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Job Search Duration: Human Capital Influence on Recent Migrant Workers in Indonesia

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Abstract: This study aimed to analyse the impact of human capital on the duration of job search for Indonesian recent migrant workers. The human capital that was the focus of this study is education, training, skills, use of digital technology, and internet use. In addition, the characteristics of recent migrant workers employment from the field of employment and individual characteristics, namely age, gender, urban status, and Java Island, were also taken into account. A total of 1267 individuals were analysed, sourced from the National Labour Force Survey (Sakernas) in August 2022. The analysis method used was the Survival Analysis. The results of the Survival analysis using the life table showed that 75% of recent migrant workers got a job within 1 month of looking for a job. The analysis conducted with Cox regression revealed that human capital significantly influenced the duration of job search among recent migrant workers. Specifically, the survival analysis indicated that possessing middle and higher education levels facilitated a quicker job search, whereas training did not appear to have a

noteworthy effect. Skills, the use of digital technology and the Internet had a significant impact on the duration of job search, with a striking hazard ratio. In addition, the manufacturing and service industries showed a high hazard ratio, indicating a greater risk of failure to find a job in these sectors compared to job search in the agricultural sector. The analysis also revealed that individual characteristics, such as gender and place of residence, affected the duration of job search. Women recent migrant workers who lived in urban areas tended to look for jobs for a longer period of time. These findings contributed to the body of knowledge regarding the determinants of employment outcomes among recent migrant workers. Specifically, they elucidate the significant impact of educational attainment, skill acquisition, and various demographic variables on the efficacy of job search processes. This research underscored the complexity of the labour market integration for migrants and emphasised the necessity of understanding these multifaceted influences in order to enhance employment prospects for this population.

Keywords: job search duration, human capital, recent migrant, survival analysis

Introduction

Indonesia is among the top five countries with the largest populations in the world, according to a report from the United Nations (2022). The population of Indonesia in 2022, based on the Long Form of the 2020 Population Census, was 275 million, an increase of 3 million from the previous year (BPS, 2023b).

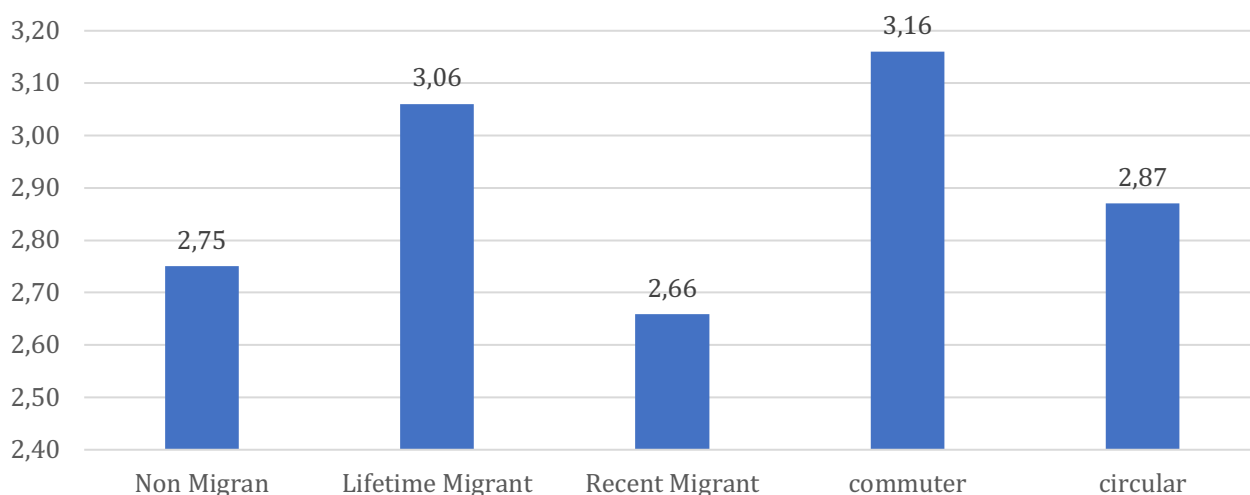
Migration is one of the factors that have a significant impact on the growth or decline in population, in addition to birth and death. The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, recognise 'orderly, safe, regular, and responsible migration' as an important issue in achieving target point 10.7. This involves the implementation of well-planned and managed migration policies (Li & Samimi, 2023). At the global level, enhancing both the quality and quantity of data is essential for effectively implementing the migration-related aspects of the Sustainable Development Agenda. This can also support efforts to reduce inequality, both within and between countries (Li & Samimi, 2023).

In 2022, the number of lifetime migrants was 19.5%, up significantly from 11.1% in 2021. The same happened to recent migrants, which in 2022 were 2.8%, up significantly from 2.1% in 2021 (BPS, 2022; 2023a). This increase can be explained by the COVID-19 pandemic situation, where in 2022, the pandemic was already under control and social restrictions were gradually eased (BPS, 2022). As social restrictions started to ease, individuals felt more empowered to pursue moves or migrations that had been limited by the pandemic.

The significant increase in the number of people migrating indicates that the migrant labour market is also growing (BPS, 2022). Analysis of the labour market for migrant workers is not enough if it only covers the types of jobs and the unemployment rate. It is crucial to observe how swiftly the duration of unemployment changes or how rapidly one can secure a job (Friska, 2021). In the publication of Internal Migration of the Indonesian Population published by BPS (2011), one of the main reasons for people to migrate is to find a job, besides family and education reasons. Although the Todaro (1997) migration theory assumes that there is a flow of migration based on the difference in income distribution between the village and the city, the income in question is not actual income but expected income. However, in reality, whether migrant workers get a job faster or have shorter unemployment duration, this certainly needs to be further studied.

Figure 1

Average Duration of Job Search Duration by Mobility Status (in months), 2022

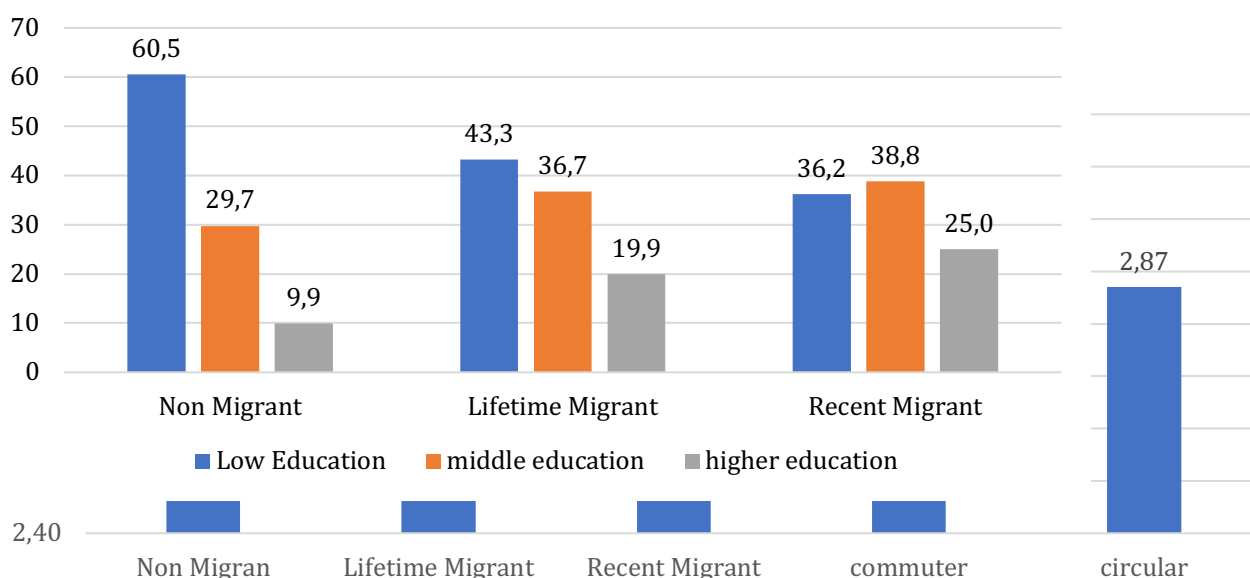


Source: National labour force survey (Sakernas) August 2022 (BPS, 2023b).

Based on the processing of Sakernas August 2022 data, it is shown in Figure 1 that the average length of time it takes to find a job varies based on the mobility status of the workforce. Interestingly, recent migrant workers tend to find jobs more quickly, with average search duration of just 2.66 months, compared to their non-migrant counterparts. What causes recent migrant workers to get a job faster? This is also the reason for the author to focus more on recent migrants.

One of the important aspects that affect the success of recent migrant workers in finding a job in the destination country is the human capital they have. Study conducted by Zwysen (2019) found that the investment in the human capital in the destination of migration, such as obtaining equivalent qualifications and good language skills, plays an important role in increasing the opportunity to get a job in the labour market.

Figure 2



Source: National labour force survey (Sakernas) August 2022 (BPS, 2023b).

The analysis of data from Sakernas 2022, illustrated in Figure 2, indicates that the educational achievements of non-migrants and lifetime migrants display notable similarities. Low education has the highest percentage in both groups, followed by secondary education and tertiary education. In contrast,

the most recent group of migrants shows a different trend: the highest percentage have completed secondary education, followed by those with low education levels, and lastly, those with tertiary education.

Previous studies have highlighted several key factors that significantly influence how long it takes to find a job. These include education, skills, work experience, motivation to migrate, language proficiency, and demographic characteristics. Safitri and Afiatno (2020) found that business preparation can affect the rapidity in getting a job for those who are unemployed. In addition, research by Zwysen (2019) highlights the role of investment in human capital in increasing employment opportunities in the labour market for migrants. Pasay and Indrayanti (2012) show that those with higher education tend to face a longer length of job search, perhaps due to the tighter competition among them. In addition, they also have higher wage expectations. Palupi (2015) highlights various factors, including the type of education, work experience, type of job, age, gender, marital status, and status as the head of household, which affect the length of job search. This confirms that there are many factors that affect the duration of job search, both individual characteristics and labour market conditions.

Problem Statement

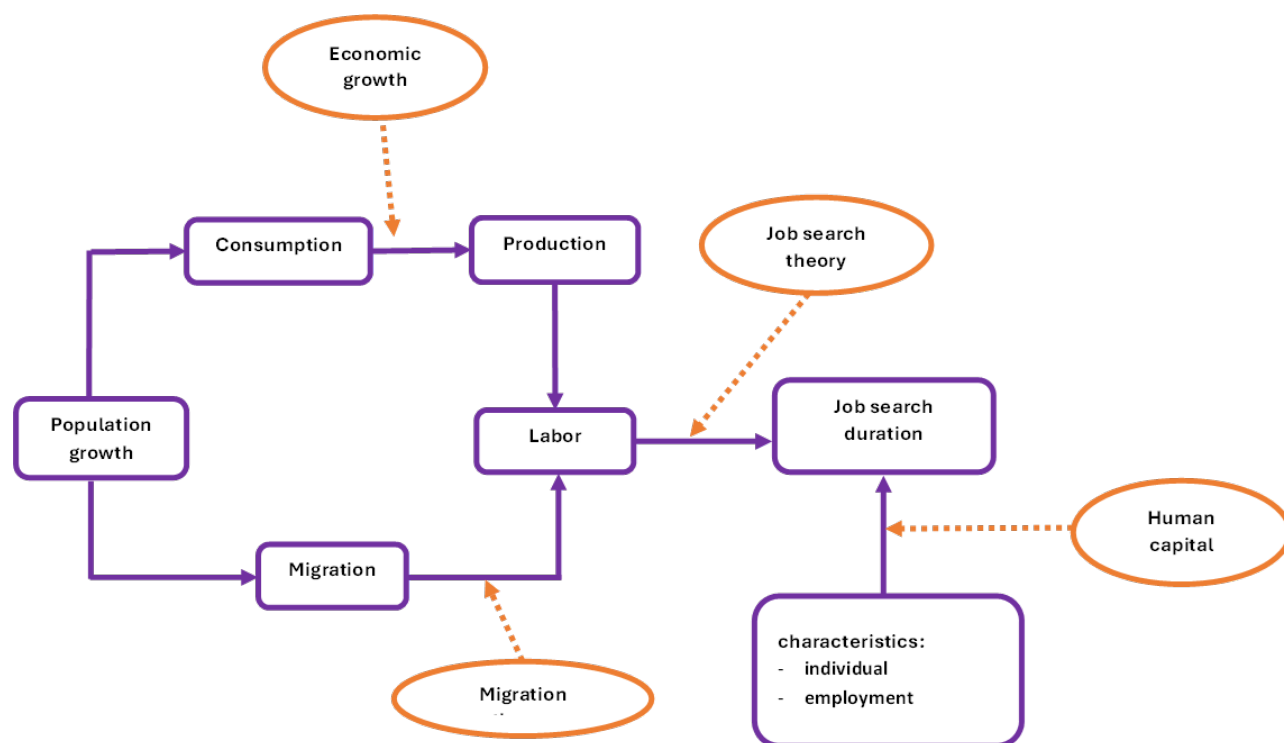
The current literature encompasses a variety of studies that examine the impact of human capital on different labour market outcomes, including the duration required to secure employment (Balgová et al., 2022; McCall, 1970; Pasay & Indrayanti, 2012; Safitri & Afiatno, 2020; Tasmilah et al., 2023) and the effects of human capital on migration patterns (Altenried, 2021; Caliendo et al., 2019; Landolt & Thieme, 2018; Lochmann et al., 2019; Manning & Pratomo, 2013; Syafitri, 2013). Nevertheless, there exists a paucity of research specifically investigating the relationship between human capital and the duration of job search for recent migrant workers (Zwysen, 2019). This study aimed to address this gap by concentrating on the experiences of international migrants in this context. Another thing is that there are differences in the results between the level of education and skills that accelerate the process of getting a job or prolong the process of job search. Some studies show that certain levels of education and skills can accelerate the process of getting a job (Cheng et al., 2021; Zwysen, 2019), while other studies argue that higher levels of education prolong the process of job search (Pasay & Indrayanti, 2012; Safitri & Afiatno, 2020). For this reason, the author takes this opportunity to slightly complement the research that has been previously accomplished.

Research Aim and Hypotheses

This study aimed to contribute to a better understanding of the influence of human capital on the length of time it takes to find a job and to focus more on Indonesian recent migrant workers. This study sought to investigate the impact of human capital – operationalized through factors such as educational attainment, vocational training, skillset diversity, proficiency in digital technology, and frequency of internet usage – on the duration of job search among recent migrant workers in Indonesia. The objective was to elucidate the relationship between these dimensions of human capital and the efficiency of the job search process within this specific demographic, thereby contributing to the understanding of labour market dynamics in the context of migration. To address this, a conceptual framework was developed to visualise and explain the relationships between the various concepts being studied. The conceptual framework of this research is illustrated in Figure 3.

Figure 3

Research Conceptual Framework



Source: Researcher's illustration.

The illustration in Figure 3 explains that an increase in the consumption or demand for goods and services leads to an increase in production. This increase in production necessitates additional production factors, including the labour. On the other hand, migration is a factor that influences population growth. A significant increase in the migrating population indicates that the migrant labour market is also expanding. Recent migrant workers strive to fill the gaps in this labour market. The duration of job searches for recent migrant workers is greatly influenced by human capital, which encompasses individual characteristics and employment characteristics of each worker.

The hypothesis in this study was that there was a significant relationship between human capital and the job search duration of recent migrant workers. In this research, the human capital was represented by the variables of education, training, skills, technology usage, and internet usage, which are hypothesised to have a negative impact on the job search duration for recent migrant workers.

In line with the research objectives previously discussed, this study presented a model that illustrates the duration of job searches for migrant workers. Here, the duration of job searching was defined as the period an individual devotes to actively seeking or preparing to secure employment. In this study, migrant workers referred to individuals currently residing in administrative regions different from their residence five years ago (province or district/city). The focus of the research was on unemployment, specifically targeting individuals without job who were actively seeking employment or preparing efforts to secure a job. In summary, the variables used in this study are succinctly explained in the table 1.

Table 1

List of Research Variables

Indicator	Variables	Definitions	Category
Dependent variables			
$h(t,X)$	Hazard function	how quickly do recent migrants get jobs at time interval $t (t + \Delta t)$	Numeric

<i>t</i>	Job search duration		time (month)
<i>X</i>	Working status		0 = doesn't work* 1 = work
Main Independent Variables			
<i>Human Capital</i>			
<i>Pend₁</i>	education	Highest educational qualification	Lower education* 0 = other* 1 = junior high school graduate or below Middle education 0 = other* 1 = senior high school graduate or equivalent Higher education 0 = other* 1 = university graduate
<i>Pel₂</i>	training	Have attended certified training	0 = no* 1 = yes
<i>Ket₃</i>	skills	Skilled workers include jobs such as legislative officials, high-ranking officials and managers, professional staff, technicians, assistants to professional staff, business workers in the agricultural and livestock sectors, as well as processing and craft workers. Non-skilled workers include jobs such as administrative workers, workers in the service sector and sales people in shops and markets, machine operators, machine assemblers, as well as manual workers and cleaning workers.	0 = unskilled workers* 1 = skilled workers
<i>Digital₄</i>	Digital technology	use of digital technology in work	0 = do not use* 1 = use
<i>Internet₅</i>	Internet	use of the internet at work	0 = do not use* 1 = use
Control Independent Variables			
<i>Employment characteristics</i>			
<i>Lap₆</i>	business field	Employment refers to the sector or field of activity where an individual works, or that is generated by the office or company where the respondent works.	agriculture* 0 = other* 1 = agriculture Manufacture 0 = other* 1 = manufacture service 0 = other* 1 = service
<i>Individual characteristics</i>			

<i>Usia</i> ₇	age	Respondent's age at the time of the census	age
<i>JK</i> ₈	gender	Individual gender	gender
<i>Wilayah</i> ₉	the area where the respondent lives	Residential area classification	the area where the respondent lives
<i>Jawa</i> ₁₀	java and Non Jawa island	where the respondent lives	java and Non Jawa island

Note. *Reference category.

Literature Review

The Solow-Swan theory of economic growth is a framework that elucidates how economic growth, capital accumulation, labour force growth, and technological innovation interact within the context of a country's economy. This theory provides insights into how these factors influence the overall production of goods and services in a country (Mankiw, 2016). The Solow-Swan model projects that ultimately; there will be economic convergence towards a steady-state growth condition dependent on technological advancements and labour force growth. This neoclassical economic growth theory is rooted in the production function initially developed by Charles Cobb and Paul Douglas, considering the production factors of capital and labour. In this theory, the objective of producers is to maximize their profits through a combination of inputs involving capital, labour, and other production equipment (Nicholson & Snyder, 2010). Companies merge these production factors to create goods or services, which are then sold in the market. The total output produced and the way labour and capital are combined are influenced by three main factors: demand for products, the availability of labour and capital at specific prices, and the technological options available to producers. In this regard, determining how much labour a company or group of companies will employ is influenced by changes in one or more of these three factors (Ehrenberg & Smith, 2017).

In the economy, households and businesses engage in two key markets: the goods market, where products are exchanged, and the labour market, which involves employment and work. When households increase their purchases of goods, businesses respond by ramping up production to meet the higher demand. The decision of companies to produce more goods also affects how many people are needed to manufacture those goods (Case et al., 2016). In other words, the amount of labour required by a company depends on how many goods households demand. Thus, the demand for labour essentially originates from the demand for goods.

Individual behaviour in the labour market can be explained by the theory of time allocation (Becker, 1975). In this model, work is not considered enjoyable but rather as a commodity, similar to standard goods. With this perspective, the decision to work or not is influenced by considerations such as the price and value of leisure time produced. Consequently, variations in the amount of leisure time utilized will be influenced by shifts in prices and the perceived value of time.

In Todaro's (1997) model, migration from rural to urban areas is triggered by various economic considerations directly related to efforts to maximize benefits. The model assumes that migration is fundamentally a result of economic considerations, namely rational decisions made by migrant individuals, even though unemployment may occur in the city. This model proposes that rural-to-urban migration occurs as a reaction to disparities between anticipated income and actual income potential. An individual is likely to decide to migrate when the anticipated net income (after tax deductions) at the destination surpasses the expected net income in their village, which is evaluated based on the probability of securing employment (Syafitri, 2013).

Although initially the expected income in the city (income expectations) is lower compared to the income that can be obtained in the village, as long as the present value of the expected net income in the city exceeds the value of the net income that can be obtained in the village, the decision to migrate

becomes economically sensible (Todaro, 1997). In this model, individuals consider the expected future income and determine whether the present value of that income is more advantageous by migrating than by staying in the village.

Based on the human capital theory, Edward and Philip (2001) presents hypotheses explaining how human resources affect the phenomenon of migration. First, migration has dynamic aspects, and a younger population with higher mobility compared to the elderly tends to engage in migration. Younger migrants enjoy increased flexibility when selecting their migration destinations. Their migration is not solely for economic purposes but also to gain new experiences. Therefore, the younger working-age population tends to contribute positively to migration from rural to urban areas or even across countries. Second, migration has a negative relationship with migration costs, which can be explained by the distance between the migration destination and access to information. The existence of migration networks tends to reduce migration costs, especially in the context of specific countries or regions. Migrants who possess higher education typically have greater access to information and migration processes, which help them, manage their migration expenses more effectively. Third, the economic growth of a country influences migration from rural to urban areas. High economic growth in a region stimulates the growth of the manufacturing sector and the need for investment in both capital and labour in urban areas. This directly increases migration from rural to urban areas. Human capital variables also have a positive correlation with migration. Individuals from rural areas with experience, skills, and education are more likely to migrate in search of better income. Additionally, the wage disparities between rural and urban areas tend to diminish and balance in the long term.

According to Ehrenberg and Smith (2017), the human capital theory projects that migration will occur from areas with relatively low income potential to places considered better. This migration is more likely to happen among young individuals with higher educational levels. Age plays a crucial role in determining who is inclined to migrate. Furthermore, education serves as the best indicator to identify individuals with the potential to migrate within a specific age group.

Higher levels of education contribute to the expansion of human capital and the enhancement of social and cultural capital. This phenomenon induces shifts within both economic and societal frameworks. The processes of education and information dissemination are predicated on the establishment of trust and reputation; thus, training functions not merely as a conduit for information transfer but also as a critical component in the collective process of cultural formation (Gallerani, 2005).

Moreover, research conducted by Safitri & Afiatno (2020) elucidates that unemployed individuals who actively engage in preparations for self-employment tend to secure employment opportunities more rapidly than their counterparts who continue to seek traditional employment. This study further demonstrates that variables such as educational attainment, vocational training, marital status, and age exert significant influences on the duration of the job search process.

Research by Pasay and Indrayanti (2012) reveals an ironic finding that those with higher education levels tend to face longer job search durations compared to those with lower education levels. This is likely due to the more intense competition among highly educated workers, who seek jobs that match their qualifications. Furthermore, this study emphasises that individuals with higher education tend to have greater salary expectations compared to those with lower levels of education. This indicates that elevated wage expectations might impact the duration of the job search process.

The research by Palupi (2015) shows that various factors such as type of education, work experience, job type, age, gender, marital status, and head-of-household status influence the length of job search. This emphasizes that many aspects contribute to the duration of the job search, including individual characteristics and labour market conditions. Therefore, these three studies collectively provided a more comprehensive understanding of the factors affecting job search duration in Indonesia, highlighting the importance of education, skills, wage levels, and various individual characteristics in the job search process.

The results from the research by Tasmilah et al. (2023) illustrate the significant impact of human capital in managing labour status changes during the pandemic. The human capital, which includes education, training, experience, and digital and internet technology skills, has a significant influence in determining whether individuals remain in formal employment or transition to the informal sector during the pandemic crisis. There is a positive relationship between education level, training, and individual technology skills with their chances of retaining formal employment. In contrast, favourable work experience and training contribute positively; empowering formal workers to more effectively withstand the shift to informal status. Therefore, this study emphasizes that investing in human capital development, through both education and training, can be an effective strategy to maintain formal employment resilience during the pandemic and reduce the risk of transitioning to the informal sector.

Research Zwysen (2019) finds that investment in human capital in the destination country, such as obtaining equivalent qualifications and good language skills, plays an important role in increasing job opportunities in the labour market. Additionally, individuals who migrate with motivations beyond mere economic aspects tend to experience faster job acquisition.

The research conducted by Teichert et al. (2023) explains the effects of migration and work experience of graduates on the probability of entering the labour market. This study shows that graduates who do not migrate tend to secure jobs faster compared to those who migrate. However, this result is mainly due to certain migrant groups who may not utilise the knowledge and networks related to the migration location.

Furthermore, the study by Noja et al. (2018) illustrates that migration is influenced by labour market conditions. Migration positively influences per capita GDP growth and employment rates, providing advantages to both local communities and migrant populations. This indicates that migration can have positive effects on economic growth and job creation, providing benefits for both local citizens and newcomers.

Cheng et al. (2021) conducted research to examine how individual skills and education relate to labour market participation and employment status of migrants. The results show that migrants who have work experience before moving, complete education or job training, possess good job search skills, and have proficiency in English have higher chances of securing employment.

Upon reviewing existing literature, it becomes evident that there is a notable gap between this study and prior research, especially concerning the effect of education (human capital) on the duration of job searches among migrant workers. Some studies indicate that higher levels of education may extend the job search process, while others suggest a positive correlation between the education levels of migrant workers and the length of their job search. Furthermore, previous research has primarily examined migrants as a broad category, encompassing both internal and international migrants, with limited studies specifically addressing the experiences of recent migrants. There are notable differences between recent migrants and other categories of migrants. Through this study, the author aims to contribute to the existing research by adding information and complementing previous findings, with a particular focus on the influence of human capital on the job search duration among recent migrant workers in Indonesia.

Materials and Methods

Data Source

This research employed micro-level data derived from the National Labour Force Survey (Sakernas), conducted in August 2022. The data employed encompassed social demographics, education, and labour-related information, including the duration of job search, preparation time for business, migration status, prior employment history, recent work in the last week, active job search, business preparation, gender, age, highest completed education, past training participation with

certification, digital technology usage, internet usage, field usage, job position, urban-rural region, and distinction between the Java island and non-Java regions.

Sample

The observational units in this research consisted of 1,267 individuals, comprising recent migrant workers who had no previous employment and have been in their current primary occupation for a maximum of 12 months (974 individuals), and the labour force of recent migrants who were currently unemployed, actively seeking employment, or preparing a business, and have had no previous employment (293 individuals).

Analysis Method

In this study, a Survival Analysis as the principal analytical method was analysed in order to investigate the determinants influencing the duration until an individual achieves employment. The Survival Analysis is a statistical approach specifically designed for the examination of time-to-event data, allowing for the assessment of the time until a specified event transpires – in this case, the event of securing employment. This analytical framework facilitated the identification of covariates that affected the hazard rate, or the risk rate, associated with job-seeking behaviours. By employing Survival Analysis, the aim was to elucidate the complex interplay of various factors that may either prolong or expedite the employment process for individuals.

In Survival Analysis, the concept of the hazard function plays a crucial role. The hazard function is defined as the probability or likelihood of an individual experiencing failure or an adverse event within a very short time period, assuming that the individual has survived until a specific initial time period. This function measures the risk of failure at a particular point in time. To estimate the hazard function, it essentially involves comparing the number of failure events to the total number of individuals still at risk of experiencing failure at a specific time. With this concept, Survival Analysis allows us to understand and measure the risk of failure in a study or specific situation in more detail and in accordance with the progression of time. The hazard function can be expressed as follows:

$$h(t) = \frac{f(t)}{S(t)} \quad (1)$$

Or in this research, the estimated hazard function is:

$$h(t) = \frac{\text{the number of job seekers who succeeded in finding work in an interval per unit of time}}{\text{the number of unemployed people looking for work}} \quad (2)$$

According to Kleinbaum and Klein (2012), the value of the hazard function always remains positive, indicating that $h(t)$ is always greater than or equal to 0 and has no upper limit (unbounded). In the context of this research, the use of hazard ratio held significant meaning. When the hazard ratio had a value below 1, it signified that the unemployed individual took a longer time to return to work. Conversely, when the hazard ratio had a value above 1, it can be interpreted as the unemployed individual returning to work more quickly. To facilitate the understanding, in cases where the hazard ratio for a variable was below 1, its interpretation can be obtained using the formula $1/\text{hazard ratio}$. Thus, the concept of hazard ratio aided in understanding and measuring the differences in the speed or duration required by individuals to achieve a specific event, such as returning to work in this study.

In this research, the Cox proportional hazards regression model was employed, which was a mathematical model commonly used in survival analysis. This model assessed the hazard rate based on various factors, including education, training, work experience, skills, use of technology and the internet, participation in pre-employment programs, industry type, employment status, working hours, income, work location, age, gender, marital status, and the relationship to the head of the household. The Cox regression model can be expressed as follows:

$$h(t|X) = H_0(t) \exp (\beta_1 Pend_1 + \beta_2 Pel_2 + \beta_3 Ket_3 + \beta_4 Digital_4 + \beta_5 Internet_5 + \beta_6 Lap_6 + \beta_7 Usia_7 + \beta_8 JK_8 + \beta_9 Wilayah_9 + \beta_{10} Jawa_{10} + \varepsilon) \quad (3)$$

Information:

$h(t, |X)$ = hazard rate at certain times and independent variables

t = Variable length of time looking for work

Event (X) = managed to get a job = $\delta = 1$

failed to get a job = $\delta = 0$

$\beta_1, \dots, \beta_{10}$ = regression coefficient

Pend1 = Education

Pel2 = Training

Ket3 = Skills

Digital4 = Use of Digital Technology

Internet5 = Internet Use

Lap6 = Type of Business Field

Usia7 = Age

JK8 = Gender

Wilayah9 = Urban/rural Area Status

Jawa10 = Java and non-Java Islands

Above, $h(t, |X)$ represents the hazard rate at time t with X as the predictor vector (including variables such as education, training, skills, technology usage, internet usage, participation in the pre-employment program, field of industry, employment status, age, gender, marital status, relationship with the head of the household). $H_0(t)$ is the baseline hazard that depicts the risk level at time t when all predictor variables are zero. $\beta_1, \beta_2, \dots, \beta_{10}$ are regression coefficients indicating the relative influence of each predictor variable on the hazard rate.

This model assumes that the regression coefficients (β) remain constant over time, implying that the impact of predictor variables on the hazard rate is proportional over time. Additionally, the model assumes that the hazard baseline ($H_0(t)$) can vary with time, but the relative relationship between predictor variables remains constant.

In survival analysis employing the Cox regression model, the estimation of the regression coefficients (β) is typically carried out using Maximum Likelihood Estimation (MLE) techniques. By deriving statistically significant estimates of these coefficients, we can pinpoint variables that significantly influence the duration of job searching.

Results

Survival Analysis with Life Table Method

A summary of the life table is a crucial tool in survival analysis, providing an overview of how many individuals successfully secure the employment at specific points in time. Furthermore, this table also depicts the risk rates of failure to obtain employment within specific time intervals. By employing the life table summary, this research can illustrate and analyse the duration of job searching processes within the population of Indonesian migrant workers.

Table 2

Life Table Summary of how Long it Takes to Find Work Among Recent Migrant Workers

	Time at risk	Incidence rate	Number of Subjects	Survival time		
				25%	50%	75%
Total	6.022	0,1193955	1.009	1	3	12

Source: National Labour Force Survey (Sakernas) August 2022 processed.

In this table 2, the variable "x" is employed to identify the occurrence of obtaining employment ($x=1$), while the analysis time "t" is utilised. The total observed time is approximately 6.022 units, and the rate of obtaining employment in the population is approximately 0.1194 per unit of time. There were 1,009 subjects observed in the survival analysis.

From the analysis results, it is evident that the incidence rate of obtaining employment among recent migrant workers is 1.1 months per 10 observations.

- Median survival time = 3 months

50% of recent migrant workers secure employment after 4 months of job searching, while the remaining 50% do not.

- 25th Percentile = 1 month

75% of recent migrant workers find employment within 1 month of job searching.

- 75th Percentile = 12 months

25% of recent migrant workers secure employment after 12 months of job searching.

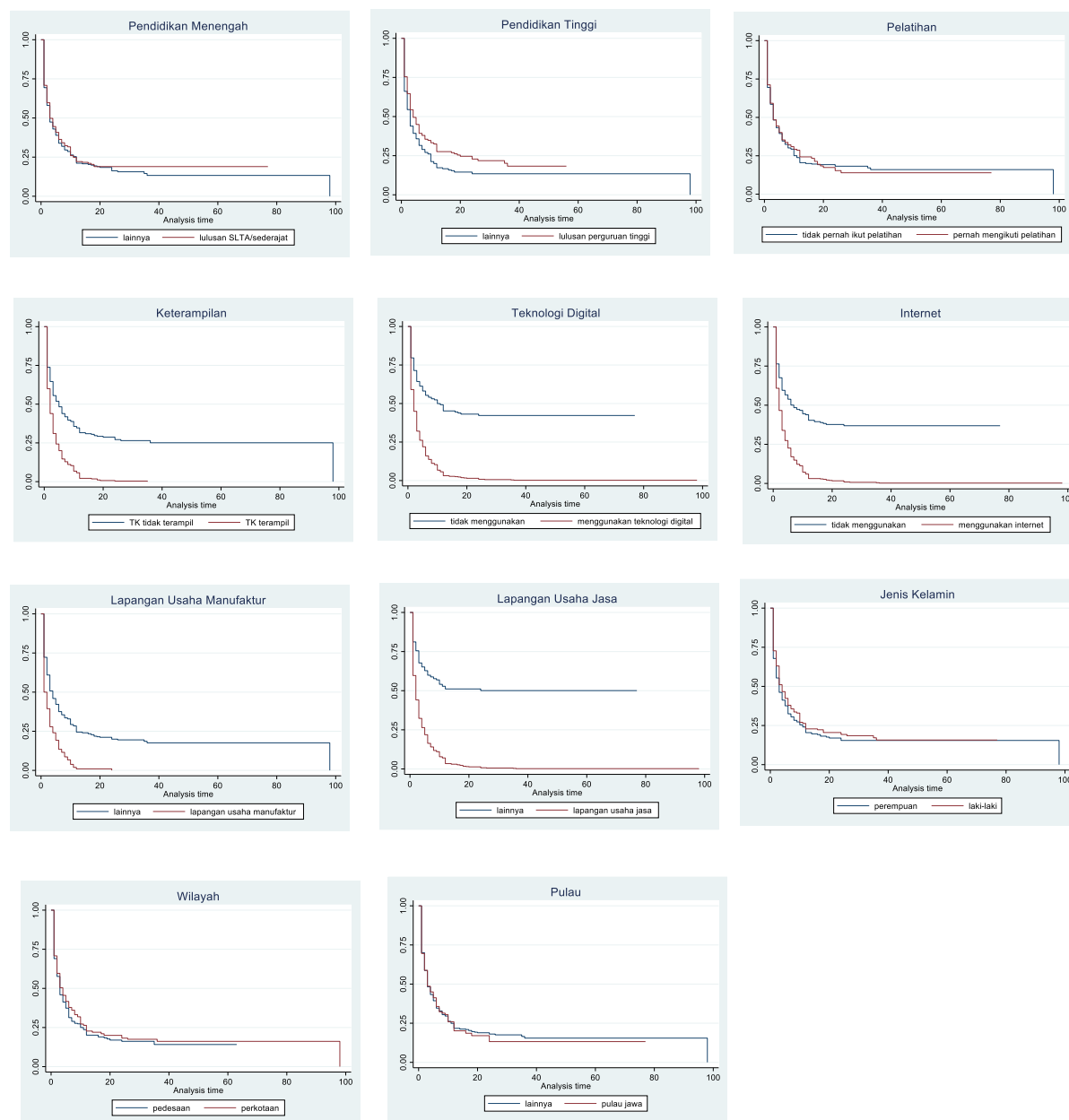
Kaplan-Meier Survival Analysis

The Kaplan-Meier survival analysis (KMSA) is a tool used to generate tables and graphs that depict the survival function over time for the occurrence of an observed condition, in this study, the duration of job searching. This method is designed solely as a descriptive tool for examining the "duration of a specific condition" when time is the only variable considered, without accounting for covariate factors. It is not intended to assess the influence of covariates. If there are covariate factors that impact the timing of the observed condition, the results from KMSA analysis may be biased. In such cases, Cox regression analysis can be utilized for a more comprehensive understanding. Nevertheless, KMSA remains a crucial initial step in data preparation before conducting Cox regression analysis.

The cumulative survival proportion graph is a line graph illustrating the progression of the survival proportion from the beginning of observation ($x=0$) to the end of observation ($x=k$).

Figure 4

Kaplan-Meier Plot



Source: National Labour Force Survey (Sakernas) August 2022 processed.

Based on Figure 4 above, the variables of Secondary Education, Higher Education, Skills, Digital Technology, Internet, Manufacturing Industry, and Service Industry differ between the research groups, even though at the initial observation, there is no significant difference between the two research groups. Meanwhile, for the variables of Training, Gender, Region, and Java, the hazard rates between the two research groups are nearly similar or exhibit small differences at each point in time during the study.

Survival Analysis Cox Regression Model

Additionally, to reinforce the hypothesis suggested by the Kaplan-Meier survival curve in the previous section, conducting a Cox regression analysis is crucial. Cox regression is employed when studying the influence of independent variable X and several covariate variables (interfering factors) on the dependent variable Y, which represents "time-to-event data." In this study, human capital factors (Education, Training, Skills, Digital Technology, and Internet) have an impact on the duration of job searching among recent migrant workers (Y). The results of the analysis using Stata 17 are as follows:

Table 3*Cox Regression Results*

Wald Chi ² (12)	= 330,69		
Prob > chi ²	= 0.0000***		
Variable	Hazard Ratio	P> z	Significant
Middle education	0.748038	0.019**	Significant
High education	0.552711	0.000***	Significant
Training	0.98753	0.902	not Significant
Skills	1.354156	0.004***	Significant
Digital technology	1.91906	0.000***	Significant
Internet	0.693818	0.014**	Significant
Manufacture	6.78359	0.000***	Significant
Service	7.859099	0.000***	Significant
Age	0.997719	0.710	not Significant
Gender	0.837863	0.035**	Significant
Urban	0.746845	0.000***	Significant
Java	0.905545	0.270	not Significant

Note. *significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Processing results.

The findings presented in Table 3 can be interpreted as follows: the Wald chi-square statistic is 330.69, derived from the comparison between the estimated regression coefficients and their respective standard errors (std. err). This statistic quantifies the influence of predictor variables on the length of job searches. The Prob > Chi² value represents the p-value linked to the Wald chi-square statistic, reflecting the likelihood that the observed Wald chi-square value could arise by chance if no relationship existed between the predictor variables and the time taken to secure employment. In this instance, the p-value is 0.0000, which is exceedingly low, indicating that the overall regression model is statistically significant. Table 3 provides information about the hazard ratio for each predictor variable used in the Cox regression analysis. The hazard ratio gauges how much the risk of the duration of job searching changes with a one-unit change in that variable. From the output results, variables such as Secondary Education, Higher Education, Skills, Digital Technology, Internet, Manufacturing Industry, Service Industry, Gender, and Region significantly influence the duration of job searching among recent migrant workers ($p < 0.005$). On the other hand, variables like Training, Age, and Java Island do not have a significant impact on the duration of job searching among recent migrant workers ($p > 0.005$).

The interpretation per variable can be summarized as follows: for Secondary Education, the result indicates that the duration of job searching for recent migrants with lower education has a probability of 1.34 months longer (1:0.748) compared to those with secondary education. Similarly, the chances for recent migrant workers with lower education to take longer to find employment are 1.81 months (1:0.552711) compared to those with higher education. Regarding the Training variable, there is no significant difference ($P>|z| = 0.902$, greater than 0.05) in the duration of job searching between recent migrant workers who have undergone certified training and those who have not, indicating that the Training variable still does not have a sufficient impact on the duration of job searching among recent migrant workers. The Skills variable has a hazard rate of 1.354, meaning that the duration of job searching for skilled recent migrant workers is 1.354 months longer than for those without skills. For recent migrant workers using digital technology in their work, there is a probability of 1.919 months

longer to find employment compared to those who do not use digital technology. Conversely, recent migrant workers using the internet in their work have a probability of 1.44 (1:0.694) months faster to find employment compared to those not using the internet.

Based on employment characteristics, the analysis revealed that recent migrant workers employed in the manufacturing industry had a probability of 6.78 months longer (hazard rate = 6.78359) in job searching compared to those working in the agricultural sector. Similarly, recent migrant workers employed in the service industry had a probability of 7.86 months longer (hazard rate = 7.859099) in job searching compared to those working in the agricultural sector.

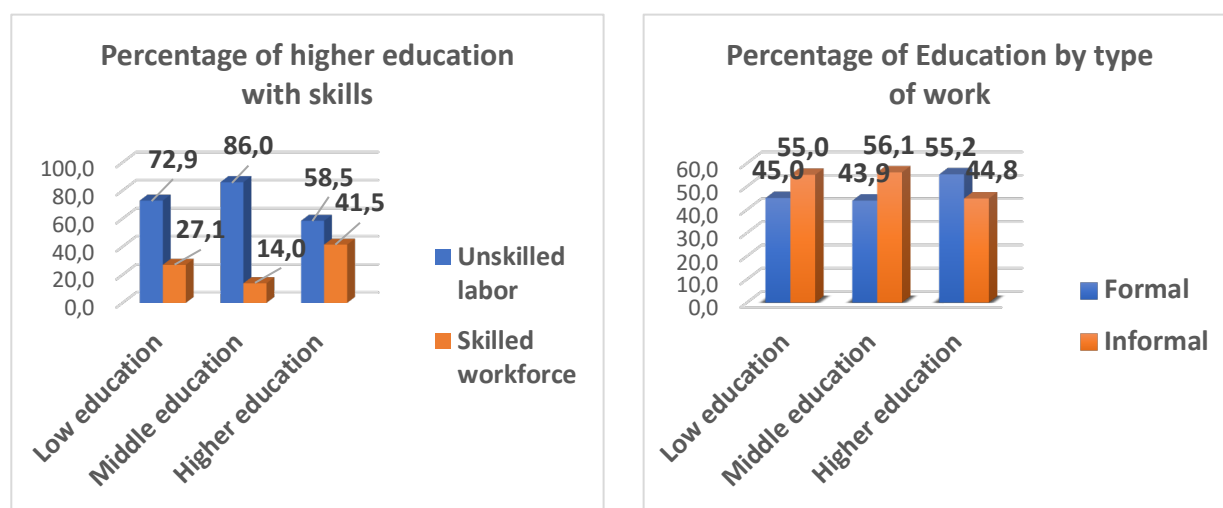
Regarding the individual characteristics, it can be concluded from the analysis that variables such as age and Java Island have not yet been able to influence the duration of job searching among recent migrant workers (significance > 0.05). For the gender variable, it can be noted that female recent migrant workers typically take longer to secure employment, averaging 1.19 months (1:0.8378631) more than their male counterparts. Additionally, recent migrant workers residing in rural areas tend to experience a job search duration that is 1.34 months longer (1:0.7468452) than those who live in urban settings.

Discussion

The study's findings suggested that recent migrant workers with higher education levels tend to secure employment more quickly than those with lower education levels. This is an intriguing finding because previous research on job search duration (Friska, 2021; Pasay & Indrayanti, 2012; Safitri & Afiatno, 2020), although not focused on recent migrant workers, yielded different results. However, this finding aligns with the research by (Teichert et al., 2023; Zwysen, 2019), which suggests that the job search process for highly educated workers is easier due to their relevant knowledge and networks. They also have access to more information about the job market.

Figure 5

Cross Tabulation of the Percentage of Education Level with Skills and Type of Work



Source: Processing results.

Although the results indicate that recent migrant workers with higher education levels have a better chance of securing employment more quickly, the cross tabulation between education level and job type, as shown in Figure 5, reveals a mismatch between the education level of recent migrant workers and the jobs they obtain. At the secondary education level, the majority of recent migrant workers, 86%, are engaged in jobs that do not require specific skills, such as administrative and manual labour positions, while only 14% secure skilled jobs. Similarly, at the higher education level, the proportion of skilled workers remains lower at 41.5%, with 58.5% in unskilled positions. Furthermore, the cross tabulation results between education and job type show that at the secondary education level,

the majority of individuals, 56.1%, are involved in informal employment, whereas only 43.9% are in formal jobs. Likewise, at the higher education level, although the percentage of those employed in the formal sector is higher at 55.2%, a significant proportion, 44.8%, still work in the informal sector. This suggests that although recent migrant workers with secondary or higher education usually secure employment more swiftly, the positions they acquire frequently do not align with their qualifications or training. Instead, these jobs serve primarily as initial opportunities to gain work experience.

This study has limitations focused on recent migrant workers, which restricts the generalizability of these findings to other categories of migrant workers. Therefore, further research on the job search duration of other migrant worker categories, such as lifetime migrants, circular migrants, commuter migrants, and even international migrants, would be valuable.

Conclusions and Recommendations

In this study, the life table method was employed in order to comprehend the patterns of the duration of job searching among recent migrant workers. This approach utilised a closed-event data, namely the duration of job searching, within a group of individuals with similar characteristics, referred to as a cohort. By utilising this method, the research can measure the expectation of obtaining employment at each time point and visualise the risk rates of job-searching failures.

In the interpretation of the results of the Cox Regression, it was observed that secondary and higher education variables provided an advantage in accelerating the process of obtaining employment, whereas the training variable did not exhibit a significant impact. Skills, the use of digital technology, and internet usage influence the duration of job searching, with significant hazard ratios. The manufacturing and service industries showed high hazard ratios, indicating a significantly greater risk of failure. The analysis also revealed that individual characteristics such as gender and region affected the duration of job searching. Female recent migrant workers tend to search for jobs for a longer duration, while residing in urban areas can expedite the job-searching process.

In conclusion, this study provided a profound understanding of the factors influencing the duration of job searching among recent migrant workers. The life table analysis and Kaplan-Meier Survival Analysis aid in visualising and measuring survival rates, while the Cox Regression offered insights into the impact of specific variables on the risk of job-searching failure. Thus, this research established a strong foundation for comprehending the dynamics of employment within the population of recent migrant workers in Indonesia.

Suggestion for Future Research

1. This research emphasises certain human capital factors and quantitative data, such as education, training, skills, digital technology usage, and internet usage. More in-depth research using qualitative data would be of interest. Other qualitative factors that could potentially influence the job search duration of recent migrant workers, such as talent, behaviour, attitude, cultural adaptation, courage, loyalty, social networks, and household economic conditions, are worth further investigation. Especially in the era of Industry 4.0, soft skills play a crucial role as a basis for obtaining employment.

2. Conducting comparative studies in various countries or regions to identify the job search duration for recent migrant workers would be beneficial in developing targeted policies and interventions.

3. This study only focused on the job search duration of recent migrant workers. However, it did not cover whether the obtained jobs were aligned with their human capital. It may be interesting to investigate further the alignment between job roles and the skills possessed by these workers. Based on the discussion in the previous sections, agriculture has the highest labour absorption, including the number of mothers working in agriculture. The involvement of mothers working in agriculture generally follows their husbands' employment sectors, with mothers typically engaged in informal work (often as family labour or unpaid). This indirectly implies that mothers contribute additional labour to

their husbands' work without being identified as earners. The education level of mothers working in agriculture is primarily low (many have only completed elementary school or less), as is the education level of their husbands.

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Conflict of Interest

None.

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