



# Impact of Migration Status on Probability of Commuting among Workers in Indonesia

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Accepted: June 2024. Published: February 2025

## Abstract

The theory of mobility transition suggests that in the early stages of development, people tend to move shorter distances. As development advances, people are able to make longer journeys, leading to migration or long-term population mobility. However, further development progress allows people to engage in more short-term population mobility, enjoying the benefits of destination areas without fully detaching from their original societies. While some macro-level studies have shown that short-term population mobility might replace migration, there are limited micro-level studies examining how migration status influences short-term population mobility. This paper presents a new empirical finding based on Indonesia's 2019 National Labour Survey data, exploring whether workers' migration status impacts their likelihood of commuting as a form of population mobility. The analysis uses probit analysis with instrumental variables and concludes that workers with migrant status are more likely to commute.

**Key Words:** Commuting; Migration; Probit; Instrumental Variable

**How to cite:** Darmayanti, A. (2024). Impact of Migration Status on Probability of Commuting among Workers in Indonesia. *International Journal of Population Issues*, 2(1), 14-28. <https://doi.org/10.36312/ijpi.v2i1.1331>



<https://doi.org/10.36312/ijpi.v2i1.1331>

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## INTRODUCTION

Zelinsky (1971) proposed the “hypothesis of mobility transition”, which explores the relationship between long-term population mobility (migration) and short-term population mobility. According to this hypothesis, in the initial stages of development, people mainly engage in short-distance and short-duration movements, where they do not detach themselves from their original societies. This type of movement is referred to as short-term population mobility or short-term mobility.

As technological advancements progress, people gain the ability to undertake longer and farther journeys, leading to uprooting them from their original societies. This process is known as migration or long-term population mobility, which involves moving to new locations for an extended period. However, with further advancements in technology, it becomes possible for individuals to maintain connections with their original societies while also benefiting from the areas they migrate to. In this case, people engage in short-term mobility while enjoying the benefits of both their original and destination societies.

Skeldon (1992) made some modifications to Zelinsky hypothesis, but he anticipated a similar pattern, that short-term mobility will again emerge as an important type of mobility. Several researchers (Axisa, Newbold, & Scott, 2012; Axisa, Scott, & Newbold, 2012; Li, Geertman, Hooimeijer, Lin, & Yang, 2021) showed that

short-term mobility may have indeed substituted migration. Baldwin (2016) further argued that not only short-term mobility will emerge, but voluntary stayers will also become dominant. Advance in technology permits people to “travel” without moving physically, a type of population mobility Ananta (2020) called “going nowhere, but being everywhere”.

Yet, more empirical micro-research on the relationship between migration and short-term mobility is mostly on how commuting may be followed by migrating. For example, Shuai (2012) showed that commuting may increase the likelihood of migrating. Further, Brueckner and Stá’astna (2020) argued that this likelihood is higher among young people. On the other hand, there were still a limited number of studies such as Bell and Ward (2000), Cooke (2013), and Ananta (2020) that examined how migration status affects short-term population mobility.

This paper fills this research gap by examining an Indonesian data set, to investigate how the migration status of workers may affect the decision to commute. The research question is therefore whether migrant workers are more likely to commute than workers who are non-migrant. This paper utilizes an Indonesian data set, the 2019 National Labour Force Survey data or Survei Angkatan Kerja Nasional (Sakernas), conducted before the COVID-19 pandemic. This paper uses probit regression analysis with an instrumental variable to solve possible endogeneity between migration status and the decision to commute. Further studies may examine how the pandemic may have affected the impact of migration status on the decision to commute.

The next section briefly elaborates on the concepts of mobility as confusion on the concepts may result in misinterpreting data on mobility. The third section discusses the mobility transition theory including some other research on the transition. The fourth section briefly examines the pattern of population mobility in Indonesia. The data and method are described in the fifth section, followed by a section on results and discussion. Section 7 ends the paper with a conclusion and recommendation.

## CONCEPT OF POPULATION MOBILITY

The terms migration and mobility are sometimes used interchangeably even though the two have different meanings. Mobility has a broader meaning than migration. It includes all types of people’s movements, whether the purpose is to settle down or not. Migration is the term used to describe the form of mobility aimed at relocating and, as a result, uprooting from one's original society (Munir, 2010; Pardede, Wajdi, & Wiyono, 2018; Ananta, 2020). Other terms include long-term mobility (Ananta & Arifin, 2021), permanent mobility (Mantra, 2000), or non-recurrent movement (Munir, 2010).

On the other hand, short-term mobility is the term used to describe mobility that is not intended for settling and does not involve uprooting from one's original societies (Ananta, 2020). Short-term mobility is also referred to as non-permanent mobility (Pardede, Wajdi, & Wiyono, 2018), circulation (Zelinsky, 1971; Mantra, 2000), or recurrent movement (Munir, 2010). Short-term mobility can be seen in the form of going back and forth between two areas every day (commuting), every week or every month (circular mobility), and every certain season (seasonal mobility). Ananta & Arifin (2014) mentioned another type of short-term mobility that has an irregular

pattern, namely those who move from one area to another without any regular pattern, including when and where they will go or return, how long they will stay in the destination area, and the frequency of their movement. They called it *wira-wiri*, an Indonesian word.

There are three aspects that need to be considered when discussing mobility: time, spatial, (Munir, 2010; Mantra, 2000; Pardede, Wajdi, & Wiyono, 2018) and uprooting or detachment (Weeks, 2008; Ananta & Arifin, 2021). In the aspect of time, a person is said to have migrated if he has settled or intends to stay for a certain time. This time limit can be different depending on the researchers. Indonesia used 6 months as a time limit but later changed to 12 months in the 2020 population census. The second aspect pertains to the spatial criterion, which dictates that to be classified as a migrant, an individual must relocate across administrative boundaries. (Siegel & Swanson, 2004; Badan Pusat Statistik, 2019; Badan Pusat Statistik, 2021), be it regencies, provinces, or countries. The last aspect is the uprooting or detachment from the area of origin. Individuals might engage in daily or weekly commuting to work from a different location than their residence, yet their ties and attachment to their place of origin remain intact. In contrast, people who migrate are uprooted from their place of origin and must undergo a different pattern of activity from those in their old place of residence.

There are three terms that are widely used to describe migration, namely lifetime migration, recent migration, and total migration. Lifetime migration is a condition when a person's place of residence at the time of data collection is different from the place of birth. Recent migration is when the residence five years earlier is different from the person's residence at the time of data collection. Total migration occurs if a person has lived in a different place from his place of residence at the time of data collection without looking at the time limit.

Mobility is usually carried out for purposes related to economic rationality (Weeks, 2008; Pardede, Wajdi, & Wiyono, 2018), namely efforts to find a new job with a higher income or a better position (Petzold, 2020). This is one of the reasons that make the population in the productive young adult group more mobile than the older group. When observed in the context of its occurrence, migration typically coincides with significant life transitions, such as marriage and starting a new family, changing jobs, or retiring. On the other hand, short-term mobility is not necessarily linked to life phase changes but is primarily driven by temporary alterations in circumstances. It may be undertaken for reasons such as work, education, vacation, or seeking medical treatment in a different location (Bell & Ward, 2000). Nevertheless, because employment opportunities appear to play an important role as a background for mobility, this paper focuses on commuting in response to employment opportunities only.

Whatever the type is, mobility will have a major impact on the origin and destination through changes in the number and composition of the population. This phenomenon arises due to diverse patterns of mobility behavior resulting from the unique characteristics of the population. For example, those who are of productive age have a higher tendency to engage in mobility than the older ones, or the tendency of men to carry out mobility is higher than that of women. Changes in number and composition due to mobility may be greater than changes from natural causes, such as birth and death (Siegel & Swanson, 2004). Next, these changes will affect the supply

of labor and demand for goods and services. Labor supply will increase in the destination areas and decline in the original areas. In addition, the need for housing, for example, will increase in the destination areas.

### **MOBILITY TRANSITION**

Migration and short-term mobility may form three kinds of relationships (Bell & Ward, 2000). The first is short-term mobility as a substitute for migration, the second is short-term mobility as a complement to migration, and the third is short-term mobility as a starting stage before individuals finally migrate. This paper focuses on the first type of relationship, according to the direction of the relationship stated in the mobility transition theory.

One can assess which form of mobility suits them best by comparing the costs against the potential benefits derived from each option. Some of the things that are taken into consideration and can influence their decision in choosing the type of mobility are wages (Lucas, 1997) and amenities (Shuai, 2012), distance traveled, costs of mobility (Petzold, 2020), as well as individual and regional characteristics (Axisa, Newbold, & Scott, 2012; Axisa, Scott, & Newbold, 2012; Brown, Champion, Coombes, & Wymer, 2015; Monte, Redding, & Rossi-Hansberg, 2018; Li, Geertman, Hooimeijer, Lin, & Yang, 2021).

From the spatial side, distance (Blumenberg & Manville, 2004) and commute time (Bi, Fan, Gao, Lee, & Yin, 2019) are two things that can be used to measure spatial mismatch, namely differences in a person's area of residence and place of work. These variations stem from personal socio-economic factors that shape their decisions regarding employment and residential locations, subsequently influencing the travel habits of workers.

Spatial mismatch can hinder the employment conditions in a region. An illustrative example is the hukou system in China, which tends to marginalize migrant workers from rural areas due to the disparity in facilities and benefits compared to local urban workers (Bi, Fan, Gao, Lee, & Yin, 2019), such as housing subsidies (Li, Geertman, Hooimeijer, Lin, & Yang, 2021). As a result, these migrant workers end up residing far from the city center where greater employment opportunities are concentrated. These migrant workers tend to concentrate in urban villages located close to industrial centers, where housing prices are more affordable. Many of them are likely to work in the central industrial area, leading Li (2016) and Zhang (2018) to assert that migrant workers achieve a better job-housing balance compared to non-migrants.

### **MOBILITY PATTERN IN INDONESIA**

Migration in Indonesia shows a declining trend through the years. During 1930-2010 period, Indonesia experienced a different pattern of internal migration. The rate of inter-provincial migration in Indonesia was relatively stagnant in 1930-1960 and only increased after economic conditions began to improve in the 1970s (Lucassen & Lucassen, 2014). Based on the results of the Population Census, the percentage of the population living outside their place of birth (lifetime migrants) continued to increase from 4.9 percent in 1971 to 11.77 percent in 2010 but experienced a relatively sharp decline to 9.83 percent in 2020. In contrast to lifetime migration, residents whose residence is different from the previous five years (recent migrants) show a downward trend from 2.95 percent in 1980 to 1.8 percent based on 2020 long-form census data

collection (Badan Pusat Statistik, 2011; Badan Pusat Statistik, 2023). All census results from 1990 to 2020 show that these recent and lifetime migrants mostly move to and from provinces in Jawa island, which indicates that mobility in Jawa island is higher than in other islands.

However, an analysis of census data needs to be carried out more carefully because there has been a change in the definition of population in the implementation of the 2020 Population Census. Previously, Indonesia used a time limit of 6 months to determine whether a person is a resident of an area. In 2020 census, this limit was changed to 12 months to follow the UN definition. In addition, the pandemic that occurred from the beginning of 2020 to 2022 also limited the movement of residents. These two phenomena may create the perception of reduced mobility in Indonesia.

In addition to changing the definition, it should be remembered that the collecting data period of the 2020 census coincided with the COVID-19 pandemic which changed patterns of population mobility due to the implementation of large-scale social restrictions (Pembatasan Sosial Berskala Besar – PSBB). Moreover, the collection of long-form population census data in 2020, aimed at acquiring more detailed demographic parameters, was postponed from 2021 to 2022 due to the pandemic (Badan Pusat Statistik, 2023).

On the other hand, changes in the percentage of short-term mobility in recent years have been more varied. Based on the results of the 2005 Inter-Census Population Survey (*Survei Penduduk Antar Sensus* or SUPAS), 3.9 percent of the population aged 5 years and over carried out routine activities outside the regency/city where they lived. These people are called commuters, who routinely move back and forth for daily activities such as work (70.6%) or school/courses (25.3%) (Badan Pusat Statistik, 2009). Majority of these commuters are men, as indicated by Wirdayatmo (2009). Additionally, the age group who commute the most is the productive segment, namely individuals aged 20-39, aligning with the typical pattern of population migration peaking between the ages of 20 and 30.

Learning from the mobility transition theory, job-housing balance in spatial mismatch framework, and the decrease in migration and commuter in Indonesia, this paper hypothesises that recent migrant is likely to reduce the probability of worker to commute between home and work every day.

## DATA AND METHOD

Indonesia's National Statistics Agency (Badan Pusat Statistik or BPS) has a specialized survey to examine the characteristics of commuters in Indonesia. However, the survey is not conducted every year and only covers metropolitan areas, namely Jabodetabek, Bandung Raya, Mebidang, Gerbang Kertosusila, and Sarbagita. Therefore, the paper uses a national level data set from the August 2019 National Labour Force Survey (*Survei Angkatan Kerja Nasional* – Sakernas). Sakernas is conducted twice a year and produces basic data on employment in Indonesia. The first semester survey was conducted in February while the second semester survey was conducted in August. The February Sakernas produces provincial-level statistics; and the August Sakernas, with a larger sample, estimates indicators down to the regency/city level.

Utilizing Sakernas data aligns with the paper's objective since it offers insights into commuter status that can be estimated at the regency/city level in Indonesia. The data is limited on the commuting for work purposes only, not including commuting

for other activities. This paper utilizes data from 2019, before the COVID-19 pandemic, as the pandemic may have resulted in a unique impact of migration on commuting. By avoiding the impact of the pandemic, the results in this paper can be compared with previous studies.

The paper exclusively utilizes data pertaining to employed individuals, comprising a total of 510,137 respondents from the entire survey sample. An individual is considered employed if they engaged in economic activities continuously for at least one hour in the week preceding the survey. Furthermore, identifying commuting workers is done by examining responses of some items in the questionnaire, as there are no explicit queries regarding commuting in the survey. Determination of workers' commuting status is accomplished by analyzing respondents' responses to three key questions: their place of residence, place of work, and the duration of their commute from home to work.

If a person works in a regency/city that is different from where the person lives and commutes every day, then he is categorized as a commuter.

This paper uses a probit regression analysis to examine the impact of migration on commuting. However, it is necessary to pay attention to endogeneity that may occur due to the reverse causality between migration and commuting. Someone may have commuted as a result of past migration or they could have migrated after commuting as a precursor.

The variable of migration status is already measured in the preceding five years and commuting is measured at the time of the survey. In other words, migration status occurs before commuting and it may have minimized the possibility of reverse causality. Nevertheless, to strengthen the elimination of the endogeneity, this paper also uses an instrument variable (IV) to proxy the individual migration status. Percentage of recent migrants at the district level has been employed to estimate the proxy at individual level. The form of the equation is as follows

$$Y_i = \beta_0 + \beta_1 \text{recent}_i + \beta_2 \mathbf{X} + \varepsilon_{1i} \quad (1)$$

$Y_i$  is the dependent variable in the form of commuting or not, where the reference category is when the worker does not commute every day from home to work. The variable denoted by  $\text{recent}_i$  is the status of individual recent migrants as the main independent variable, where the reference category is non-recent migrant.  $\mathbf{X}$  is the independent variable matrix consisting of sex, marital status, age, education level, number of working household members, working status, and category of residence (urban or rural).

The percentage of recent migrants (*percent recent<sub>i</sub>*) in the area of residence is used as the IV for the  $\text{recent}_i$  variable which means that it has to have a relationship with  $\text{recent}_i$ , but has no relationship with  $Y_i$ . As the first step in the analysis, a simple regression estimate was performed between the *recent* variable and the *percentage of recent migrants* using the equation below.

$$\text{recent}_i = \alpha_0 + \alpha_1 \text{percent\_recent}_i + \alpha_2 \mathbf{X} + \varepsilon_{2i} \quad (2)$$

Estimates from the *recent* in equation (2) are then used to replace the *recent* in equation (1).

## RESULTS AND DISCUSSION

The sample in this paper were individuals aged 15 years and over who worked at least one hour continuously in the preceding week. Table 1 shows an overview of the workers. Of the 510,137 workers in the August 2019 Sakernas data, there were 4.53 percent or 23,087 workers who commuted and 4.07 percent had the status of recent migrants. The workers were on average 41 years old. They lived in households having an average of 3 members and 2 members of them worked. The majority of workers were male, currently married, had at least a primary school education, and lived in urban areas. Most of these workers are employers or employees/laborers.

**Table 1.** Characteristics of Workers

	Characteristics	All Workers
	(1)	(2)
Commuter (%)	Yes	4.53
	No	95.47
Recent migrant (%)	Yes	4.07
	No	95.93
Sex (%)	Male	60.05
	Female	39.95
Marital status (%)	Married	75.30
	Not married	24.70
Education level (%)	Elementary school or lower	43.02
	Junior high school	
	High school	17.21
	College or above	27.55
		12.21
Working status (%)	Employer	42.39
	Employee	35.33
	Own account worker	8.12
	Unpaid worker	14.16
Urban status (%)	Urban	58.39
	Rural	41.61
Average age (year)		41.88
Average number of household members aged 15 years and over		3.01
Average number of household working members aged 15 years and over		2.24
Total sample (n)		510,137

Source: Produced from August 2019 Sakernas

Furthermore, Table 2 indicates that 9.96 percent of the migrants are commuters. This percentage is higher than 4.30 percent of non-migrants, revealing that migrant may be more likely to commute. Younger worker, male worker, or non-married worker is also associated with higher probability to more. Household composition seems to matter in probability to commute. A commuter has a higher average of number of household members aged 15 years and over. However, a commuter has a slightly lower average of number of working members. The table also shows that socio-economic variables are associated with the probability of

commuting. The probabilities of commuting are higher among educated individuals, those working as employees, or those living in urban areas.

Table 3 presents the results of the probit regression analysis between the instrument variable (IV, percentage of recent migrants in areas of residence) and individual recent migrant status. The significant value of coefficient IV at  $p < 0.01$  indicates that the percentage of recent migrants has a statistically significant relationship with individual migrant status, even after controlling for other independent variables.

**Table 2.** Characteristics of Workers by Commuting Status

Characteristics (1)	Commuting Status		
	Yes (2)	No (3)	
Recent migrant (%)	Yes	9.96	90.04
	No	4.30	95.70
Sex (%)	Male	5.28	94.72
	Female	3.40	96.60
Marital status (%)	Married	4.27	95.73
	Not married	5.29	94.71
Education level (%)	Elementary school or lower	1.76	98.24
	Junior high school	3.28	96.72
	High school	6.88	93.12
	College or above	10.70	89.30
Working status (%)	Employer	1.84	98.16
	Employee	9.65	90.35
	Own account worker	2.82	97.18
	Unpaid worker	0.76	99.24
Urban status (%)	Urban	7.87	92.13
	Rural	2.14	97.86
Average age (year)		37.90	42.07
Average number of household members aged 15 years and over		3.16	3.01
Average number of household working members aged 15 years and over		2.20	2.24
Total sample (n)		23,087	487,050

Source: Produced from August 2019 Sakernas

The robustness of the instrumental variable (IV) employed in this analysis is evaluated through the Kleibergen-Paap-Wagenvoort (KPW) test and the Montiel Olea-Pflueger (MOP) test. A commonly accepted criterion for testing IV strength is whether the F statistic exceeds 10. If the F statistic surpasses 10, it indicates the instrument's significance (Andrews, Stock, & Sun, 2019). The findings reveal that the F statistic value for both methods is 2,806.375. Thus, it can be inferred that this variable serves as a potent instrumental variable (IV) for determining recent migrant status.

*Kleibergen-Paap rk Wald F statistic* = 2,806.375

*Montiel-Pflueger robust weak instrument test : Effective F statistic* = 2,806.375

Then, the predicted probability of recent migrant status is used as the main independent variable in estimating the probability of commuting after considering the effect of IV. The results in Table 4 show that a worker's migrant status has a positive relationship with the probability of commuting. This means that if a worker is a recent migrant, then the worker is more likely to commute than non-migrants. This contradicts the hypothesis which states that migrant workers tend not to commute. Previous studies (Li & Liu, 2016; Zhang, He, & Zhao, 2018) concluded that migrant workers have a better job-housing balance than non-migrants, which means they tend to live in the same area or close to their place of work so that the distance and travel time to work are shorter.

**Table 3.** Relationship between Migration Status and Commuting (after including migration status in the district)

Variable (1)	Coefficient (2)
<b><i>Dependent variable</i></b>	
Workers' migrant status	Recent migrant Non recent migrant ( <i>ref</i> )
<b><i>Variable of interest</i></b>	
Recent migrant at district	0.076*** (0.001)
<b><i>Control variables</i></b>	
<b><i>Social demography characteristics</i></b>	
Sex	Male Female ( <i>ref</i> )
Marital status	Married Not married ( <i>ref</i> )
Age	-0.019*** (0.000)
Education level	Junior high school Senior high school College or above Elementary school or lower ( <i>ref</i> )
Number of household members who are working	-0.034*** (0.003)
Working status	Employee Own account worker Unpaid worker Employer ( <i>ref</i> )

<i>Spatial characteristics</i>		
Urban status	Urban	0.081*** (0.007)
	Rural ( <i>ref</i> )	
Constant		-1.541*** (0.019)
Total sample ( <i>n</i> ):	510.137	
Prob > chi-square :	0.000	

Source: Produced from August 2019 Sakernas

Note: *ref*: reference category. Significant at: \*\*\* $p < 0,01$ , \*\* $p < 0,05$ , \* $p < 0,1$

Numbers in the parentheses are standard error

However, caution must be exercised when comparing the results of this study with those of others due to variations in the definition of commuting. This paper adheres to the commuting definition provided by Statistics Indonesia, which restricts commuting to crossing district boundaries. This differs from Li (2021) and Axisa (2012), which did not confine commuting to crossing district boundaries.

Of all control variables, age is the only variable that does not have a significant effect on the probability of commuting. Based on the coefficient values presented in Table 4, it appears that the probability for male workers to commute is higher than for women. This serves as supporting evidence for the theory suggesting that men exhibit greater mobility compared to women. This trend might be influenced by traditional gender roles, where men are traditionally seen as breadwinners while women are typically responsible for household and childcare duties. (Green, Hogarth, & Shackleton, 1999; Weeks, 2008; Telve, 2019). Women often relocate to accompany their husbands or family members (Kalemba, Bernard, & Corcoran, 2022), while men may choose to commute to work only if it proves advantageous for them.

Married workers have a higher chance of commuting than those who are not married. Short-term mobility is typically unrelated to life phases and instead serves as a temporary means to meet daily necessities, such as work. Unmarried workers often enjoy greater flexibility in migrating since they can easily rent accommodation near their workplace without having to consider the needs of a spouse or children.

This could be a contributing factor to why married workers engage in more likely to commute. In families where both partners are working (dual workers), opting to commute becomes a way of showing commitment to their family and supporting each other's careers, as observed by van der Klis & Mulder (2008), even if it means traveling long distances. This could be a contributing factor to the increased likelihood of becoming a commuter when there are multiple working members in a household. In such cases, when one member is working, the other members can have more freedom of movement compared to households with a single worker.

As individuals attain higher levels of education, they tend to have an increased propensity of commuting. This correlation may stem from the broader knowledge base and access to information that accompanies higher education. Those with higher educational qualifications often encounter more diverse and distant employment opportunities compared to individuals with lower levels of education.

Employees are more likely to commute compared to other working statuses. This tendency could be attributed to the possibility of employment in urban areas

while living in rural areas. However, due to the high cost of living near their urban workplaces, they often opt to reside in more affordable areas further away.

**Table 4.** Impact of Migration Status on Commuting (after utilising the effect of Instrument Variable)

Variable		Coefficient	Marginal Effect
(1)		(2)	(3)
<b>Dependent variable</b>			
Commuter	Yes		
	No ( <i>ref</i> )		
<b>Variable of interest</b>			
Predicted of workers' migrant status		2.008*** (0.113)	0.126*** (0.007)
<b>Control variables</b>			
<i>Social demography characteristics</i>			
Sex	Male	0.199*** (0.007)	0.012*** (0.000)
	Female ( <i>ref</i> )		
Marital status	Married	0.015* (0.008)	0.001* (0.001)
	Not married ( <i>ref</i> )		
Age		-0.000 (0.000)	-0.000 (0.000)
Education level	Junior high school	0.103*** (0.011)	0.005*** (0.001)
	Senior high school	0.286*** (0.010)	0.018*** (0.001)
	College or above	0.363*** (0.011)	0.025*** (0.001)
	Elementary school or lower ( <i>ref</i> )		
Number of household members who are working		0.009*** (0.003)	0.001*** (0.000)
Working status	Employee	0.568*** (0.008)	0.044*** (0.001)
	Own account worker	0.235*** (0.015)	0.013*** (0.001)
	Unpaid worker	-0.207*** (0.018)	-0.007*** (0.001)
	Employer ( <i>ref</i> )		
<i>Spatial characteristics</i>			
Urban status	Urban	0.383*** (0.008)	0.026*** (0.001)
	Rural ( <i>ref</i> )		
Constant		-2.642*** (0.023)	
Total sample (n):	510,137		
Prob > chi2 :	0.000		

Source: Produced from August 2019 Sakernas

Note: *ref*: reference category. Significant at: \*\*\* $p < 0,01$ , \*\* $p < 0,05$ , \* $p < 0,1$

Numbers in the parentheses are standard error

Employees are bound by their commitments to employers, requiring them to commute to their office or workplace daily, irrespective of their place of residence. Conversely, employers have the flexibility to operate their businesses from their own home or local area.

Living in urban areas increases the probability for workers to commute than living in rural areas. This finding is in line with previous studies (Li, Geertman, Hooimeijer, Lin, & Yang, 2021), as most commuters are living in high-density urban areas. This finding also resonates with the spatial distribution of commute workers as half of them live in Java, the most populous (Badan Pusat Statistik, 2020) and most urbanized (Badan Pusat Statistik, 2021) island in Indonesia. West Java and Central Java are the two provinces where the most commuters come from, while the most attractive destinations are DKI Jakarta (the capital of Indonesia) and Central Java. West Java and Central Java are located adjacent to each other and each has a metropolitan area.

### **CONCLUDING REMARKS**

This paper examines how migration status of workers affects their possibility to commute every day from home to work using a probit regression analysis. The data used in this paper comes from the 2019 National Labour Force Survey or Sakernas in Indonesia. The findings show that workers who are recent migrants have higher possibility to commute than those who are not. Other variables that significantly affected the probability of commuting include sex, marital status, education level, the number of working members within a household, the individual's working status, and the urban status of workers' residence area.

This paper's limitation lies in its omission of data regarding the distance between respondents' current residence and their location five years earlier, which is essential for a thorough comparison of the two types of mobility. Additionally, it does not incorporate the categorization of metropolitan area status. Future research endeavors could focus on examining the distance of recent individual migrations and the metropolitan status of residences, or the urban and rural status of both current and previous residences.

This research also suggests a re-evaluation of the definition of commuting employed by Statistics Indonesia, which currently confines commuting to those crossing district borders—aligning with the definition of long-term mobility. However, short-term mobility, unlike long-term mobility, may involve movement within a district. Some individuals may commute on foot, yet they are not classified as commuters if they do not cross district boundaries. Furthermore, the data might overlook individuals who commute by bicycle, as they may not necessarily cross district borders.

### **Acknowledgments**

This paper is supported by Education and Training Center of Indonesia's National Statistics Agency (Pusdiklat BPS).

### **Funding**

The authors received no funding for this study.

### **Conflicts of Interest**

None declared.

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