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THE EFFECTIVENESS OF PRE-EMPLOYMENT CARD PROGRAM IN ENCOURAGING PARTICIPATION IN THE LABOR MARKET

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ABSTRACT
Research Originality — Existing evidence on the effectiveness of Indonesia's Pre-Employment Card (Prakerja) Program in raising labor-market participation remains limited, particularly in the post-COVID context. Building on this gap, this study provides novel, nationally representative evidence on employment opportunities and participation, including heterogeneous effects by gender and education.
Research Objectives — The Pre-Employment Card Program, launched in April 2020, aims to improve workforce competencies, increase workforce competitiveness and productivity, and develop entrepreneurship. This study aims to examine the effectiveness of the Prakerja Card Program in securing employment opportunities.
Research Methods — The estimation method used is the Likelihood Binomial Logit, and the data were sourced from the 2022 National Labor Force Survey (Sakernas) conducted by the Statistics Indonesia (BPS).
Empirical Results — The results indicate that participation in the Pre-Employment Card Program increases employment opportunities by 0.39 percent. The study also shows that age has an inverted U-shaped relationship with employment opportunities. Additionally, male recipients of the Prakerja Card Program, those who are married, and those with higher levels of education have a greater likelihood of securing employment. Meanwhile, moderation variables indicate that the marginal effect of the Prakerja Card Program on employment opportunities for males is lower compared for women.
Implications — Training and job placement monitoring must be reinforced to ensure lasting program benefits. Recipients should be encouraged to adopt a forward-looking vision both as job seekers and creators. Training should also be tailored to age and education, given the inverted U-shaped relationship between age and employment opportunities, which calls for different approaches for youth and older workers.

Keywords*:* Pre-employment card, employment opportunities, Sakernas data, gender, education level
JEL Classification: J08, J21, J24, J88
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INTRODUCTION

Background

The Indonesian labor market is considered a dynamic and open market. However, its presence is inseparable from multidimensional challenges, including educational qualifications mismatch, which cannot necessarily guarantee that what the workforce possesses aligns with the need of the industry or workplace. An equally important challenge is the digital transformation acceleration due to Industry 4.0 and the COVID-19 pandemic which has led to a "double disruption" condition for workforce (*World Economic Forum*, 2020).

The Statistics Indonesia (BPS) reported that in 2021 approximately 15.7 million workers experienced a shortage of working hours, while 1.6 million workers became unemployed, including 1.1 million workers being laid off and 0.7 million leaving the workforce. Meanwhile, around 2.5 million people join the labor force every year. Employment crises are often linked to youth problems. The International Labor Organization (2020) divides this negative impact into three aspects. First, most young people face employment instability due to reduced working hours and employment termination. Second, there are access barriers that have implications for the limited completion of skill improvement programs through

education or training. Third, prospective workforce faces difficulties in the transition from education to work, especially when they should adapt to different work sectors.

To overcome these challenges, the Indonesian government has developed the Pre-Employment Card Program. The goal is to improve workforce productivity and skills by increasing their competencies and fostering teamwork to advance business operations through skill programs (skilling, reskilling, and upskilling). This program is available for all Indonesian citizens aged above 18 years (Syahrani et al., 2023).

As part of the social safety net, the Pre-Employment Card Program is also designed to alleviate poverty and multidimensional social inequality. The social safety net represents the implementation of the functions of the state through the social welfare principle (Cheyne et al., 1998). As an implementation of the social safety net, the government seeks to establish a countercyclical buffer policy by providing capital to compensate for losses due to disruptions in the national economy.

APPLICATION IN PRACTICE

- Participation in the Pre-Employment Card Program provides greater employment opportunities by 0.39%. This indicates that the Pre-Employment Card Program can become an alternative policy to improve the quality of human capital through training programs which will contribute to the economic growth.
- This study also shows that male and married individuals who receive the Pre-Employment Card Program, and those with higher educational attainment have greater opportunities of securing employment.
- The government needs to ensure the Pre-Employment Card Programs's continuity, especially for married citizens, to stimulate increased consumption that will promote economic growth and welfare.

Various studies on the significant positive correlation between the Pre-Employment Card Program and the increased capacity of human capital have been conducted (Al Ayyubi et al., 2023; Putri, 2021; Syahrani et al., 2023), but these studies show uniform results. A study by Al Ayyubi et al. (2023) shows that youth participation in the Pre-Employment Card Program can improve participation in the labor market, particularly in the informal sector. However, statistically, there is no significant effect of this program on income across all employment statuses. Meanwhile, research by Putri (2021) shows that human capital investment in the form of training can reduce the duration of unemployment among workforce experiencing employment termination. Complementing these previous findings, research by Syahrani et al. (2023) also reveals that the Pre-Employment Card Program proves to be highly effective in developing human resources, especially for fresh graduates and individuals with no work experience.

Previous research on the Pre-Employment Card Program and the level of participation in the labor market conducted by Al Ayyubi et al. (2023) and Putri (2021) used the status of Pre-Employment Card recipients as an independent variable. In addition, the data employed was limited to the data of the 2020 National Labor Force Survey (Sakernas). Consequently, the effect of the COVID-19 pandemic on employment opportunities for Pre-Employment Card recipients was not examined in much detail. Therefore, more recent data from the 2022 Sakernas is used in this study to better understand the effect of the COVID-19 pandemic on the implementation of the Pre-Employment Card Program in increasing employment opportunities. The use of interaction variable between Pre-Employment Card and gender is also considered in this study to examine how the impact of participation in the Pre-Employment Card Program on employment opportunities differs between men and women. In addition, this study also considers schooling status to analyze whether individuals still attending school have better employment opportunities than those who are not. This is important because the observed data includes individuals receiving the Pre-Employment Card who are still attending school. Moreover, such data has never been observed in previous research. Finally, this study also considers the robustness check through the presentation of sample heterogeneity which is divided into three age groups, consisting of the young age group (18-24 years), the adult and elderly group (24-64 years), and the 15-98-year-old group (full sample of 2022 Sakernas).

This study aims to analyze the extent to which the Pre-Employment Card Program affects employment opportunities. We used educational attainment, gender, age, marital status, and schooling status as the control variables in studying the Pre-Employment Card's effect on employment opportunities. It is important to note that the dynamics of the labor market and the policy character of active labor market are different across countries. The analysis of this research is based on the uniqueness of the labor market in a developing country that includes formal and informal sectors.

LITERATURE REVIEW

The Pre-Employment Card Program uses an on-demand application program to improve workforce competencies, skills, productivity, and entrepreneurial competitiveness. This allows Pre-Employment Card recipients to choose training and training providers. It is reported that in 2022 the recipients of Pre-

Employment Card Program reached 17.05 million people, with senior high school (SMA) graduates being the largest number of recipients. The Pre-Employment Card Program has established a broad, integrated, and collaboration-based ecosystem, involving training providers, digital platforms, payment partners, and educational institutions. Although the program is relatively new (less than two years), the impact of the Pre-Employment Card Program is evident as 88.9% of the recipients claim that their skills have improved upon completing the Pre-Employment Card trainings (Badan Pusat Statistik, 2020).

Studies by Bol et al. (2019), Korber (2019), and Kratz et al. (2019) show that state-facilitated training programs can improve human capital with useful skills to prepare workforce to enter the labor market and to improve their opportunities for professional careers. Training programs are implemented to prepare workforce to have the skills needed by the industry. In addition, according to Kurnianingsih et al. (2020), the Pre-Employment Card has two important missions, including to improve the workforce competencies and to strengthen people's purchasing power. This program was launched by the government of Indonesia to encourage prospective workforce to improve or enrich their knowledge by participating in training programs.

To analyze the relationship between the training program and the training output, Al Ayyubi et al. (2023) use three approaches, including the classical labor market balance approach, human capital theory, and learning curve theory. In the classical approach, workers who receive training facilities will tend to earn higher salaries and have better employment opportunities. This argument is justified by the fact that the number of skilled workers tend to be lower than that of less skilled workers. On the other hand, the demand for more skilled workers is also relatively high. Therefore, workers who participate in training programs have a higher chance of success in the labor market (Ehrenberg et al., 2021).

To understand the relationship between training and labor market outcomes, the theory of human capital can be used. The theory posits that an individual's decision to continue their education directly correlates with increased potential for higher income. In this context, training facilitation can be a mediator for individuals to receive considerable benefits from their education. Lastly, the impact of training can also be explained through the learning curve theory. The learning curve theory is a visual representation that explains the relationship between individuals' performance in carrying out tasks and their experience. This theory shows that training can improve workers' performance or proficiency levels in working activities. This indicates that in the same period or level of experience, workers who receive training perform better than those who do not. Better performance becomes an indicator to assess the quality of a worker.

In addition to being a catalyst for workforce, training also has a multidimensional and cross-sectoral impact. Increasing an individual's abilities will create a talent pool and increase the likelihood of companies or institutions to employ workers with better skills and knowledge to maximize profits. Meanwhile, through the public perspective, training can improve practical skills, which has direct and indirect effects on productivity and regional economic growth (Korber, 2019; Kratz et al., 2019; Kriesi & Schweri, 2019).

Empirically, there has been no mutual agreement on the impact of training programs, such as the Pre-Employment Card Program in previous studies. Previous studies have shown the various benefits of training programs, such as the effect of training programs on employment participation rates or leaving an unemployment status (Chakravarty et al., 2019), increased income and employment opportunities for a better professional career (Kriesi & Schweri, 2019), and impact of training programs on wages and employment status (Lee et al., 2019).

The following studies, however, found different results related to training programs that increase work outcomes for women, especially those with a low level of education. Hanushek et al. (2017) state that the impact of job training on employment decreases with age. In line with this, a study conducted by Golsteyn and Stenberg (2017) found a similar pattern. In addition, the impact of training programs can also vary depending on their format. Choi (2015) argues that different training systems can have different effects on labor market outcomes, especially on employment types and income changes. Evidence from training programs in Germany and the United States, for example, shows that training programs do not support equitable training distribution, but instead lead to a lack of high-quality, specialized training due to weakened partnerships between former public employment agencies and training providers (Hipp & Warner, 2008).

In the Indonesian context, the Pre-Employment Card Program is part of the National Economic Program (PEN) with the general purpose of stabilizing people's purchasing power to give an impact on national economic growth. PEN is a consumption support provided for the poor and the vulnerable in the form of social assistance and subsidies distributed through various policy packages, such as the Staple Food Card, Aspiring Family Program (PKH), Electricity Tariff Discount, Pre-Employment Card, Cash Transfer Assistance (BLT), and Social Assistance.

The Pre-Employment Card, a policy that focuses on increasing employment capacity, was officially introduced in March 2020. The program's main targets are prospective workforce, workers, or laborers

who are affected by employment termination, as well as those who need to improve their skills, including micro and small enterprise actors. Based on Article 3 of the Presidential Regulation Number 36 of 2020 concerning Workforce Competency Development through the Pre-Employment Card, this program has turned into a program to mitigate the impact of the COVID-19 pandemic with a multiplied budget, which is in line with the increasing needs of the community. The change was accompanied by a significant increase in the budget, from IDR 10 trillion in early 2020 to IDR 20 trillion, with a recipient target of 5.6 million people.

Underlying factors for creating the program include the mismatch between most formal education graduates and the needs of the job market, the impact of Industry 4.0 on current and future workforce competency inequality, and the demographic bonus in Indonesia which is projected to occur between 2030 and 2040. Other innovations from the program include end-to-end digital implementation, the use of a customer-centric approach, public-private partnerships, multi-channel government-to-person payments, and responsive contact centers. Some of the most in-demand course categories include food and beverage, lifestyle, sales and marketing, foreign languages, social and behavior, and finance (Al Ayyubi et al., 2023).

Throughout the implementation, adjustments have been made to the Pre-Employment Card Program as a response to the impact of the COVID-19 pandemic, while continuing to function as a buffer policy through the provision of post-training incentives. Anticipation of pandemic-related uncertainty has made this program relatively more dynamic, specifically by focusing on marginalized groups, such as unemployed individuals and workers seeking new skills to improve their competencies. The pandemic has made the program implementation more flexible as it can be carried out in hybrid or online mode. This necessitates individuals to have access to and proficiency with digital technology and the internet. However, the challenge is that not all territories in Indonesia have access to the internet. The targeted recipients are productive age workers affected by the pandemic, semi-informal workers, informal workers, and prospective workforce aged over 18 years. In 2022 there were approximately 12 million participants from more than 30 batches (Purnagunawan, 2022).

Based on the discussion of previous findings and the human capital theory, as well as the learning curve theory related to job training programs and the empirical context in Indonesia in the form of Pre-Employment Card Program, the hypothesis proposed in this study is that participation in the Pre-Employment Card Program can comprehensively increase employment opportunities of individuals aged 18-64 years. This hypothesis is proposed to answer the purpose of the research, which is to analyze the extent to which the impact of the Pre-Employment Card Program has on the increase in employment opportunities.

METHODS

This study used the Likelihood Binomial Logit estimation by strictly examining the employment distribution with the dependent variable being a dummy (0.1) that represents the employment status. The use of this method could derive the distribution of people's employment status as the impact of the Pre-Employment Card Program. As stated by Gujarati (2011), this method is useful for reducing the possibility of error distribution and heteroscedasticity due to the presence of non-metric dependent data.

The data used in this study came from the 2022 National Labor Force Survey (Sakernas), with the study specifically focusing on individuals between the ages of 18 and 64. The number of samples was 632,273 individuals. This study focused on individuals aged above 18 years because the terms and conditions of the Pre-Employment Card Program require the recipients to be at least 18 years old in accordance with the Law of the Republic of Indonesia No. 13 of 2003 on Manpower.

The data consisted of individuals' sociodemographic characteristics including employment status, status of the Pre-Employment Card Program recipients, educational attainment, gender, marital status, schooling status, and age. Sakernas is carried out yearly by the Statistics Indonesia (BPS) and becomes a reference for employment data, which is frequently used to observe the dynamics of labor force. Unlike the study by Al Ayyubi et al. (2023), which uses employment status as the dependent variable that is divided into 4 categories, this research utilized a dependent variable consisting of two categories: *bekerja* (employed) and *tidak bekerja* (unemployed), resulting in a regression analysis model defined as follows:

$$\boldsymbol{bekerja_i} = \beta_0 + \beta_1 prakerja_i + \beta'_2 \boldsymbol{Z_i} + \varepsilon_i \quad \ldots\ldots (1)$$

where:

$bekerja_i$	:	Individual's employment status (1=employed; 0=unemployed)
$prakerja_i$	:	Status of Pre-Employment Card recipient (1=recipient; 0=not recipient)
$\boldsymbol{Z_i}$	:	Control variable vector: individual's sociodemographic characteristics (educational attainment, gender, marital status, schooling status, age)
$\beta_0, \beta_1, \beta_2, \varepsilon_i$	:	Intercepts, variable parameters, and errors
Subscript i	:	Individual

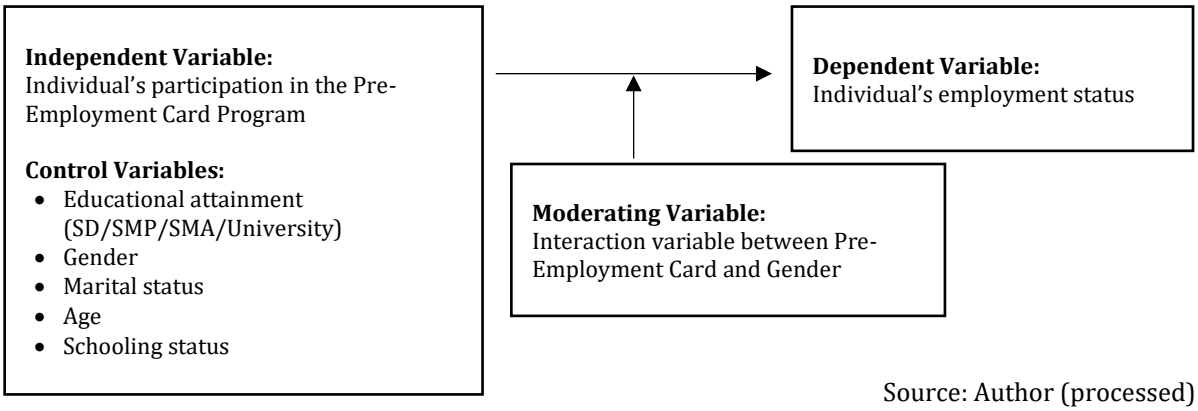
The model in this study used a non-linear equation model by assuming that age followed the concept of an inverted U-shaped curve. This concept posits that at the beginning of the productive age, age will increase employment opportunities, but at a certain point (age), the older someone gets, the fewer employment opportunities they may have. In addition, this study observed the impact of adding a moderation variable in the form of interaction between pre-employment variable and gender variable to show how the influence of Pre-Employment Card Program on employment opportunities was different between men and women. We included this moderation variable because the labor market demands in Indonesia are still influenced by gender (Al Ayyubi et al., 2023). The equation model in this study is as follows:

$$bekerja_i = \beta_0 + \beta_1 prakerja_i + \beta_2 sd_i + \beta_3 smp_i + \beta_4 sma_i + \beta_5 pt_i + \beta_6 gender_i + \beta_7 prakerja\_gender_i + \beta_8 kawin_i + \beta_9 umur_i + \beta_{10} umursq_i + \beta_{11} bersekolah_i + \varepsilon_i \quad \text{..... (2)}$$

where $bekerja$ (employed) is a dependent variable, indicating an individual's employment opportunities (1=employed; 0=unemployed). The employment status categories used in this study refer to those defined by the Statistics Indonesia (BPS), adopted from the International Labor Organization (ILO) and are universally applied. The guidelines state that an individual is considered to have a job if he or she fulfills working activities for more than one hour without interruption in one week (Hailu & Girma, 2022). The $prakerja$ variable (pre-employment) is the main explanatory variable (independent variable) in this study, which indicates an individual's participation in the Pre-Employment Card Program (1=recipient; 0=not recipient). Previous research has shown that the Pre-Employment Card Program has the potential to increase an individual's employment opportunities in the labor market (Doerr et al., 2017; Kriesi & Schweri, 2019; Lee et al., 2019). However, as shown in the results of their studies, it is important to consider job-appropriateness of their chosen training to ensure that the training program directly aligns with job they apply.

Meanwhile, the *sd, smp, sma,* and *pt* variables (elementary school, junior high school, senior high school, and university, respectively) are the control variables that indicate the status of the educational attainment (1=educational attainment; 0=other). The *gender* variable indicates gender (1=male; 0=female), the *bersekolah* variable indicates the schooling status (1=attending school; 0=not attending school), and the *kawin* variable indicates the marital status (1=married; 0=other). The $umur$ variable shows an individual's age, the $umursq$ variable is the age-squared variable used to prove the concept of inverse U-shaped curve, and the *prakerja_gender* variable is a moderation variable. The *error term* (ε_i) is assumed to follow the logistic distribution, allowing the use of logit model. The framework of this research is displayed in Figure 1.

Figure 1 Research Framework



Source: Author (processed)

The following step was to determine the turning point, which was the age that maximized the employment opportunities, by looking for the first derivative of equation (2), with the condition being equal to zero:

$$\frac{\partial bekerja}{\partial umur} = \beta_9 + 2\beta_{10} umur = 0$$

$$umur_{max} = -\frac{\beta_9}{2\beta_{10}} \quad \text{..... (3)}$$

The control variables in this study, which were individual's sociodemographic characteristics, were selected for several reasons. Educational attainment shows that the higher the level of education, the better the employment opportunities (Al Ayyubi et al., 2023; Hanushek et al., 2017). Another variable, gender, also

affects employment opportunities in which men are considered to have a higher rate of participation in the labor force than women (Al Ayyubi et al., 2023). The *prakerja_gender* variable in the study may reveal that the Pre-Employment Card Program is positively associated with employment opportunities, but this association can be stronger for male individuals. In contrast, the Pre-Employment Card Program may have a weaker relationship for female individuals. The marital status variable in this research, similar to that in several previous studies, suggests that marital status affects employment opportunities. This is due to the higher volume of consumption among individuals with families compared to single individuals, thus affecting the labor market (Al Ayyubi et al., 2023). The control variable of age suggests that individuals of productive age may have better employment opportunities. However, such opportunities may decrease with age (Hanushek et al., 2017; Lee et al., 2019). The last control variable, the schooling status, shows that completion of education among individuals who receive the Pre-Employment Card (their status is not attending school) leads to increased employment opportunities (Hamzah & Khusnia, 2021).

Furthermore, the likelihood ratio (LR) test was performed to determine the unrestricted model, including all the explanatory variables, and the restricted model, including only the intercept or several explanatory variables. If p-value was <0.05, then the selected model was an unrestricted model. Wooldridge (2003) explains that in the case of probit and logit models, the goodness-of-fit by looking at the pseudo R-squared value is usually less important for obtaining a convincing estimate of the ceteris paribus effect of the explanatory variables. One method in econometrics that is often used in probit and logit models is to replace each explanatory variable with the average of the sample. Therefore, to examine the impact or influence of participation in the Pre-Employment Card Program on an individual's employment opportunities, it is necessary to observe the average of individual partial effects across the sample, which produces an average partial effect (APE), also known as the average marginal effect (AME) (Wooldridge, 2003). APE is more commonly used because it is more comparable to LPM estimation and provides a useful interpretation when the explanatory variable is a binary variable (Wooldridge, 2003).

This study also compared the logit regression model with two other regression models, namely the linear probability model (LPM) and probit model to ensure the consistency of the research results. This study seeks to examine whether the impact of the Pre-Employment Card Program was consistent on employment opportunities. In this study, the LPM was estimated using the ordinary least squares (OLS), and the probit was estimated using the maximum likelihood estimation (MLE).

RESULTS AND DISCUSSION

Descriptive Analysis

Based on the data from Sakernas, which was conducted in August 2022 (Table 1), the recipients of the Pre-Employment Card Program reached around 3% of the population aged 18 to 64 years. Based on the level of education, the majority completed senior high school or vocational school (SMA/SMK), followed by

Table 1 Summary of Statistics from the Total Observations

Variable	Category	Number of Observations (n)	%
Employment status	Employed	615,524	97.35
	Unemployed	16,749	2.65
	Total	**632,273**	**100.00**
Recipient of the Pre-Employment Card Program	Recipient	19,225	3.04
	Not recipient	613,048	96.96
	Total	**632,273**	**100.00**
Educational attainment	No schooling	88,362	13.98
	Elementary School	150,987	23.88
	Junior High School Senior	112,986	17.87
	High School/ Vocational	208,631	33.00
	School	71,307	11.28
	University	**632,273**	**100.00**
	Total		
Gender	Male	312,028	49.35
	Female	320,245	50.65
	Total	**632,273**	**100.00**
Marital status	Married	461,535	73.00
	Others	170,738	27.00
	Total	**632,273**	**100.00**
Schooling status	Attending school	25,714	4.07
	No schooling/ Graduated	606,559	95.93
	Total	**632,273**	**100.00**

Source: 2022 BPS Sakernas

elementary school (SD), junior high school (SMP), and university (tertiary education). Meanwhile, the number of individuals who did not attend school or did not complete elementary school was slightly higher compared to those with a high level of education. The ratio of men to women was nearly identical. In terms of marital status, there were more married recipients than those who were not. In addition, only a small fraction of the total population was still attending school.

Of 19,225 recipients of Pre-Employment Card Program (Table 2), 67.59% were senior high school or vocational school and university graduates. This finding is similar to the finding of the research by Pratomo (2020) in 2020, which shows that 84% of the total participants were high school and university graduates. In addition, 72.43% of the recipients of the Pre-Employment Card Program were married, 2.22% attended school, and 1.99% were unemployed. In terms of age, young individuals aged 18-24 years who participated in the Pre-Employment Card Program were relatively few, which was only 17.13%. These findings are consistent with the findings of Al Ayyubi et al. (2023), where the proportion of young people aged 18-24 years who participate in the Pre-Employment Card Program is relatively small. This shows that the recipients of the Pre-Employment Card Program are dominated by individuals aged over 24 years to 64 years. In terms of gender, women held a slight lead in number than men. In terms of marital status and schooling status, the composition of recipients was dominated by individuals who were married and did not attend school.

Table 2 Demographic Profile of Recipients of the Pre-Employment Card Program

Variable	Category	Number of Recipients	%
Employment status	Employed	18,842	98.01
	Unemployed	383	1.99
	Total	**19,225**	**100.00**
Age	Young (18 - 24 years)	3,294	17.13
	Above 24 to 64 years	15,931	82.87
	Total	**19,225**	**100.00**
Educational attainment	No schooling	880	4.58
	Elementary School	2,498	12.99
	Junior High School	2,659	13.83
	Senior High School/ Vocational School	9,125	47.46
	University	4,063	21.13
	Total	**19,225**	**100.00**
Gender	Male	9,610	49.99
	Female	9,615	50.01
	Total	**19,225**	**100.00**
Marital status	Married	13,924	72.43
	Others	5,301	27.57
	Total	**19,225**	**100.00**
Schooling status	Attending school	427	2.22
	No schooling/ Graduated	18,798	97.78
	Total	**19,225**	**100.00**

Source: 2022 BPS Sakernas

Empirical Analysis and Discussion

Before interpreting the estimate results to identify the impact of participation in the Pre-Employment Card Program on individual's employment opportunities, a likelihood ratio (LR) test was carried out to determine the selected model of restricted and unrestricted models. The results of the LR test showed that the p-value was < 0.05, making H0 rejected and indicating that the unrestricted model was better than the restricted model (Table 3).

Hypotheses:

H0: Restricted model is the same as unrestricted model.

H1: Unrestricted model is better than restricted model.

Comparison of the Restricted Model (without age and agesq variables) with the Unrestricted Model (all variables)

The study used the logit model for several reasons. The logit model uses a logistic distribution that has a longer tail than the normal distribution in the probit model, making it more resistant to data that has outliers or extreme values (Gujarati & Porter, 2009). In addition, the logit model is specifically designed for binary dependent variables (0/1), and the logistic distribution provides more stable results than ordinary linear regression (Hosmer et al., 2013). The estimation results showed that the three models had the same or consistent coefficient of pre-employment variables, which were unidirectional (positive) and significant (Table 4). All the signs of the coefficients showed consistency, and the variables had significant statistical values in all models. The goodness of fit could be assessed from the pseudo R-squared value, where the

Table 3 Likelihood Ratio Test

Dependent variables: *bekerja* (employed)	**Restricted Model (Coefficient)** Save the model as: est sto model1	**Unrestricted Model (Coefficient)** Save the model as: est sto model2
prakerja	0.1111***	0.1609***
	(0.0039)	(0.0039)
sd	0.0247***	0.0602***
	(0.0016)	(0.0016)
smp	0.0194***	0.1581***
	(0.0017)	(0.0018)
sma	0.3521***	0.5448***
	(0.0016)	(0.0017)
pt	1.2198***	1.3147***
	(0.0026)	(0.0027)
gender	1.0063***	1.0021***
	(0.0011)	(0.0011)
prakerja_gender	-0.3170***	-0.3587***
	(0.0064)	(0.0064)
kawin	0.3488***	0.1266***
	(0.0011)	(0.0013)
bersekolah	0.1442***	0.1218***
	(0.0022)	(0.0023)
umur		0.0908***
		(0.0003)
umursq		-0.0094***
		(0.0000)
Number of Observations	632,273	632,273
Log-likelihood Value	-19957904	-19867096
Pseudo R-squared	0.0346	0.0390

Source: Process by the author

LR Test: lrtest model1 model2
Assumption: model1 nested within model2
LR chi2(2) **= 181615.37**
Prob > chi2 **= 0.0000**

independent variable in the model could explain the dependent variables of 0.0390 or 3.90%. The coefficient of the pre-employment variable showed a positive and significant value at a significance level of 5%. However, in examining the impact of participation in the Pre-Employment Card Program on employment opportunities, the value of the parameters or coefficients of the above model could not be directly interpreted.

To examine the impact of the Pre-Employment Card Program on employment opportunities, we interpreted the average partial (marginal) effects of the pre-employment variable. As shown in Table 4, on average, the difference in employment opportunities (work=1) between individuals participating in the Pre-Employment Card Program (pre-employment=1) and those who did not (pre-employment=0) was 0.0039, assuming that the other variables were constant (ceteris paribus). Participation in the Pre-Employment Card Program was shown to increase the employment opportunities by 0.39%.

This is in line with the theory of human capital, in which workers who receive training will have improved skills and better employment opportunities. The increase in opportunities refers to the fact that the demand for skilled workers in the labor market is quite large. These results are consistent with the research conducted by Lee et al. (2019) which examines the effectiveness of government training programs in improving the performance of individuals in the labor market, particularly wages and employment probabilities, in South Korea. The empirical analysis of the study shows a strong positive effect of job training programs on individuals' employment probability.

According to the learning curve theory, the same level of education but different training conditions can affect individuals' skills and knowledge. Such condition therefore has an impact on the opportunities that individuals will have in securing employment, indicating that individuals who take part in training have an advantage over those who do not receive training even though they have the same individual characteristics in gender, educational attainment, age, and schooling status. These findings reflect those of research on job training programs in South Korea that have been shown to increase individuals' employment opportunities (Lee et al., 2019). In general, there is a correlation between participation in training, higher wages, and greater employment possibilities. Further research from Doerr (2022) shows that the probability of an individual's employment increases after participating in a job training program

Tabel 4 Perbandingan Hasil Estimasi dari Model LPM, Probit, dan Logit

Dependent variables: *bekerja*	**LPM (OLS)**		**Probit (MLE)**		**Logit (MLE)**	
	Koef.	**APE**	**Koef.**	**APE**	**Koef.**	**APE**
prakerja	0,0065***	0,0065***	0,0739***	0,0042***	0,1609***	0,0039***
	(0,0001)	(0,0001)	(0,0017)	(0,0001)	(0,0039)	(0,0001)
sd	0,0019***	0,0019***	0,0260***	0,0015***	0,0602***	0,0015***
	(0,0000)	(0,0000)	(0,0007)	(0,0000)	(0,0016)	(0,0000)
smp	0,0037***	0,0037***	0,0637***	0,0036***	0,1581***	0,0039***
	(0,0001)	(0,0001)	(0,0008)	(0,0000)	(0,0018)	(0,0000)
sma	0,0128***	0,0128***	0,2271***	0,0129***	0,5448***	0,0133***
	(0,0000)	(0,0000)	(0,0007)	(0,0000)	(0,0017)	(0,0000)
pt	0,0242***	0,0242***	0,5285***	0,0301***	1,3148***	0,0321***
	(0,0000)	(0,0000)	(0,0011)	(0,0001)	(0,0026)	(0,0001)
gender	0,0227***	0,0227***	0,4258***	0,0243***	1,0021***	0,0245***
	(0,0000)	(0,0000)	(0,0004)	(0,0000)	(0,0011)	(0,0000)
prakerja_gender	-0,0101***	-0,0101***	-	-0,0089***	-	-0,0088***
	(0,0001)	(0,0001)	0,1557***	(0,0001)	0,3587***	(0,0001)
			(0,0026)		(0,0064)	
kawin	0,0018***	0,0018***	0,0679***	0,0039***	0,1266***	0,0031***
	(0,0000)	(0,0000)	(0,0005)	(0,0000)	(0,0011)	(0,0000)
umur	0,0025***	0,0025***	0,0414***	0,0024***	0,0909***	0,0022***
	(0,0000)	(0,0000)	(0,0001)	(0,0000)	(0,0003)	(0,0000)
umursq	-0,00003***	-0,00003***	-	-0,00002***	-	-0,00002***
	(0,0000)	(0,0000)	0,0004***	(0,0000)	0,0009***	(0,0000)
			(0,000)		(0,0000)	
bersekolah	0,0022***	0,0022***	0,0568***	0,0032***	0,1218***	0,0030***
	(0,0001)	(0,0001)	(0,0010)	(0,0001)	(0,0023)	(0,0001)
_cons	0,9011***		0,7244***		0,9166***	
	(0,0001)		(0,0022)		(0,0049)	
Number of Observations	632.273		632.273		632.273	
*Log-likelihood V*alue	-		-		-	
			19850494		19867096	
R-squared/Pseudo R-squared	0,0087		0,0398		0,0390	

Source: 2022 Sakernas BPS (process by the author)

*Robust standard errors in parentheses. Statistically significant at *10%, **5%, and ***1%*

implemented by the German government. The positive effect of job training increases within a period of two years to four years after completing the training. After four years, the impact has stabilized which shows a positive balance in the long term. Baird et al. (2022) in their research related to job training programs in the United States reveal that individuals who have been unemployed for a long period of time have a stronger positive impact from job training than individuals who have a shorter period of unemployment. The positive impact of job training in various countries corroborates the findings of this study, which confirm the positive impact of the Pre-Employment Card Program in increasing employment opportunities. This can help improve the quality of training programs which can be achieved through service and on-target budget allocation. Therefore, the Pre-Employment Card Program can provide optimal results in improving individuals' quality and skills. Skilled individuals have greater likelihood of entering the labor market than individuals who do not.

Meanwhile, Hirshleifer et al. (2016) confirm the positive impact of overall job training programs on employment opportunities and the quality of employment opportunities in Turkey, where the training programs have a stronger and more significant impact on private service providers. Some vocational training programs have the potential to improve employment prospects in the short term for prospective workforce, depending on their ability to choose training that suits the market demand (Hirshleifer et al., 2016). This potential will also increase if service providers can respond to labor market demands (Hirshleifer et al., 2016). A study by Hanna and Olken (2018) shows that many developing countries have been implementing policies related to social assistance. These include training programs, which are targeted to appropriate recipients by identifying which individuals are categorized as belonging to groups that need special treatment. The results of this estimate also indicate that the Pre-Employment Card Program in Indonesia can be used as an alternative policy to increase economic growth (Suryadi et al., 2021).

The control variables, consisting of the educational attainment, gender, schooling status, marital status, and age, also played an important role in influencing an individual's employment opportunities. The results

of the estimation of the educational attainment control variable showed that the highest level of education completed had an impact on an individual's employment opportunities. Educational status refers to educational attainment or the highest level of education an individual has completed. Higher educational status directly correlates with a higher level of education completed by an individual. An increase in education level and employment opportunities have a linear relationship, as shown by Chakravarty et al. (2017) and Premand et al. (2016). A higher level of education correlates with increased employment opportunities. This is evidenced by the marginal effect which has a positive, significant value, and increases as an individual's education level increases. This study found that individuals' employment opportunities increased with higher levels of education, with employment opportunity rates of elementary, junior high, high school/ vocational school, and higher education being 0.27%, 0.50%, 1.40%, and 3.41%, respectively. These findings are also in line with the findings of research by Al Ayyubi et al. (2023) which shows that the higher an individual's level of education, the higher the employment opportunities, and university graduates have higher job prospects than high school graduates. Cunha and Heckman (2007) and Perry et al. (2007) conduct research with a sample of data from the United States and explain that investment in education is correlated with the opportunity to have a decent job and a high income. This indicates that education is one of the promising fields to invest in human capital.

The estimated results (Table 4) also showed that men had higher employment opportunities than women, reaching 2.45%. Lee et al. (2019) in their research in South Korea also found that women have a lower probability of working than men. Our finding indicates a strong influence of cultural demands and status as the head of the family (patriarch), which generally requires men to meet household needs. The results of this study are in accordance with the results of the research by Al Ayyubi et al. (2023), where male workers have a higher participation rate than women for all employment statuses. However, these findings differ from those of Card et al. (2011), which show that there is no significant difference between men and women in terms of income upon receiving a training program in the Dominican Republic. Limited access and greater responsibility for homemaking, driven by the patriarchal culture that remains prevalent in Indonesia, create significant barriers for women to have a job compared to men, leading them to choose more flexible jobs.

On the other hand, the *prakerja_gender* variable showed that there was a difference in the marginal effect of the Pre-Employment Card Program on the employment opportunities between men and women. The *prakerja_gender* interaction variable used as the moderation variable showed a weaker positive effect of increased participation in the Pre-Employment Card Program on the employment probability for men compared to women. For every 1% increase in the participation in the Pre-Employment Card Program, the increase in the marginal effect of employment opportunities for men was 0.88% lower than for women. These findings corroborate the findings of Acevedo et al. (2020) who show that the increase in expectations for women in having a job has a positive impact on the skill acquisition from job training and job acquisition in the short term.

Marital status also affects an individual's employment opportunities. Research on this aspect has been conducted by Albanesi and Prados (2022) in five developed countries including Germany, Japan, France, the United States, and South Korea involving subjects with an age range of 25-40 years. Their results show that marital status plays an important role in the labor market decision making as it relates to consumption levels. The marginal effect of the *kawin* variable (marital status) was positive and statistically significant (Table 4), indicating that a married individual had greater employment opportunities than an unmarried one, with a marginal effect of 0.31%. These findings reflect those of Al Ayyubi et al. (2023) who state that married individuals aged 18-24 years have higher employment opportunities in the informal sector.

Furthermore, the age variable had a positive and significant coefficient, which indicates that people with older age are more likely to find employment. However, at a certain age point, the likelihood was found to decrease as shown by the negative coefficient of the age squared variable. This indicates that age corresponds to the concept of an inverted U-shaped curve, specifically at the beginning of the career phase, when individuals newly enter the labor market and are still in the stage of developing skills and experience. Subsequently, employment opportunities enter a peak phase at a certain age where the individuals already have the skills, work experience, and extensive network required by the labor market. These findings are in line with the research by Hanushek et al. (2017) and Lee et al. (2019) which shows that the influence of age on employment probability shows an inverted U-shaped curve. In addition, Putri (2021) states that the older the age, the longer the duration of being unemployed. Based on equation (3), the optimal age that maximized an individual's employment opportunities was at the age of 50.5 years. However, after reaching a peak (age over 50.5 years), employment opportunities began to decline as the individual became older (entering old age). This can be caused by several factors such as a decrease in physical ability which causes reduced productivity, ultimately decreasing employment opportunities. This also shows that the Pre-

Table 5 Robustness Check: Comparison of APEs in Different Age Groups

Dependent variable: *bekerja*	**Main Model**	**Robustness Check**		
	18 – 64 Years	**18 – 24 Years (young age)**	**25 – 64 Years (adult and elderly)**	**15 – 98 Years (full sample data from 2022 Sakernas)**
prakerja	0.0039***	-0.0003	0.0030***	0.0040***
	(0.0001)	(0.0003)	(0.0001)	(0.0001)
sd	0.0015***	-0.0026***	0.0016***	0.0025***
	(0.0000)	(0.0002)	(0.0000)	(0.0000)
smp	0.0039***	-0.0038***	0.0033***	0.0051***
	(0.0000)	(0.0002)	(0.0000)	(0.0000)
sma	0.0133***	0.0042***	0.0139***	0.0135***
	(0.0000)	(0.0002)	(0.0000)	(0.0000)
pt	0.0321***	0.0218***	0.0298***	0.0336***
	(0.0001)	(0.0003)	(0.0001)	(0.0001)
gender	0.0245***	0.0012***	0.0318***	0.0220***
	(0.0000)	(0.0001)	(0.0000)	(0.0000)
prakerja_gender	-0.0088***	-0.0017***	-0.0104***	-0.0060***
	(0.0001)	(0.0004)	(0.0001)	(0.0002)
kawin	0.0031***	0.0183***	-0.0038***	0.0016***
	(0.0000)	(0.0001)	(0.0000)	(0.0000)
umur	0.0022***	0.0158***	0.0010***	0.0008***
	(0.0000)	(0.0004)	(0.0000)	(0.0000)
umursq	-0.00002***	-0.0003***	-0.00001***	-0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
bersekolah	0.0030***	0.0108***	-0.0097***	0.0027***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)
Number of Observations	632.273	99.101	533.172	752.688
Log-likelihood value	-19867096	-4857255	-14751226	-24212933
Pseudo R-squared	0.0390	0.0072	0.0586	0.0344

*Robust standard errors in parentheses. Statistically significant at *10%, **5%, and ***1%*

Source: 2022 BPS Sakernas

Employment Card Program is effective for recipients of productive age (Hanushek, 2013; Hanushek et al., 2017; Lee et al., 2019).

This study also confirms that an individual's employment opportunities are influenced by their status of actively attending school. Individuals who were still attending school had higher employment opportunities by 0.3% than individuals who were not. Individuals who are still attending school are assumed to have higher knowledge than those who do not attend school. This knowledge serves as a vital form to improve human capital that allows them to compete in securing employment in the future. These findings, however, differ from a study by Hamzah and Khusnia (2021) which shows that individuals who are receiving training are usually not attending school. There are indications of a mismatch between available workforce and employment opportunities.

Robustness Check

This study conducted a robustness check by dividing the sample into three age groups to ensure the consistency of the research results and provide an overview of the impact of participation in the Pre-Employment Card Program in different age groups (Table 5). The estimated results of this study were consistent with the estimation results that used a full sample of 2022 Sakernas data. In addition, the estimated results showed that the Pre-Employment Card Program had an impact on individuals aged 25-64 years, but not on those aged 18-24 years. In the early phase of entering the labor market, young individuals are still in the stage of accumulating experience and developing skills, making their employment opportunities lower compared to the more experienced age group. These findings are supported by Lee et al. (2019) who state that the effects of job training tend to be greater on older age groups. This is not surprising because the majority of the recipients of the Pre-Employment Card Program (82.87%) are individuals aged over 25 years to 64 years. These results indicate that the government needs to promote job training activities and lifelong learning programs, especially for adults and the elderly, to address the challenges of declining productivity due to ageing and aged populations as well as the emergence of new technologies.

CONCLUSION

This study has shown that participation in Pre-Employment Card Program increases employment opportunities for recipients ages 18 to 64 years. Individuals who participate in the Pre-Employment Card Program have greater employment opportunities than individuals who do not participate in it. In line with the human capital theory and the learning curve, the Pre-Employment Card Program directly contributes to reducing unemployment and providing benefits to the labor market in the form of skilled labor. In addition, this study indicates that the interaction variable between pre-employment and gender shows a smaller positive impact for men than women by the increased participation in the Pre-Employment Card Program on employment opportunities. In addition, age has an inverted U-shaped relationship, which indicates that older age correlates with higher employment opportunities, but the opportunity decreases further after passing a certain age point. The study also shows that individuals with a higher level of education, male recipients, married participants, and those still attending school have greater employment opportunities.

This research proposes several policy recommendations to improve the likelihood of Pre-Employment Card recipients to secure employment or even to create jobs. First, the provision of training should be appropriate for age groups and education because the relationship between age and employment opportunities is inverted U-shaped, thus requiring adaptive training for individuals at both ends of the age spectrum, namely the youth and elderly workforce. Second, there is a need to monitor the training process and job placement to allow recipients to receive sustainable benefits from their employment. Third, it is necessary for recipients to have an inclusive and dynamic vision; after receiving training, instead of looking for a job, recipients can become entrepreneurs, which fosters economic growth at the micro level by creating new jobs.

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