The Role of Social Activities as Capital in Rural Labor Participation in Indonesia

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Abstract. Labor market inequality between rural and urban areas remains a critical challenge in Indonesia. This study analyzes whether participation in social activities, as a form of social capital, improves labor market outcomes. Using microdata from Sakernas 2024, a logistic regression model is first applied to estimate the probability of working participation. The results show that individuals who engage in social activities are more likely to participate in the labor market. To examine the effect on wages while addressing endogeneity, a Two-Stage Least Squares (2SLS) estimation is conducted using communication via the internet as an instrumental variable. The findings reveal that social activities have a positive and significant impact on wages, indicating that social engagement facilitates access to job information and strengthens labor market bargaining power. These results suggest that strengthening social capital and expanding digital access, especially in rural areas, can serve as effective policy measures to enhance employment opportunities and improve wage outcomes.

Keywords: Social Capital, Rural, Labor Outcome

1 Introduction

Employment inequality between rural and urban regions remains a persistent challenge in Indonesia's development agenda. According to Statistics Indonesia in 2023, approximately 72.63% of rural workers are engaged in informal employment, reflecting limited access to secure and decent jobs [1]. Furthermore, the underemployment rate in rural areas reaches 10.60%, substantially higher than that in urban areas [2]. These conditions suggest that rural populations continue to encounter structural disadvantages in accessing productive employment opportunities.

In many developing countries, including Indonesia, the rural labor market is characterized by limited industrialization, relatively low levels of education, and geographical barriers to employment. Individuals living farther from administrative and economic centers tend to participate more in traditional and agricultural sectors [3]. Social norms and economic constraints also influence job choices, causing many rural residents to remain concentrated in low-productivity informal activities. Additionally, although internet penetration has increased rapidly at the national level, digital inequality remains significant between rural and urban communities, and between

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socioeconomic groups within rural areas [4]. This gap may restrict rural populations from accessing information about job opportunities or developing professional networks that could support income diversification.

Given these barriers, social capital becomes a potentially important resource that can facilitate workforce participation in rural settings. Social capital refers to the resources embedded in social networks that individuals can access for specific purposes [5]. In Indonesia, the rural community structure is strongly linked to collective activities such as gotong royong, pengajian, arisan, and participation in local organizations such as PKK, Fatayat, Karang Taruna, Aisyiyah, and other community groups. These social linkages can act as channels of information exchange, support systems, and informal labor market networks that reduce job-search costs and introduce opportunities for both waged and self-employment [6]. Thus, participation in community activities may influence decisions to enter the labor market, the type of job undertaken, and associated earnings.

The emergence of digital technologies has the potential to further strengthen social capital. Using the internet for communication and access to information offers a new form of connectivity that transcends geographic barriers, enabling individuals to expand relationships beyond their immediate environment. Internet communication may provide access to job information, training opportunities, and business networks, especially in contexts where formal labor market institutions are weak. Nevertheless, not all rural residents have equal access or capacity to benefit from digital communication, reflecting persistent gaps in digital literacy and infrastructure.

Despite extensive research on rural development and labor economics in Indonesia, empirical evidence linking social capital, internet use, and labor market outcomes in rural areas remains limited. While several studies highlight the positive implications of social participation for empowerment, well-being, and household poverty reduction [7], [8], little attention has been given to how social capital translates into actual economic outcomes such as labor force participation and earnings. Moreover, evidence on whether internet communication can serve as a mechanism that strengthens the economic role of social networks in rural labor markets remains scarce.

Therefore, this study seeks to fill these gaps by examining the role of social participation in influencing labor market outcomes in rural Indonesia. In particular, this research analyzes whether involvement in social activities increases the likelihood of working and improves earnings, while also assessing the extent to which internet use for communication can reinforce social capital and serve as a valid instrumental variable to estimate its causal effect. Understanding these relationships is crucial for designing community-based and digitally integrated development interventions that can enhance the economic participation of rural populations.

2 Methodology

This study uses microdata from the National Labor Force Survey (Sakernas) 2024, which provides detailed information on individual demographics, employment outcomes, social participation, and wage levels. The analysis aims to examine whether

participation in social activities influences individuals' wages. Before estimating the wage equation, we first analyze the determinants of employment status. For this reason, we begin with a logistic regression model to estimate the probability that an individual participates in the labor market.

The logistic regression specification is formulated as follows:

$$ln\left(\frac{WP_i}{1-WP_i}\right) = \beta_0 + \beta_1 SA_i + \beta_2 X_i + \varepsilon_i$$

Where WP_i is a binary variable equal to 1 if individual $i$participates in work and 0 otherwise; SA_i is a dummy variable equal to 1 if individual participates in social activities and 0 otherwise; X_i is a vector of control variables such as gender, education level, marital status, number of household members, age, and training activities. The logistic regression allows us to identify patterns and characteristics associated with engagement in social activities.

However, when estimating the effect of social activities on wages, a simple OLS regression may lead to biased estimates because social participation can be endogenous. Individuals with unobserved attributes, such as social skills, motivation, or confidence, may be simultaneously more likely to engage in social activities and earn higher wages. To address this potential endogeneity, we employ a Two-Stage Least Squares (2SLS) approach using communication using the internet as an instrumental variable for social activities. The instrument is theoretically appropriate because individuals who frequently use the internet to communicate are more likely to expand their networks and participate socially, while such communication is unlikely to directly affect wages except through social activities.

The 2SLS estimation proceeds in two stages. The first stage assesses the strength of the instrument:

$$SA_i = \pi_0 + \pi_1 IV_i + \pi_2 X_i + u_i$$

where IV_irepresents communication using the internet. A strong and statistically significant $\pi_1$confirms the relevance of the instrument. The predicted value of social activities $(\widehat{SA_i})$from the first stage is subsequently used in the second stage to estimate the causal impact on wages:

$$\ln(Wage_i) = \alpha_0 + \alpha_1 \widehat{SA_i} + \alpha_2 X_i + v_i$$

3 Research Result

3.1 Statistics Descriptive

This section describes the main characteristics of the respondents in the study. Descriptive statistics help provide a clear picture of the sample, including their demographic background, social activities, internet use, and labor market outcomes such as work participation and wages.

Table 1 summarizes the background characteristics of the respondents included in this study. The sample consists of 223,888 individuals, reflecting a large and diverse

population. The mean value of work participation is 0.648, indicating that approximately 65% of respondents participate in the labor market. The average wage, computed for 129,962 observations, shows substantial variation, as reflected by the very large standard deviation—an indication of high wage inequality within the sample.

Table 1-Respondents' Background

Variables	Observations	Mean	Standard Deviation	Min	Max
Work participation	223,888	0.6480	0.4775	0	1
Wages	129,962	2554190	2995047	1,000	500,000,000
Social activities	223,888	0.8459	0.3610	0	1
Using internet for access information	223,888	0.8717	0.3343	0	1
Age	223,888	34.6301	13.2047	15	98
Years of schooling	223,888	9.6889	3.8961	0	22
Female	223,888	0.4741	0.4993	0	1
Training	223,888	0.1916	0.3936	0	1
Marital status	223,888	0.6379	0.4805	0	1
Number of households	223,888	4.060	1.5357	1	17

Regarding social factors, around 84.6% of respondents engage in social activities, while about 87.2% use the internet to access information. This suggests that digital exposure and social involvement are relatively widespread in the population. In terms of demographic characteristics, the average respondent is 34.6 years old, with a minimum age of 15 years and a maximum of 98 years. Respondents, on average, have 9.69 years of schooling, roughly equivalent to completing junior secondary education. The gender distribution is almost balanced, with females representing 47.4% of the sample. Meanwhile, 19.2% of individuals have participated in some form of training. Additionally, 63.8% are married, and households consist of an average of four members.

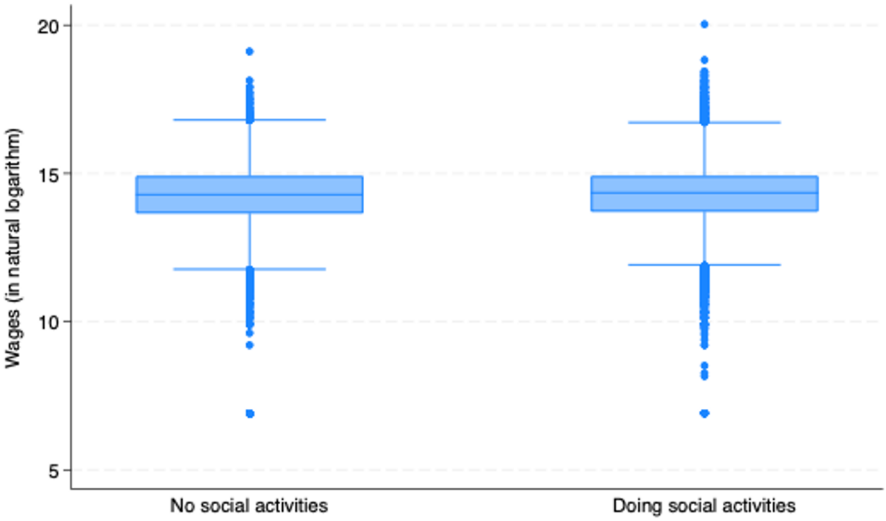


Figure 1. Comparison of Log Wages Between Individuals With and Without Social Activities

The boxplot in Figure 1 provides an initial comparison of wages (in natural logarithm) between individuals who report no social activities and those who engage in social activities. The distribution of log wages appears slightly higher among individuals involved in social activities, as reflected by a marginally higher median value. Although the interquartile ranges of both groups overlap considerably, the right tail of the distribution for socially active individuals extends slightly further, suggesting that social engagement may be associated with access to higher-paying opportunities for some respondents. Outliers in both groups indicate the presence of individuals with either unusually low or exceptionally high wages.

3.2 The Result of Logistic Regression – Work Participation

Table 2 reports the marginal effects from the logistic regression models examining the determinants of work participation. Across all specifications, social activities show a positive and statistically significant association with the likelihood of working. In Model 4, individuals who participate in social activities are approximately 2.9 percentage points more likely to be engaged in work compared to those who do not. Although the marginal effect decreases as more control variables are added, the relationship remains robust, indicating that social involvement contributes to better access to labor market opportunities.

Table 2-Marginal Effect of Logistic Regression - Social Capital and Work Participation

Dependent variable: Work participation	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Social activities	0.1352***	0.0873***	0.0437***	0.0289***
	(0.0018)	(0.0026)	(0.0024)	(0.0023)
Using internet for access information		-0.0190***	0.0254***	0.0056**
		(0.0030)	(0.0027)	(0.0025)
Age			0.0489***	0.0528***
			(0.0002)	(0.0003)
Age (squared)			-0.0005***	-0.0005***
			(-0.00000406)	(0,0000046)
Years of schooling			0.0072***	0.0058***
			(0.0002)	(0.0002)
Female				-0.2631***
				(0.0015)
Training				0.0897***
				(0.0024)
Marital status (married=1)				-0.0175***
				(0.0024)
Number of households				-0.0103***
				(0.0005)
Observation	223,888	223,888	223,888	223,888

The effect of using the internet to access information varies across models. When included alone with social activities (Model 2), internet use is associated with a 1.9 percentage point lower probability of working. However, after controlling for demographic and socioeconomic characteristics (Model 3 and Model 4), the direction becomes positive, with a 0.56 percentage point increase in work participation in the fully adjusted model.

Demographic factors show expected patterns. Age increases the probability of working, but at a decreasing rate, as shown by the negative squared term. This confirms an inverted U-shaped relationship, where labor participation rises at younger adult ages and gradually declines as individuals grow older. Years of schooling consistently show a positive marginal effect, indicating that better-educated individuals have higher employment prospects.

Gender differences remain significant. Being female reduces the probability of working by about 26 percentage points. Participation in skills training improves

employment chances by roughly 8.9 percentage points, showing the importance of human capital development. Meanwhile, being married and living in a larger household reduce the probability of working. Overall, these results affirm that social capital, human capital, and demographic factors jointly influence labor participation decisions.

3.3 The Result of OLS and 2SLS – Earnings

Table 3 reports the estimation results of the effect of social activities on earnings, measured in natural logarithms. Due to the possibility of endogeneity, where individuals with better earning prospects may also be more active socially, this study applies the Two-Stage Least Squares (2SLS) approach. In this model, using the internet for communication and access to information serves as the instrumental variable, as it is expected to influence social interaction but does not directly affect wages.

Table 3 -The Results of OLS and 2SLS - Wage

Dependent variable: Wages (in natural logrithm)	Model 1		Model 2		Model 3	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Social activities	0.0386***	2.4996***	-0.0097**	2.1111**	-0.0049	1.651**
	(0.0054)	(0.9496)	(0.0052)	(0.9288)	(0.0048)	(0.7895)
Age			0.0525***	0.0406***	0.0426***	0.0368***
			(0.0007)	(0.0070)	(0.0007)	(0.0051)
Age (squared)			-0.0005***	-0.0004***	-0.0004***	-0.0003***
			(-0.00000406)	(0,00005)	(0.000008)	(0.00004)
Years of schooling			0.0429***	0.0195***	0.0383***	0.0278***
			(0.0004)	(0.0048)	(0.0004)	(0.0031)
Number of working hours					0.0139***	0.0159***
					(0.0001)	(0.0009)
Female					-0.4658***	-0.4482***
					(0.0037)	(0.0155)
Training					0.1558***	0.0634**
					(0.0050)	(0.0272)
Marital status (married=1)					0.0753***	0.0523***
					(0.0045)	(0.0163)
Number of households					-0.0135***	-0.0083**
					0.0011	0.0040
Observation	218,900	129,962	218,900	129,962	218,900	129,962

The findings show a clear difference between the OLS and 2SLS estimates. In the full specification (Model 3), while OLS shows a small and insignificant relationship,

the 2SLS results indicate that participation in social activities significantly increases earnings by around 165%.

Control variables behave as expected. Age positively affects earnings but at a decreasing rate, reflected in the negative coefficient of age squared. Education consistently shows a strong and positive effect. Working hours also contribute positively to earnings. Being female significantly reduces wages. Meanwhile, training participation has a positive and significant effect, and being married is associated with slightly higher wage levels. On the other side, adding one momber of household is associated with decreasing wage by around, 0.83%.

4 Discussion

This study investigates the relationship between social capital and labor outcome using a sample from rural Indonesia. Rural communities in Indonesia are characterized by strong social ties, dense informal networks, high unemployment rate, and high poverty rate [9], [10]. Therefore, examining social capital becomes highly relevant for understanding the determinants of work participation in rural settings.

The findings in Table 2 show that participation in social activities has a consistently positive and statistically significant effect on work participation across all model specifications. This result suggests that individuals who are socially active are more likely to enter the labor market compared to those who are socially isolated. This pattern aligns with the core idea of asymmetric information theory [11], which states that job seekers often face incomplete or imperfect information about employment opportunities, workplace conditions, and wage prospects. Social interaction reduces this uncertainty by providing access to information shared within networks. Individuals who participate in social activities can learn about job openings, employment requirements, and labor conditions from others, allowing them to make more informed decisions and increasing their probability of joining the labor force.

This finding is consistent with several studies on social capital. Puga (2018) [12] show that bridging social capital, connections that span across diverse professional backgrounds, positively influences labor force participation because it broadens access to employment-related information. Similarly, Burt (2001) notes that individuals who are well connected gain visibility and greater bargaining power, which increases their job opportunities. In line with these arguments, Aşkın and Serap Barış (2016) emphasize that strong ties, connections with family, relatives, and close friends, enable individuals to overcome uncertainty when starting or maintaining work or business activities. These studies collectively reinforce the interpretation that social capital serves as an important resource that helps individuals navigate labor market barriers rooted in information imperfections.

Table 3 further shows that social capital influences not only employment participation but also wage outcomes. While the OLS estimates suggest a small positive effect of social activities on earnings, the 2SLS results, using internet use for communication as an instrumental variable, reveal a much stronger and statistically

significant effect, indicating that individuals who participate in social activities enjoy substantially higher wages than those who do not. The large gap between OLS and 2SLS estimates suggests that selection bias is present: individuals with lower earnings potential tend to avoid social activities, leading OLS to underestimate the true wage payoff of social capital. Once endogeneity is addressed, the 2SLS findings demonstrate the substantial economic return of social interaction in increasing wage levels.

Beyond asymmetric information, these findings can also be interpreted through the lens of positive externalities theory. Participation in social activities produces advantages not only for individuals who are involved but also for others within their network. Through social interaction, individuals exchange job information, career advice, skills, and emotional support that enhance labor market outcomes. These shared resources ultimately raise the total supply of labor market information circulating within the community. In this sense, social capital functions as a public good, where each person's investment in social relationships unintentionally generates benefits for others. As more community members engage in social activities, job referral networks and learning opportunities expand, improving overall labor participation and earnings. This mechanism aligns with classic arguments by Coleman (1988) and Putnam in Roth, (2022), who conceptualize social capital as generating collective returns rather than merely individual payoffs.

5 Conclusion

This study provides empirical evidence that social activities play an important role in improving labor market outcomes in Indonesia. Analysis using Sakernas 2024 shows that individuals who participate in social activities have a higher probability of joining the labor market, and after correcting for endogeneity using a 2SLS approach, social participation is also found to significantly increase wages. These findings suggest that social capital, formed through involvement in community networks and collective activities, helps individuals access employment information, expand professional connections, and strengthen their bargaining power in the labor market.

The results imply that policies supporting community engagement and digital inclusion can be effective in enhancing employment opportunities and wage growth, especially in rural areas. Increasing participation in community organizations, strengthening village-based empowerment programs, and expanding digital literacy and internet access may enable more individuals to benefit from the advantages of social capital. Incorporating these strategies into rural development initiatives has the potential to reduce labor market inequality between regions.

Despite these important contributions, this study has a limitation related to the measurement of social activities. The Sakernas data only record social participation in a general and binary form, without detailed information on the types, frequency, or intensity of participation. This restricts deeper analysis of which forms of social interaction are most influential. Future research would benefit from more detailed

datasets or mixed-method approaches that capture the richness of social capital formation, including qualitative insights from field interviews or surveys. Such improvements would provide a more comprehensive understanding of how social networks affect employment decisions and labor income.

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