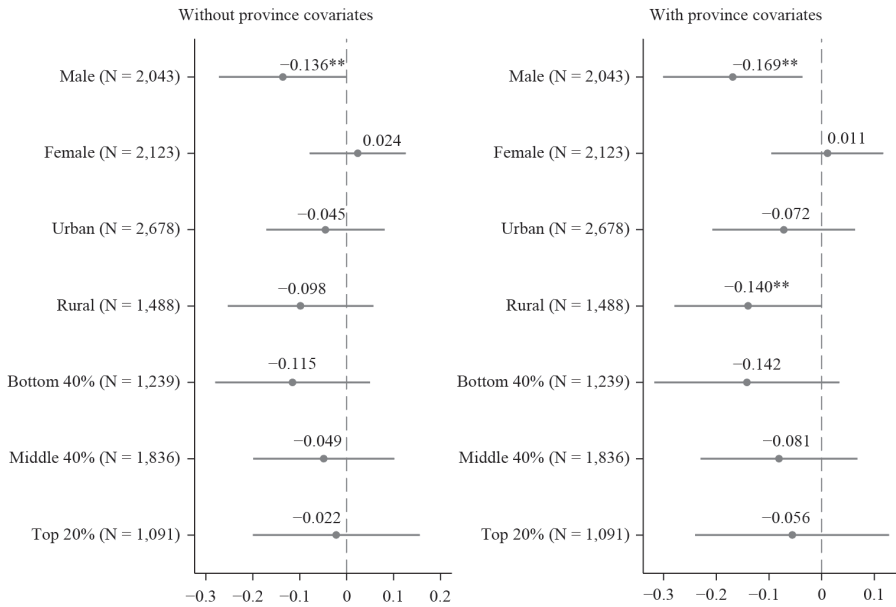
dependent variable ($Y = 1$ for vocational school enrollment, $Y = 0$ for general school enrollment)—is influenced by the log of minimum wage, alongside individual, household, and provincial factors. The detection of a positive ρ and a significant coefficient of λ suggests the presence of sample selection bias, validating the use of the Heckman selection model for more accurate estimations. The coefficient estimates are all negative, indicating the preference for a general high school track over a vocational track. However, they are all not statistically significant. Overall, the estimation of marginal effects using both the LPM and probit models reveals a null effect, showing that increased minimum wages do not influence the choice of a vocational over a general high school track for those individuals who decided to pursue a senior high school education. For subsequent analysis on heterogeneity, we will exclusively use the probit model to ensure a more precise functional form of binary choices.

B. Heterogeneity

This section delves deeper into how the minimum wage influences school-type choice through a heterogeneity analysis that considers gender, residence location (urban or rural), and socioeconomic status (categorized as either bottom 40%, middle 40%, or top 20%). Utilizing a probit model within the framework of the Heckman selection approach, we segment the data to identify subtle differences in how the minimum wage impacts vocational school enrollment across diverse demographic and socioeconomic groups. This approach is designed to uncover nuanced variations in the relationship, highlighting how individual characteristics and socioeconomic backgrounds might moderate the effect of the minimum wage on educational choices.

The figure below presents the probit estimates for the relationship between minimum wage and school-type choice, analyzing the results both with and without

Figure. Second-Step Probit Estimates with Heckman Selection by Subsample



N = number of observations.

Notes: The dependent variable is the school enrollment choice, taking a value of 1 ($Y = 1$) if individual i was enrolled in a vocational school and 0 ($Y = 0$) if individual i was enrolled in a general school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses. Each regression includes individual and household covariates, as well as year and province fixed effects. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$. See Appendix Table A.2 for the first-step estimates and Appendix Table A.3 for detailed second-step estimation results. Source: Authors' calculations.

provincial controls. The findings reveal that for males, the association between a higher minimum wage and school choice is negative and statistically significant, suggesting a decreased likelihood of enrolling in vocational education as the minimum wage rises. For men, a 10% rise in the minimum wage is associated with a 1.69 percentage points decrease in the probability of enrolling in vocational school, holding all other factors constant. This represents a 3.1% reduction from the baseline rate of vocational school enrollment among males. Similar negative and significant outcomes are observed for individuals in rural areas, especially when provincial covariates are accounted for, indicating a lower propensity toward vocational education enrollment among this group as well. For individuals in rural areas, a 10% increase in the minimum wage is associated with a 1.40 percentage points decrease in the likelihood of enrolling in vocational school, assuming all other factors remain constant. This reflects a 4.7% drop from the average vocational enrollment rate for those in rural settings. Furthermore, no clear heterogeneity has been detected across various socioeconomic subgroups.

The observed negative relationship between higher minimum wages and vocational education enrollment, particularly among rural individuals and men, suggests that these groups are more inclined toward general education as minimum wages rise. Recent decades have seen the service sector in Indonesia expand (Findlay and Pangestu 2016), which may have particularly affected men with vocational training in technical fields. Meanwhile, women, who tend to pursue studies in business management or tourism, might have experienced more consistent demand in these areas during the same period (Newhouse and Suryadarma 2011). As an economy shifts toward services, the industrial and technical fields favored by many men in vocational schools could see reduced demand, thereby lessening men's inclination toward vocational education, despite rising wages. Moreover, the limited availability of vocational education in rural areas may significantly influence educational choices.⁶ This scarcity of access to a wide range of high-quality vocational education and training options may lead individuals to opt for general education paths, which are perceived as more flexible and better aligned with the available educational resources.

C. Limitations

While the concern of reverse causality is minimal in this study, due to the provincial determination of the minimum wage and individual decisions on school type, there is significant concern about endogeneity from omitted variable bias. This issue arises when

⁶MOEC. "Peta Sebaran Sekolah (School Distribution Map)." <https://sekolah.data.kemdikbud.go.id/index.php/Cpetasebaran/index/000000/> (accessed 1 July 2023).

unobserved factors, affecting both minimum wage levels and school choice, confound the analysis. For example, if the out-of-pocket costs of senior secondary education, which are not observed in this analysis, are positively correlated with minimum wage levels (since these costs may influence living standards that affect minimum wage settings), it introduces bias. Additionally, endogeneity may also stem from the way minimum wage decisions are tied to each province's economic performance, influencing school choice indirectly. We attempt to mitigate this by including province-level variables like GDP per capita and poverty rates to reflect economic conditions, along with province fixed effects to control for unchanging factors over time, aiming to isolate the impact of minimum wages on school enrollment decisions.

The IFLS, which is conducted approximately every 7 years, has a longitudinal design but captures data on senior secondary school choice for each individual only once. This limitation prevents the creation of a panel dataset and the application of individual-level, fixed-effects models to observe changes over time within this study. While instrumental variables could theoretically address endogeneity concerns, identifying appropriate instruments at the provincial level poses a significant challenge due to data constraints. To minimize bias and improve the accuracy of the estimates, the analysis controls for a variety of predetermined or external factors at the individual, household, and provincial levels. This comprehensive approach involves considering a wide array of variables that could influence the outcomes and are correlated with minimum wage levels. Nonetheless, it is important to note that the results should be interpreted as correlations, not as evidence of the causal impact of minimum wage levels on the choice of senior secondary school type.

V. Concluding Remarks


Contrary to the expectation that higher minimum wages might lead students toward vocational education for quicker employment, our study using IFLS data shows little increase in vocational education enrollment. This finding suggests that increases in the minimum wage may not significantly influence students to choose vocational education over general education. This outcome diverges from findings in more developed economies, like those reported by Alessandrini and Milla (2021), who found that higher minimum wages led to increased enrollment in a vocational versus a general track in the context of post-secondary education in Canada—with higher enrollment in community college and lower university enrollment as the minimum wage was raised. This discrepancy indicates that responses to minimum wage increases may vary between developed and developing countries.

In developed countries, well-established vocational education systems often offer clear pathways to specialized skills, leading to enhanced employability and wages. Consequently, the substitution effects of opting for vocational education are more pronounced, as individuals see direct benefits in terms of job prospects and earnings. However, such is not the case in Indonesia, where the vocational track in a senior secondary school is often seen as being of lower quality, and this is reflected in the lower earnings premium of vocational graduates (Pasay and Quarina 2010, Pritadrajati 2022). We found heterogeneity in our results, of which we uncover a significant correlation between increased minimum wages and individuals' decisions to opt for a general over a vocational track—particularly among males and rural individuals.


The strong preference against opting for a vocational track even amid rising minimum wages, which technically can increase the opportunity cost of staying at school, underscores the need for Indonesia to revitalize its vocational education system. Currently, vocational education faces numerous challenges including (i) negative stigmatization, (ii) shortage of funding, (iii) lack of available qualified vocational teachers and lecturers, (iv) lack of incentives for industry involvement, and (v) poor interagency coordination (Suharno, Pambudi, and Harjanto 2020; Indrawati and Kuncoro 2021). Balancing between advancing the general and vocational education pathways is crucial for Indonesia to meet the skill-level requirements of its workforce in an ever-changing environment of structural transformation and global competition. This policy implication is applicable for other developing countries facing structural transformation at multiple junctures, which requires an adequately skilled workforce to contribute to sustainable economic growth and development.

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Appendix

Table A.1. **Second-Step Linear Probability Model and Probit Estimates with Heckman Selection**

Outcome:	Vocational Senior Secondary School Enrollment			
	LPM with Heckman Selection		Probit with Heckman Selection	
Model:	(1)	(2)	(3)	(4)
ln(MW)	-0.086 (0.072)	-0.113 (0.073)	-0.051 (0.047)	-0.076 (0.049)
Age	-0.071*** (0.017)	-0.065*** (0.017)	-0.021*** (0.006)	-0.022*** (0.006)
Female	-0.091*** (0.017)	-0.093*** (0.017)	-0.055*** (0.012)	-0.056*** (0.012)
Married	-1.123*** (0.249)	-1.046*** (0.241)	-0.440*** (0.102)	-0.441*** (0.095)
Rural	-0.200*** (0.026)	-0.202*** (0.026)	-0.102*** (0.015)	-0.104*** (0.015)
Total family members in the HH	-0.035*** (0.005)	-0.032*** (0.005)	-0.017*** (0.002)	-0.016*** (0.002)
Number of children under age 15 in the HH	0.040*** (0.009)	0.037*** (0.009)	0.025*** (0.006)	0.023*** (0.006)
Log of monthly household expenditure per capita	-0.020 (0.015)	-0.012 (0.016)	-0.025*** (0.010)	-0.020** (0.010)
Log of real GDP per capita		-0.715*** (0.215)		-0.487*** (0.143)

Continued.

Table A.1. *Continued.*

Outcome:	Vocational Senior Secondary School Enrollment			
	LPM with Heckman Selection		Probit with Heckman Selection	
Model:	(1)	(2)	(3)	(4)
Poverty rate		0.010*** (0.003)		0.006*** (0.002)
ρ	0.951	0.925	0.871	0.881
λ	0.617***	0.583***	1.721***	1.631***
Wald χ^2	421.09***	421.42***	2151.48***	2312.07***
Observations		7,589		7,589
Selected		4,166		4,166
Non-selected		3,423		3,423

GDP = gross domestic product, HH = household, LPM = linear probability model, MW = minimum wage.

Notes: The dependent variable is school enrollment choice, taking on a value of 1 ($Y = 1$) if individual i was enrolled in a vocational school and 0 ($Y = 0$) if individual i was enrolled in a general school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses. Each regression includes year and province fixed effects. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Source: Authors' calculations.

Table A.2. First-Step Probit Estimates for Selection into Sample by Subsample

Outcome:	Enrolled in Senior Secondary School							
	Male				Female			
Model:	Probit							
Sample:	Male		Female		Urban		Rural	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	-0.110*** (0.007)	-0.112*** (0.007)	-0.110*** (0.007)	-0.099*** (0.007)	-0.111*** (0.007)	-0.112*** (0.007)	-0.094*** (0.007)	-0.094*** (0.007)
Female	0.000 NA	0.000 NA	0.000 NA	0.000 NA	-0.023* (0.014)	-0.022 (0.014)	0.016 (0.017)	0.015 (0.017)
Married	0.000 NA	0.000 NA	0.000 NA	-0.781*** (0.069)	-0.763*** (0.089)	-0.762*** (0.089)	-0.911*** (0.117)	-0.909*** (0.118)
Rural	-0.109*** (0.022)	-0.124*** (0.020)	-0.109*** (0.022)	-0.080*** (0.016)	0.000 NA	0.000 NA	0.000 NA	0.000 NA
Total family members in the HH	-0.023*** (0.004)	-0.022*** (0.004)	-0.023*** (0.004)	-0.022*** (0.003)	-0.027*** (0.003)	-0.026*** (0.003)	-0.016*** (0.004)	-0.015*** (0.004)
No. of children under age 15 in the HH	0.009 (0.008)	0.007 (0.009)	0.009 (0.008)	0.004 (0.007)	0.019*** (0.007)	0.017*** (0.007)	-0.009 (0.009)	-0.011 (0.009)
Log of monthly HH expenditure per capita	0.048*** (0.009)	0.062*** (0.011)	0.048*** (0.009)	0.056*** (0.010)	0.031*** (0.009)	0.047*** (0.009)	0.063*** (0.010)	0.070*** (0.013)
Mother has primary education	0.057** (0.027)	0.062** (0.027)	0.057** (0.027)	0.003 (0.022)	0.047* (0.026)	0.050* (0.026)	0.007 (0.027)	0.008 (0.026)
Mother has JSS education	0.065** (0.030)	0.072** (0.030)	0.065** (0.030)	0.005 (0.024)	0.038 (0.027)	0.043 (0.027)	0.025 (0.027)	0.027 (0.027)
Mother has SSS education	0.087*** (0.033)	0.096*** (0.033)	0.087*** (0.033)	0.071*** (0.025)	0.070** (0.028)	0.077*** (0.028)	0.094*** (0.028)	0.097*** (0.028)

Continued.

Table A.2. *Continued.*

Outcome:	Enrolled in Senior Secondary School							
	Male				Female			
Model:	Probit							
Sample:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
						Urban		Rural
Mother has tertiary education	0.091* (0.050)	0.090* (0.050)	0.091* (0.050)	0.093*** (0.034)	0.088** (0.040)	0.087** (0.038)	0.104* (0.057)	0.104* (0.057)
Father has primary education	0.041* (0.024)	0.037 (0.023)	0.041* (0.024)	0.036 (0.023)	0.030 (0.020)	0.026 (0.021)	0.046** (0.023)	0.044* (0.023)
Father has JSS education	0.073*** (0.025)	0.068*** (0.026)	0.073*** (0.025)	0.053** (0.024)	0.048* (0.026)	0.044* (0.027)	0.072*** (0.027)	0.070** (0.028)
Father has SSS education	0.119*** (0.027)	0.115*** (0.028)	0.119*** (0.027)	0.115*** (0.025)	0.104*** (0.022)	0.102*** (0.023)	0.130*** (0.029)	0.129*** (0.030)
Father has tertiary education	0.188*** (0.039)	0.182*** (0.038)	0.188*** (0.039)	0.093*** (0.034)	0.160*** (0.032)	0.151*** (0.032)	0.099*** (0.038)	0.098** (0.039)
Log of real GDP per capita		-0.051* (0.029)		-0.042*** (0.014)		-0.040** (0.019)		-0.003 (0.051)
Poverty rate		0.001 (0.002)		0.001 (0.001)		0.002 (0.001)		0.001 (0.002)
Wald χ^2	394.22	430.30	582.05	639.66	663.43	913.33	382.70	403.99
Pseudo R^2	0.1104	0.1141	0.2103	0.2132	0.1563	0.1621	0.1651	0.1657
Observations		3,496		4,048		4,355		3,234

Continued.

Table A.2. *Continued.*

Outcome:	Senior Secondary School Enrollment					
	Probit					
Model:	Bottom 40%		Middle 40%		Top 20%	
Sample:	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.089*** (0.009)	-0.090*** (0.009)	-0.114*** (0.007)	-0.115*** (0.007)	-0.125*** (0.010)	-0.125*** (0.010)
Female	0.009 (0.019)	0.007 (0.019)	-0.010 (0.016)	-0.008 (0.016)	-0.023 (0.021)	-0.023 (0.021)
Married	0.000 NA	0.000 NA	-0.730*** (0.077)	-0.730*** (0.077)	0.000 NA	0.000 NA
Rural	-0.087*** (0.023)	-0.104*** (0.022)	-0.083*** (0.020)	-0.095*** (0.019)	-0.087*** (0.023)	-0.097*** (0.024)
Total family members in the HH	-0.032*** (0.004)	-0.030*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.012*** (0.005)	-0.012*** (0.005)
No. of children under age 15 in the HH	0.017* (0.009)	0.015 (0.009)	-0.002 (0.009)	-0.002 (0.009)	-0.007 (0.012)	-0.008 (0.012)
Log of monthly HH expenditure per capita	0.027* (0.016)	0.053*** (0.018)	0.016 (0.015)	0.032** (0.016)	0.015 (0.016)	0.017 (0.017)
Mother has primary education	0.048 (0.030)	0.052* (0.030)	-0.018 (0.030)	-0.015 (0.030)	0.109*** (0.044)	0.110** (0.044)
Mother has JSS education	0.040 (0.035)	0.050 (0.035)	0.006 (0.031)	0.008 (0.031)	0.104*** (0.044)	0.105** (0.044)
Mother has SSS education	0.121*** (0.036)	0.134*** (0.037)	0.022 (0.036)	0.024 (0.035)	0.158*** (0.046)	0.159*** (0.046)
Mother has tertiary education	0.196*** (0.069)	0.198*** (0.068)	0.032 (0.049)	0.030 (0.048)	0.110*** (0.049)	0.110** (0.049)

Continued.

Table A.2. *Continued.*

Outcome:	Senior Secondary School Enrollment					
	Probit					
	Bottom 40%	(2)	(3)	(4)	(5)	(6)
Father has primary education	0.055** (0.026)	0.050* (0.026)	0.049* (0.028)	0.048* (0.027)	-0.053 (0.041)	-0.054 (0.042)
Father has JSS education	0.113*** (0.029)	0.113*** (0.029)	0.068** (0.029)	0.067** (0.029)	-0.063 (0.047)	-0.066 (0.048)
Father has SSS education	0.098*** (0.033)	0.099*** (0.033)	0.123*** (0.030)	0.123*** (0.031)	0.076* (0.045)	0.074* (0.045)
Father has tertiary education	0.091 (0.063)	0.090 (0.063)	0.159*** (0.045)	0.157*** (0.044)	0.070 (0.054)	0.066 (0.055)
Log of real GDP per capita		-0.076*** (0.023)		-0.043** (0.017)		-0.031 (0.022)
Poverty rate		0.001 (0.002)		0.000 (0.001)		-0.001 (0.002)
Wald χ^2	208.89	341.90	432.34	462.88	223.75	217.35
Pseudo R^2	0.0789	0.0836	0.1697	0.1717	0.1317	0.1329
Observations	2,596		3,119		1,598	

GDP = gross domestic product, HH = household, JSS = junior secondary school, NA = not applicable, SSS = senior secondary school.

Notes: The dependent variable is enrollment in senior secondary school, taking a value of 1 ($Y = 1$) if individual i was enrolled in a senior secondary school (any type) and 0 ($Y = 0$) if individual i was not enrolled in any senior secondary school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses. Each regression includes year and province fixed effects. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.

Source: Authors' calculations.

Table A.3. Second-Step Linear Probability Model and Probit Estimates with Heckman Selection by Subsample

Outcome:	Vocational Senior Secondary School Enrollment						
	Probit						
	Male	Female	Urban	Rural	Urban	Rural	
	(1)	(2)	(3)	(4)	(5)	(6)	
ln(M/W)	-0.136** (0.069)	-0.169** (0.068)	0.024 (0.052)	0.011 (0.054)	-0.045 (0.064)	-0.072 (0.069)	-0.098 (0.079)
Age	-0.028** (0.009)	-0.030*** (0.009)	-0.014* (0.008)	-0.013 (0.008)	-0.022** (0.009)	-0.022** (0.010)	-0.017* (0.010)
Female	0.000 NA	0.000 NA	0.000 NA	0.000 NA	-0.055*** (0.017)	-0.057*** (0.017)	-0.073*** (0.018)
Married	0.000 NA	0.000 NA	-0.411*** (0.090)	-0.387*** (0.092)	0.023 (0.158)	0.059 (0.161)	-1.615*** (0.116)
Rural	-0.100*** (0.021)	-0.104*** (0.021)	-0.103*** (0.017)	-0.106*** (0.017)	0.000 NA	0.000 NA	0.000 NA
Total family members in the HH	-0.017*** (0.004)	-0.016*** (0.004)	-0.016*** (0.003)	-0.016*** (0.003)	-0.026*** (0.003)	-0.025*** (0.003)	-0.002 (0.004)
No. of children under age 15 in the HH	0.023*** (0.008)	0.021*** (0.008)	0.025*** (0.007)	0.024*** (0.007)	0.045*** (0.007)	0.044*** (0.008)	-0.003 (0.009)
Log of monthly HH expenditure per capita	-0.031** (0.013)	-0.024* (0.013)	-0.021* (0.013)	-0.019 (0.013)	-0.052*** (0.016)	-0.046*** (0.016)	0.010 (0.014)
Log of real GDP per capita		-0.343* (0.181)		-0.645*** (0.172)		-0.234 (0.207)	-0.678*** (0.198)
Poverty rate		0.009*** (0.003)		0.003 (0.002)		0.006* (0.003)	0.006** (0.002)

Continued.

Table A.3. Continued.

Vocational Senior Secondary School Enrollment						
Probit						
	Male	Female	Urban	Rural		
	(1)	(2)	(3)	(4)	(5)	(6)
ρ	0.902***	0.880***	0.854***	0.870***	0.880***	0.890***
λ	1.475***	1.280***	1.627***	1.473***	2.130***	1.908***
Wald χ^2	2739.12	2942.24	1828.96	1966.55	3291.87	2978.49
Observations	3,541		4,048		4,355	3,234
Selected	2,043		2,123		2,678	1,488
Non-selected	1,498		1,925		1,677	1,746
Vocational Senior Secondary School Enrollment						
Probit						
	Bottom 40%		Middle 40%		Top 20%	
	(1)	(2)	(3)	(4)	(5)	(6)
ln(MW)	-0.115 (0.084)	-0.142 (0.090)	-0.049 (0.077)	-0.081 (0.076)	-0.022 (0.091)	-0.056 (0.094)
Age	-0.012 (0.012)	-0.011 (0.014)	-0.028*** (0.010)	-0.031*** (0.010)	-0.007 (0.012)	-0.007 (0.012)
Female	-0.062*** (0.022)	-0.060** (0.023)	-0.064*** (0.017)	-0.066*** (0.017)	-0.054** (0.024)	-0.054** (0.024)
Married	0.000 NA	0.000 NA	-0.391*** (0.131)	-0.410*** (0.110)	0.000 NA	0.000 NA
Rural	-0.122*** (0.024)	-0.128*** (0.024)	-0.107*** (0.020)	-0.105*** (0.019)	-0.067** (0.030)	-0.069** (0.030)

Continued.

Table A.3. *Continued.*

Outcome:	Vocational Senior Secondary School Enrollment					
	Bottom 40%			Top 20%		
Model:	Probit					
Sample:	(1)	(2)	(3)	(4)	(5)	(6)
Total family members in the HH	-0.021*** (0.004)	-0.021*** (0.004)	-0.017*** (0.003)	-0.017*** (0.003)	-0.012** (0.005)	-0.011** (0.005)
No. of children under age 15 in the HH	0.039*** (0.010)	0.039*** (0.011)	0.021*** (0.008)	0.019** (0.008)	0.014 (0.013)	0.013 (0.013)
Log of monthly HH expenditure per capita	0.012 (0.023)	0.026 (0.025)	-0.149*** (0.042)	-0.143*** (0.040)	0.005 (0.022)	0.005 (0.022)
Log of real GDP per capita		-0.751*** (0.239)		-0.571*** (0.217)		-0.125 (0.294)
Poverty rate		0.003 (0.003)		0.008** (0.003)		0.006* (0.004)
ρ	0.829***	0.836***	0.897***	0.852***	0.844***	0.842***
λ	0.950***	0.789**	1.536***	1.473***	1.586***	1.549***
Wald χ^2	1510.46	1354.58	1760.58		2619.99	2658.65
Observations		2,786		3,119		1,684
Selected		1,239		1,836		1,091
Non-selected		1,547		1,283		593

GDP = gross domestic product, HH = household, MW = minimum wage, NA = not applicable.
 Notes: The dependent variable is enrollment in senior secondary school, taking on a value of 1 ($Y = 1$) if individual i was enrolled in a senior secondary school (any type) and 0 ($Y = 0$) if individual i was not enrolled in any senior secondary school during year t . The estimated coefficients represent average marginal effects. Standard errors are clustered at the district level and in parentheses. Each regression includes year and province fixed effects. Significance levels are indicated as follows: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$.
 Source: Authors' calculations.

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