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Analysis of the Effect of Average Years of Schooling, Pre-Employment Card Program, and Labor Force Participation Rate on Open Unemployment Rate in 32 Provinces of Indonesia

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Abstract: This research aims to analyze the influence of Average School Length, Pre-Employment Card Program, and Labor Force Participation Rate (TPAK) on the Open Unemployment Rate (TPT) in Indonesia. Open unemployment is one of the main indicators of employment problems, which is influenced by various factors, including education level, access to job training, and participation in the labor market. This research uses a quantitative approach with panel data from 32 provinces in Indonesia during the period of 2020 to 2023. The analysis method used is panel data regression with the Fixed Effect Model (FEM) approach, which is determined through the Chow test and the Hausman test. The results of this study indicate that the average length of schooling and the level of labor force participation have a significant negative effect on the Open Unemployment Rate in 32 provinces of Indonesia. However, this study found that the Pre- Employment Card Program has no effect on Open Unemployment. This research provides new insights into how the government's role in education and program policies can have a new influence on the Open Unemployment Rate.

Keywords: Average School Duration, Pre-Employment Card, TPAK, Open Unemployment Rate, Panel Data Regression

Introduction

Since the Coronavirus entered Indonesia, the country's economy has been negatively impacted, with a drastic decline. At the onset of the pandemic, import performance dropped by 3.7% from January to March 2020, and economic growth plummeted by 2.3%, even briefly turning negative at -0.4% (Indayani and Hartono 2020). The impact worsened as the virus spread further, causing significant losses in the business sector, particularly in services, trade, and manufacturing. Many large companies faced financial difficulties and had to lay off workers, with some even going bankrupt (Yulianti, Khairuna, and Ibrahim 2022). Data from the Ministry of Manpower in April 2020 showed that 84,926 formal companies laid off more than 1.5 million workers, while the informal sector laid off around 5.38 million people from 31,444 companies. The total number of workers laid off exceeded

2 million, causing the unemployment rate in Indonesia to surge suddenly (Mardiyah and Nurwati 2020)

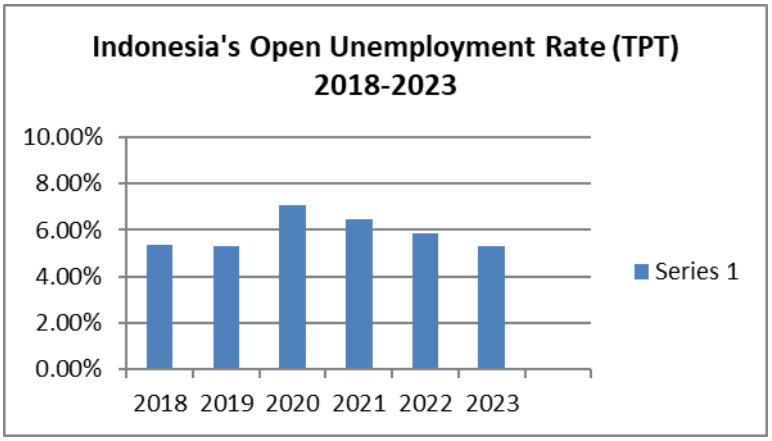

Figure 1. Open Unemployment Rate 2018-2023
Source: Central Bureau of Statistics (data processed)

Figure 1. shows fluctuations in the unemployment rate in Indonesia from 2018 to 2023. In 2018, unemployment was around 5.34%, slightly down in 2019, but rose sharply in 2020 to 7.07% due to the COVID-19 pandemic. The economic downturn, sector closures, and mobility restrictions led to mass layoffs by many companies, and the labor market was unable to absorb the affected workers. Additionally, as shown by BPS data from 2022, vocational school graduates became the largest contributor to unemployment, indicating that labor absorption for this group has not been optimal during this crisis period (Mifrahi and Darmawan 2022)

Table 1. Open Unemployment Rate by Education Level

Level Of Education	Average open Unemployment Rate Based On Level Of Education				
	2020	2021	2022	2023	2024
Never Attended school/Did not complete primary education & Completed elemtary school	3,61	3,61	3,59	2,56	2,32
Junior high school	6,46	6,45	5,95	4,78	4,11
High School	9,86	9,09	8,57	8,15	7,05
Vocation High School	13,55	11,13	9,42	9,31	9,01
Diploma I/II/III	8,08	5,87	4,59	4,79	4,83
University	7,35	5,98	4,80	5,18	5,25

Source: Central Bureau of Statistics (data processed)

From Table 1, although the unemployment rate has been gradually decreasing, vocational school graduates remain the largest contributor each year. During the COVID-19 pandemic in 2020, unemployment surged to its highest recorded level, with vocational school graduates contributing the highest percentage at 13.55%. This issue is critical because

its impacts are felt very quickly. If left unaddressed, it could lead to other problems such as hunger, poverty, crime, economic performance decline, and even permanent economic hardship (Wirren Chang et al. 2023). When people lose their jobs and cannot enter the labor market, they not only lose their income but also access to education, healthcare, and other basic needs, which ultimately exacerbates poverty.

Seeing this surge, the Indonesian government realized that swift action was needed. They launched the 2020 Pre-Employment Card Program to provide skills and incentives to participants, including those who were laid off, furloughed, or in need of skills upgrading (Consuello 2020)This program is regulated by Presidential Regulation No. 36/2020 and is not only for job seekers but also for workers who need training and financial assistance during their studies. Initially, the budget was IDR 10 trillion, but it was increased to IDR 20 trillion during the pandemic. Since 2020-2024, nearly 19 million people have actively participated in this program throughout Indonesia.

Based on the existing phenomena and facts, the Prakerja Card Program has emerged as a government policy to address the surge in unemployment caused by the COVID-19 pandemic particularly among vocational school graduates. The program is designed as a multifunctional solution aimed at reducing unemployment rates and enhancing the workforce's skills to better prepare them for changes in the labor market. The Prakerja Card has reached all provinces in Indonesia and aims to provide training and increase labor force participation (TPAK), an important indicator for assessing a country's economic and labor market success (Reynalda Utari Karo Karo et al. 2023) A high TPAK is typically correlated with a decrease in unemployment, but Indonesia faces challenges due to rapid population growth and an inadequate labor market's ability to absorb workers, resulting in persistently high unemployment (Novita and Afdal Samsuddin n.d.) Data shows that unemployment is most prevalent among high school and vocational school graduates, and the labor force participation rate during the pandemic decreased from 69.17% in 2019 to 67.77% in 2020, before gradually improving again. Previous studies have also shown that the pandemic worsened the labor market, the Labor Force Participation Rate (LFPR) has a significant impact on unemployment rates, and programs such as the Prakerja Card have proven effective in increasing labor absorption. Therefore, this study aims to investigate the impact of Average Years of Schooling, the number of Kartu Prakerja participants, and TPAK on unemployment in 32 provinces of Indonesia, as well as to assess the long-term effects of these policies.

Literature Review

Human Capital Theory

The Human Capital Theory, first popularized by economists Gary Becker and Theodore W. Schultz in 1961, explains that education, health, and other forms of human capital serve as investments individuals make in themselves to enhance productivity (Nurkholis 2018). In this theory, Becker introduces the concept of Human Investment Theory, which posits that human capital is an investment in human resources requiring sacrifice but offering potentially higher future income (Nurkholis, 2018). Such investments involve sacrificing immediate consumption to pursue education and enhance one's internal human capital. Hoyman & Faricy in (Nizar and Nazir 2020) argue that individuals who focus on continuous education alongside training tend to boost long-term economic growth. This is supported by human resource research that states: the more education an individual acquires, the higher their wages tend to be as a result of their educational sacrifice.

Classical Theory of Adam Smith

Adam Smith (1723–1790), a key figure in classical economics, asserted that effective allocation of human resources is a crucial driver of economic growth. He believed that as economic activities expand, investments in physical capital become increasingly vital to sustain this growth. Therefore, efficient management of human resources is an essential condition to foster sustainable economic development.

Classical Theory of J.B. Say

Jean Baptiste Say (1767–1832) proposed the well-known Say's Law, which states that supply creates its own demand. In other words, the value of goods produced equals the income generated from their sale. An increase in production automatically leads to higher income, which in turn stimulates demand. Conversely, if production capacity increases but demand remains stagnant, a surplus could develop, leading to a decrease in production.

Employment absorption refers to the number of workers employed in a particular sector of the economy, directly impacting total goods and services production. It can also be viewed as a balance between labor supply and demand, ultimately determining wage levels and the equilibrium of the labor market. According to Bellante Don (1983), the labor market absorbs workers through various channels, which depend on factors such as education levels, specific skills, and work experience.

Relationship Between Average Years of Schooling and Open Unemployment Rate

The relationship between the variable of average years of schooling and the open unemployment rate can be well explained through the theory developed by economist Gary Becker within the Human Capital framework. This theory posits that investing in oneself through education is a sacrifice made to acquire human capital, enabling individuals to achieve a decent standard of living within a population. Higher education levels generally enhance an individual's skills and productivity, thus increasing competitiveness and improving employment opportunities (Nurkholis 2018). The application of Human Capital theory involves individuals pursuing education to increase their knowledge and skills. Those with higher skills and knowledge tend to have a greater chance of securing employment. Over time, as this concept is implemented, it impacts the open unemployment rate in a region, as individuals gradually can find jobs aligned with their acquired skills resulting from their educational investments.

This research is supported by prior studies, such as (Prawira 2018), which examined the relationship between education levels and the open unemployment rate in Indonesia from 2011 to 2015. The study revealed that higher levels of education negatively and significantly influenced the unemployment rate in Indonesia, indicating that increasing the average years of schooling can reduce unemployment (Prawira, 2018).

However, the significant negative relationship found in this study contradicts the (Filiasari and Setiawan 2021) Their research investigated the impact of education on unemployment in Banten Province from 2002 to 2019, and the results indicated that education had a positive and significant effect—meaning increased education levels did not necessarily lead to lower unemployment in Banten.

Relationship Between Labor Force Participation Rate (LFPR) and Unemployment Rate (UR)

Within the classical economic framework developed by Adam Smith and J.B. Say, the relationship between the labor force participation rate (LFPR) and unemployment rate (UR) is closely intertwined and mutually influential. According to Adam Smith, efficiency in the allocation of human resources can promote sustainable economic growth, where increased labor participation boosts output and productivity across economic sectors. Meanwhile, J.B. Say emphasizes that enhanced production capacity driven by a higher active labor force will increase national income and demand for goods and services.

Effective labor absorption is expected to lower unemployment because more people will find jobs or actively seek work. Conversely, if the labor participation rate is high but job absorption does not keep pace, it risks increasing unemployment levels. In general, classical economic theory suggests that an efficient and optimal increase in labor participation contributes to lower unemployment and supports sustainable economic growth.

Relationship Between the Number of Participants in the Pre-Employment Card Program and Unemployment Rate (UR)

The relationship between the number of program participants and the open unemployment rate can be explained using both Human Capital Theory and Classical Theory. Human Capital Theory clearly states that human capital can be developed through self-investment via education, courses, or training. This implies that individuals who enhance their capabilities are more prepared to compete and participate in the labor market.

The increasing number of participants enrolled in the Pre-Employment Card Program indicates a significant investment in human capital by Indonesian society. Participants engaged in the program undergo courses and training, leading to a more skilled workforce capable of competing in the labor market. This, in turn, can help reduce unemployment rates.

From a Classical perspective, the labor market tends towards equilibrium through supply and demand mechanisms. An increase in the number of skilled participants will meet the market's demand, thus better absorbing labor supply and reducing unemployment. As more individuals gain skills through the program, the market becomes more capable of absorbing the increased supply of competent workers, contributing to a decline in unemployment.

Research Method

This study uses a quantitative approach, which is based on positivism and systematic, using numerical and statistical data for analysis and hypothesis testing (Damayanty et al. 2016). This method was chosen because it is able to measure variables objectively and provide reliable results, as well as enable the identification of patterns of relationships between variables such as the number of program participants, length of schooling, and unemployment rates in various provinces in Indonesia. The results can be generalized, providing a real-world picture of the empirical impact of the Pra Kerja Card program.

The study covers 32 provinces in Indonesia, excluding six provinces in Papua due to incomplete statistical data and differing geographical conditions. The research period uses data from 2020 to 2023, encompassing the initial implementation phase of the Kartu Pra Kerja program and its impact during the COVID-19 pandemic, including observations from 2020 to 2024.

The dependent variable is the Open Unemployment Rate (OUR), calculated as the ratio of the number of unemployed individuals to the total labor force, expressed as a percentage. The independent variables include: Average Years of Schooling (measuring the educational level of the population aged 25 and above), Labor Force Participation Rate (the ratio of the number of active workers to the total working-age population, expressed as a percentage),

and the Number of Participants in the Kartu Pra Kerja Program (the total number of participants during the study period). The data in this study are quantitative panel data—a combination of time and space data—obtained from secondary sources, such as BPS and official reports of the Pre-Employment Card program, through literature review and official documentation. The technique involves collecting information from books, reports, and official statistical data using formulas and official data from BPS and program reports.

The data analysis method used in this study is panel data regression, which is an analytical technique used to explain the relationship between variables that can be expressed in the form of mathematical equations. Panel data regression allows for a more in-depth analysis by combining the characteristics of cross-sectional and time series data, thereby providing more accurate results compared to ordinary regression (Alamsyah et al. 2022)

Eviews 12 will be used as the tool for processing the research data, assuming the dependent variable Y and the independent variable x. The panel data regression model in this study is as follows;

$$Yit = \beta0 + \beta1X1it + \beta2X2it + \beta3X3it + Uit$$

Description:

Y = Tingkat Pengangguran Terbuka (Persen)
X1 = Rata-rata Lama Sekolah (Tahun)
X2 = Jumlah Peserta Program kartu Pra kerja (Jiwa)
X3 = Tingkat Partisipasi Angkatan Kerja (Persen)
β0 = Intersep atau Konstanta
β1-β3 = Koefisien Regresi
U = Eror Term

There are three main models in panel data regression analysis. First, the Common Effect Model (CEM), which is the simplest by combining all data without considering individual or time differences; second, the Fixed Effect Model (FEM), which accounts for unique characteristics of each individual that do not change and uses dummy variables so that these differences are reflected in the model; third, the Random Effect Model (REM), which considers variation between individuals and time as random factors that are not correlated with other variables. To determine which model is most appropriate, three main tests are used: the Chow test to compare CEM and FEM, the Hausman test to compare FEM and REM, and the Lagrange Multiplier (Breusch-Pagan) test to compare CEM and REM, with the results determining the best choice based on data assumptions. Furthermore, hypothesis testing was conducted through the coefficient of determination (R^2) to measure

how well the model explains the dependent variable, the F-test to test the joint effect of all independent variables, and the t-test to test the partial effect of each variable. If the p-value is less than 0.05, it means that the effect is statistically significant. With this approach, the analysis is able to identify patterns of relationships and the influence of variables in the study more accurately and in greater depth.

Results and Discussion

MODEL SELECTION

1. Chow Test

If the Chow test results in a probability value less than the significance level of 0.05, then H0 is rejected and H1 is accepted, indicating that the appropriate model to use is the Fixed Effect Model (FEM). Conversely, if the probability value is greater than 0.05, then H0 is accepted and H1 is rejected, indicating that the more appropriate model to use is the Common Effect Model (CEM).

Table 2. Chow Test

Effect Test	Statistic	d.f	Prob.
Cross-section F	29.76648	(31.93)	0
Cross-section Chi-Square	306.021630	31	0

Referring to the regression test results table, it is shown that the probability value in the Cross-section Chi-square is 0.0000 or< from 0.05. This indicates that H0

is rejected and H1is accepted. Thus, the output table concludes that the model most appropriate model to use in panel data regression analysis is the Fixed Effect Model (FEM). After selecting the FEM model, the analysis can be continued by conducting a Hausman test to determine whether the Fixed Effect model should be used or switched to the Random Effect Model.

2. Hausman Test

The Hausman test is used to select the best model between the Fixed Effect Model (FEM) and the Random Effect Model (REM). With the hypothesis

a. If the probability< 0.05, then H1 is accepted and the appropriate model is FEM.
b. If the probability is > 0.05, then H0 is accepted and the appropriate model is REM.

Table 3. Hausman Test

Test Summary	Chi-sq. Statistic	Chi-square degrees of freedom	Prob.
Cross-sectional random	43.401749	3	0

Referring to the Hausman test regression results table, the probability value of Cross-section random is 0.0000, which means that the result is < 0.05. Therefore, it can be interpreted that H0 is rejected and H1is accepted with the model to be used is Fixed Effect Model. Thus, the results of the Chow test and the Hausman test indicate that the most appropriate model to use in this study is the Fixed Effect Model (FEM). Since the FEM has been established as the most appropriate model, the Lagrange Multiplier test is not necessary, as further testing between CEM and REM becomes irrelevant.

PANEL DATA REGRESSION EQUATION

From the results of the model selection test conducted previously, it was found that the Fixed Effect Model is the best model to be used in this regression. Therefore, through the processing with EViews 12 software, the following results were obtained:

Table 4. Regression Analysis Results

Variable	Coefficient	Std. Error	t-statistic	Prob
C	46.82201	3.94	11.86997	0.0000
X1 (RLS)	-3.193721	0.52245	-6.112943	0
X2 (JPKP)	4.303465	2.607874	1.650181	0.1023
X3 (TPAK)	-0.1937	0.047323	-4.093947	0

Based on the table above, the regression equation model can be obtained as follows:

$$Y = 46.8220070203 - 3.19372091008X\_1it + 4.30346502766X\_2it – 0.193738864293X\_3it + \varepsilon$$

Notes:

Yit = Open unemployment rate in region i during period t

X1t = Average years of schooling in region i during period t

$X2it$ = Number of participants in the Pre-Employment Card Program in region i during period t

$X3it$ = Labor Force Participation Rate in region i during period t

ε = error term

STATISTICAL TEST

T-test (Partial Test)

The t-test is used to determine the partial effect of an independent variable on a dependent variable by comparing the calculated t-value with the critical t-value. If the calculated t-value exceeds the critical t-value or the probability value is less than $\alpha = 0.05$, the independent variable is considered to have a significant effect on the dependent variable.

Table 5. Results of the T-Test

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	46.82201	3.94457	11.86997	0
X1 (RLS)	-3.193721	0.52245	-6.112943	0
X2 (JPKP)	4.303465	2.607874	1.650181	0.1023
X3 (TPAK)	-0.193739	0.047323	-4.093947	0

Based on the results of the t-test, the probabilities of each research variable are as follows:

a. The t-test results for the RLS (X1) variable against TPT (Y) obtained a t-value of -6.112943 and a significance value of 0.0000. The significance level of 0.0000<0.05 indicates that h0 is rejected and H1 is accepted. Thus, the RLS variable has a significant effect on TPT in 32 provinces in Indonesia.
b. The results of the t-test on the variable Number of Participants in the Pre- Employment Card Program (X2) on TPT (Y) obtained a t-value of 1.650181 and a significance value of 0.1023. The significance level of 0.1023 > 0.05 indicates that H1 is rejected and H0 is accepted. Therefore, the Pre-Employment Card Program has not been proven statistically to have a direct effect on the decrease or increase in TPT in 32 provinces in Indonesia.
c. The results of the t-test on the variable Labor Force Participation Rate (LFPR) against TPT (Y) yielded a t-value of -4.093947 and a significance value of 0.0001. The significance level of 0.0001 is less than 0.05, so it can be concluded that H0 is rejected and H1 is accepted, meaning that the TPAK variable has a significant effect on TPT in 32 provinces in Indonesia.

F-test (Simultaneous Test)

The results of the F test indicate that the variables Average Length of Schooling (X1), Life Expectancy (X2), and Social Assistance APBD (X3) simultaneously have a significant effect on the poverty rate. This is indicated by a significance level of <0.05, so the null hypothesis is rejected. Thus, the three independent variables together influence the dependent variable.

Table 6. Results of the F-Test

F-Statistic	**55.24586**
Prob (F-statistic)	0.0000

Based on the F-test results, it can be seen that the calculated F-value is 55.24586 with a probability value (F-statistic) of 0.000000, which is less than α = 0.05 (0.000000 < 0.05). Therefore, it can be concluded that H0 is rejected and H1 is accepted, meaning that the independent variables, namely Average Years of Education (X1), Participants in the Pre-Employment Card Program (X2), and Labor Force Participation Rate (TPAK), together or simultaneously influence the dependent variable, namely poverty levels in 32 provinces in Indonesia.

Determination Coefficient Test (R^2)

The coefficient of determination (R^2) test indicates how much the independent variables can explain the variation in the dependent variable. The higher the R^2 value (approaching 1), the stronger the model's ability to explain changes in poverty levels. Conversely, a low R^2 value reflects the weak contribution of independent variables to the dependent variable.

Table 7. Results of the Coefficient of Determination Test (R^2)

R-squared	0.952813
Adjust R-squared	0.846119
S.E. of Refressions	1.599084

Based on the results of the coefficient test data processing in the table, it can be seen that the adjusted R-squared value is 0.952813 or 95.2813%. Therefore, the coefficient of determination indicates that the independent variables consisting of Average Length of Schooling (X1), Pre-Employment Card Program (X2), and Labor Force Participation Rate (X3) are able to explain the dependent variable, which is Open Unemployment Rate (Y), while the remaining 4.72% is explained by other factors outside the model.

DISCUSSION

1. The Effect of Average Years of Schooling on the Open Unemployment Rate in 32 Provinces of Indonesia

Based on the panel data regression results, it is evident that the p-value for the Average Years of Schooling variable is 0.1023, which is greater than 0.05. Additionally, the coefficient value is 4.303465. This indicates that the Pre-Employment Card Program does not have a significant influence on the open unemployment rate across the 32 provinces of Indonesia during the 2020–2023 period.

This finding aligns with the Human Capital Theory developed in the 1960s by Gary Becker, which explains that investments in human resources—such as education, health, and skills—can enhance individual productivity. These investments involve sacrifices, such as dedicating time and resources to education, with the aim of enriching an individual's human capital. An individual who concentrates on education tends to contribute to long-term economic growth.

Average years of schooling reflect how many years a person has spent in formal education, starting from the 12-year compulsory schooling period. In reality, data from the Central Statistics Agency (BPS) reveals that the average years of schooling across Indonesian provinces are unevenly distributed. For instance, provinces like DKI Jakarta and Yogyakarta have averages above 11 years, whereas eastern provinces tend to have averages below 9 years. This disparity highlights differences in educational quality and access among regions, which directly impact employment opportunities and contribute to inequality in the labor market.

The findings of this study are supported by previous research conducted by (Prawira 2018), which examined the relationship between education levels and the open unemployment rate in Indonesia from 2011 to 2015. The study proved that education levels had a negative and significant effect on unemployment, suggesting that increasing the average years of schooling can effectively reduce unemployment rates (Prawira 2018)

2. Effects of the Pre-Employment Card Program on the Unemployment Rate in 32 Provinces of Indonesia

Based on the panel data regression analysis, it was found that the p-value for the Pre-Employment Card Program variable is 0.1025, which is greater than 0.05. Additionally, the coefficient value is 4.303465. This indicates that the Pre-Employment Card Program does not have a significant effect on the unemployment rate across 32 provinces of Indonesia during the 2020–2023 period.

The Pre-Employment Card Program was designed as a response to combat unemployment caused by the COVID-19 pandemic. It has remained a government focus,

primarily aimed at reducing unemployment by improving the quality of human resources. However, this study's findings do not support the claim that the program has a tangible impact.

These findings contrast with the first theory underpinning the program, the Human Capital Theory, which states that investment in human capital—such as education, health, and skills—can reduce unemployment. Investments, in this context, involve sacrifices to pursue education to enrich an individual's human capital, thereby contributing to long-term economic growth.

Similarly, classical economics, particularly the theories advanced by Adam Smith and J.B. Say, suggest that unemployment can be mitigated through efficient and free functioning of the labor market. In the classical view, the labor market will always absorb workers as long as there are no barriers, and the supply of labor creates its own demand (Say's Law: "supply creates its own demand").

However, the findings of this research indicate that the number of participants in the Pre-Employment Card Program does not significantly influence the open unemployment rate. This suggests that the market mechanisms are not yet functioning efficiently. Despite an increase in trained labor supply via the program, the labor market has yet to fully absorb these workers. Causes might include skill mismatches, limited job opportunities, or other structural barriers. This outcome confirms the limitations of classical theory in a modern context—highlighting that skills training alone is insufficient without genuine job creation and alignment with industry needs.

Interestingly, this result contradicts previous research by(Zaki and Kartika Pertiwi 2023)who found a significant effect of the program on reducing unemployment in 514 cities and regencies, with a significance level of 0.023 and a T-statistic of 2.084. Their study concluded that the Pre-Employment Card Program positively impacted labor absorption in 2020–2021.

Furthermore, recent research (Mutiah et al. 2025) supports this contrasting finding. Their study, conducted in Indonesia, used data on unemployment rates and the number of recipients of the Pre-Employment Card Program from 2020 to 2024. The results indicated a positive and significant relationship between the number of program recipients and the unemployment rate. Although there was a significant relationship, the positive correlation suggests that increasing participant numbers may actually lead to higher unemployment, which opposes the primary goal of the program—reducing unemployment.

Another recent study, by (Pratiassandi, Fuadi, and Arini 2023), examined the effectiveness of the Pre-Employment Card Program in reducing unemployment in Bonjeruk Village, Jonggat District, Lombok, during 2020–2021. The study found that the program was ineffective in decreasing unemployment in the location. The analysis showed that 17

recipients (32.08%) benefitted effectively, while 15 (28.30%) worked but not in alignment with their training, and 21 (39.62%) did not work despite participating in the program.

3. The Effect of Labor Force Participation Rate on the Unemployment Rate in 32 Provinces of Indonesia

Based on the panel data regression analysis, it is known that the p-value for the Labor Force Participation Rate (LFPR) variable is 0.0001, which is less than 0.05, with a coefficient of -0.193739. This indicates that the LFPR has a significant negative effect on the open unemployment rate across 32 provinces of Indonesia during the 2020–2023 period.

In general, LFPR indicates that residents aged 15 and over have a direct role in economic activities within a region, reflecting the number of workers capable of contributing to the production of goods and services. Specifically, LFPR can be understood as the ratio of the labor force to the total working-age population, usually expressed as a percentage.

This finding aligns with classical economic theory, particularly Adam Smith's explanation that the labor market will naturally adjust through the forces of demand and supply. When more workers enter the market, expanding sectors of the economy will absorb the labor provided, assuming no intervention restricts this process. Additionally, this result is supported by J.B. Say's Law, which states that "supply creates its own demand." In this context, an increase in the labor force does not necessarily lead to higher unemployment; instead, it can stimulate new economic activities that create jobs. High labor force participation indicates that the community is actively engaged in the economy, and if adequate job opportunities are available, unemployment can be effectively reduced.

This result is further supported by research conducted by (Putri Ade Kantari, Kamila, and Safitri 2024), which examined the influence of LFPR on the unemployment rate (TPT) across districts and cities in East Java in 2021. The study demonstrated a significant relationship between LFPR and TPT, with a significance level of 0.0106 and a T-statistic of -2.699. Another supporting study is by(Putra and Hidayah 2023), which analyzed LFPR and TPT in West Java Province from 2018 to 2021. Their findings revealed a negative and significant relationship, indicating that an increase in LFPR tends to lower the open unemployment rate, whereas a low LFPR correlates with higher unemployment.

Conclusion

Based on the results of the study conducted on panel data from 32 provinces in Indonesia during the period 2020–2023, using the Fixed Effect Model (FEM), the following conclusions were drawn:

1. Average Years of Schooling (AYS) has a negative and significant effect on the Open Unemployment Rate (OUR). This is indicated by a coefficient value of –3.193721 with a probability value of 0.0000, meaning that the higher the average years of schooling, the more the open unemployment rate tends to decrease significantly.
2. The number of participants in the Pre-Employment Card Program does not have a significant effect. This is evidenced by a coefficient value of 4.303465 with a probability of 0.1023 (>0.05), meaning that the number of participants in the Pre-Employment Card Program has not yet had a significant impact on unemployment specifically.
3. The Labor Force Participation Rate (LFPR) has a negative and significant effect on the open unemployment rate, with a coefficient value of –0.193739 and a probability of 0.0001. This indicates that an increase in labor force participation can significantly reduce the open unemployment rate.
4. The F-test results indicate that, simultaneously, the three independent variables (RLS, JKP, and TPAK) have a significant effect on TPT, with an F-statistic probability value of 0.000000 ($p < 0.05$).
5. The R-squared value of 0.952824 indicates that the model can explain 95.28% of the variation in TPT, while the remaining 4.72% is explained by other factors not included in this model.

Based on the conclusions outlined above, the researcher provides the following recommendations for consideration by relevant parties:

1. More attention is needed for education in Indonesia, especially in all regions with low average school attendance rates. The government is expected to maximize the use of human resources through credible educational reforms, starting with the renovation, maintenance, and development of educational infrastructure to achieve equitable quality of education in Indonesia as a form of investment in the future of Indonesia, as it has been proven that the level of education, as measured by average length of schooling, can significantly reduce the open unemployment rate.
2. Special attention is needed in the review of the pre-employment card program in terms of its implementation, efficiency, and effectiveness. Using the number of participants in the pre-employment card program to see how this program affects unemployment in line with the program's objectives, the results show that this program has no effect on the open unemployment rate. Therefore, special attention from the government and a review

of this program are urgently needed to ensure the feasibility, effectiveness, and output of this program if it is continued, so that it can have a more tangible impact.

3. This study is expected to serve as a foundation for further research to analyze the impact of the pre-employment card program on unemployment by considering additional factors to reflect the program's effectiveness substantively. The factors in question are the labor absorption rate, the job market conditions in the study area, the alignment between training and the jobs obtained, and the number of participants who secured employment after training. With the addition of these variables, it is hoped that future research will provide a more comprehensive picture of the real impact of the pre-employment card program on unemployment rates.
4. Attention from all parties, especially the government, is needed to ensure that increases in TPAK are accompanied by the creation of quality jobs. The results of this study indicate that TPAK has a negative impact on unemployment, meaning that an increase in TPAK will lead to a decrease in unemployment. Additionally, training and access to capital are needed for the informal sector or entrepreneurs because not all of the labor force is absorbed into the formal sector.

References

Alamsyah, Iqbal Friman, Rut Esra, Salwa Awalia, and Darnah Andi Nohe. 2022. "Analisis Regresi Data Panel Untuk Mengetahui Faktor Yang Memengaruhi Jumlah Penduduk Miskin Di Kalimantan Timur." *Prosiding Seminar Nasional Matematika, Statistika, dan Aplikasinya*: 254–66.

Consuello, Yoshua. 2020. "Analisis Efektifitas Kartu Pra-Kerja Di Tengah Pandemi Covid-19." *Adalah: Buletin Hukum dan Keadilan* 4(1): 93–100.

Filiasari, Amgi, and Achma Hendra Setiawan. 2021. "Pengaruh Angkatan Kerja, Upah, PDRB, Dan Pendidikan Terhadap Tingkat Pengangguran Di Provinsi Banten Tahun 2002-2019." *Diponegoro Journal of Economics* 10(2): 1–10. https://ejournal2.undip.ac.id/index.php/dje.

Indayani, Siti, and Budi Hartono. 2020. "Analisis Pengangguran Dan Pertumbuhan Ekonomi Sebagai Akibat Pandemi Covid-19." *Jurnal Perspektif* 18(2): 201–8.

Mardiyah, Rahma Ainul, and Nunung R Nurwati. 2020. "Dampak Pandemi Covid-19 Terhadap Peningkatan Angka Pengangguran Di Indonesia." *Jurnal Global Health Science groupoup*: 1–20.

Mifrahi, Mustika Noor, and Angga Setyo Darmawan. 2022. "Analisis Tingkat Pengangguran Terbuka Di Indonesia Periode Sebelum Dan Saat Pandemi Covid-19." *Jurnal Kebijakan Ekonomi dan Keuangan* 1(1): 111–18. doi:10.20885/jkek.vol1.iss1.art11.

Mutiah, Elok Sanikha, Vivit Nor Anggraini, Deswinda Rosyana, Putra Rully Dwi Pratama, and Farliana Nina. 2025. "ANALISIS PENGARUH PROGRAM PRAKERJA TERHADAP TINGKAT PENGANGGURAN DI INDONESIA DARI TAHUN 2020 SAMPAI TAHUN 2024." *Juni* 6(2): 12. https://journalpedia.com/1/index.php/epi/index.

Nizar, Nefo Indra, and Ahmad Nazir. 2020. "Faktor Human Capital Pada Pertumbuhan Ekonomi Kreatif." *Jurnal Mandiri : Ilmu Pengetahuan, Seni, dan Teknologi* 4(1): 52–65. doi:10.33753/mandiri.v4i1.103.

Novita, Resi, and Muhammad Afdal Samsuddin. "Analisis Pengaruh Tingkat Partisipasi Angkatan Kerja (TPAK), Jumlah Penduduk Dan Indeks Pembangunan Manusia (IPM) Terhadap PDRB Di Provinsi Bali Author : Affiliation :" : 195–210.

Nurkholis, Afid. 2018. "TEORI PEMBANGUNAN SUMBERDAYA MANUSIA: Human Capital Theory, Human Investment Theory, Human Development Theory, Sustainable Development Theory, People Centered Development Theory." *INA-Rxiv 8trv7, Center for Open Science*: 3–5.

Pratiassandi, Geger, Helmy Fuadi, and Gusti Ayu Arini. 2023. "Analisis Efektivitas Program Kartu Prakerja Terhadap Penurunan Jumlah Pengangguran Di Desa Bonjeruk Kecamatan Jonggat Kabupaten Lombok Tengah Pada Tahun 2021-2022." *Oportunitas Ekonomi Pembangunan* 2(1): 108–26. doi:10.29303/oportunitas.v2i1.553.

Prawira, Syurifto. 2018. "Pengaruh Pertumbuhan Ekonomi, Upah Minimum Provinsi, Dan Tingkat Pendidikan Terhadap Pengangguran Terbuka Di Indonesia." *Jurnal Ecogen* 1(4): 162. doi:10.24036/jmpe.v1i1.4735.

Putra, Ghora Vira Handy, and Nur Hidayah. 2023. "Analisis Pengaruh Jumlah Penduduk, Pendidikan, Tingkat Partisipasi Angkatan Kerja, Upah Minimum Kabupaten/Kota Dan Produk Domestik Regional Bruto Terhadap Pengangguran Terbuka Di Provinsi Jawa Barat Tahun 2018-2021." *Komitmen: Jurnal Ilmiah Manajemen* 4(1): 149–58. doi:10.15575/jim.v4i1.23731.

Putri Ade Kantari, Depita, Nuha Kamila, and Oryza Safitri. 2024. "Analisis Pengaruh Indeks Pendidikan, Tingkat Partisipan Angkatan Kerja Dan Jumlah Penduduk Terhadap Tingkat Pengangguran Terbuka Pada Kabupaten/Kota Provinsi Jawa Timur Tahun 2021." *ACMATICS JOURNAL : Actuarial, Mathematics, and Statistic Journal* 1(1): 1–6. http://www.jurnal.uts.ac.id/index.php/acmatics/article/view/3792%0Ahttp://www.jurnal.uts.ac.id/index.php/acmatics/article/download/3792/1731.

Reynalda Utari Karo Karo, Daffa, Datuk Sazli, Hidayat, and Nasrullah. 2023. "Analisis Pengaruh Ipm, Ump Dan Tingkat Partisipasi Angkatan Kerja Terhadap Pengangguran Terbuka Di Indonesia." *Journal of Social and Economics Research* 5(2): 451–63. doi:10.54783/jser.v5i2.113.

Wirren Chang, Agnes Doraresta Khatarina Tokan, Dewi, Gladys Christiani, Mardiana Ng, Serina, and Wisnu Yuwono. 2023. "Analisa Kebijakan Pemerintah Indonesia Terhadap Ancaman Kerja Pasca Inflasi." *Jurnal Ekonomi, Manajemen Pariwisata dan Perhotelan* 2(1): 476–82. doi:10.55606/jempper.v2i1.1057.

Yulianti, Rahmah, Khairuna Khairuna, and Nasir Ibrahim. 2022. "Analisis Tingkat Pengangguran Terbuka Dan Ekspor Impor Terhadap Pertumbuhan Ekonomi Indonesia Periode Sebelum Dan Saat Pandemi Covid-19." *Journal of Economics Science* 9(1): 9–26.

Zaki, Bahruddin, and Tri Kartika Pertiwi. 2023. "Pengaruh Program Kartu Prakerja Terhadap Penyerapan Tenaga Kerja Indonesia Pada Masa Pandemi Covid - 19." *Jurnal Ilmiah Dikdaya* 13(1): 297. doi:10.33087/dikdaya.v13i1.430.