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The Influence of the Wajar (Mandatory Education) Program on the Unemployment Rate in Indonesia

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Abstract

The background of this research stems from Indonesia's position as having the highest unemployment rate among ASEAN countries at 5.2 percent in 2024, despite ongoing educational initiatives. This study aims to identify the effect of the Gross Enrollment Rate (GER) at Junior High School (JHS) and Senior High School (SHS), Literacy Rate (LTR), Mean Years of Schooling (MYS), Human Development Index (HDI), and Provincial Minimum Wage (PMW) on the Open Unemployment Rate (OUR) across 34 provinces of Indonesia from 2005 to 2024. The estimation results, using the Generalized Method of Moments (GMM) panel, show that GER_JHS has a positive and significant effect on the unemployment rate (OUR), while GER_SHS has a negative and significant effect. Other variables, such as LTR and MYS, also have a negative and significant effect on the unemployment rate. The HDI variable demonstrates a positive and significant effect, whereas the PMW variable shows two significant effects—both positive and negative—on the unemployment rate. These findings can serve as a reference for policymakers to strengthen the *Wajar* (Mandatory Education) program, both in terms of duration, quantity, and quality of implementation, so that it can continue to reduce the unemployment rate in Indonesia.

Keywords: Gross Enrollment Rate, Literacy Rate, Mean Years of School, Human Development Index, Provincial Minimum Wage, GMM (Generalized Method of Moment).

INTRODUCTION

The number of Indonesia's population according to Dukcapil data in the first semester of 2024 is 282,477,584 people, making Indonesia the fourth most populous country in the world (Aziza, Rahmat, Halimah, & Ardiansyah, 2024; Della Firnanda & Nafiah, 2025). With this population, Indonesia has considerable potential in terms of human resources that can be developed to support the country's progress (Andriani & Yustini, 2021; Bawono, 2021; Burgess, Dayaram, Lambey, & Afrianty, 2020). However, in reality, various obstacles are still present, especially in the field of employment, namely the high number of unemployed individuals. This condition can have negative impacts such as economic instability, inhibited economic growth, decreased community welfare, and socioeconomic problems that lead to poverty (Mouren et al., 2022).

Based on data released by the World Bank in 2013, Indonesia's labor force was recorded as the fourth largest in the world (Suhandi et al., 2022), which means that the number of labor force participants in Indonesia increased significantly along with the growth in population. Data from the Central Statistics Agency (BPS) in 2023 shows that Indonesia's labor force amounted to 147.71 million people. This figure represents a 5.39% increase compared to the workforce in 2021.

In this case, the government must ensure the maximum utilization of labor to sustain development. If not, the increasing number of unabsorbed labor force participants (unemployment) will become a growing burden and eventually transform into an economic problem.

In addition to being a burden and an obstacle to a country's economic growth, unemployment is also an indicator of labor market conditions. Low unemployment is often celebrated as a national achievement, and conversely, high unemployment is a cause for concern. However, the unemployment rate itself does not always fully reflect the employment problem. The concept of unemployment is defined here as the working-age population (15–65 years) who are actively seeking work, preparing to start a business, feeling discouraged, or already employed but not yet working. Internationally, according to the International Labor Organization (ILO) (in Oppong & Zhou, 2021), open unemployment is defined as working-age individuals who have been out of work for a period of time yet remain willing to accept a job and are actively seeking employment.

Based on the World Economic Outlook report in April 2024, the International Monetary Fund (IMF) stated that Indonesia recorded the highest unemployment rate among ASEAN countries at 5.2 percent (Gomes, 2025; Hasudungan et al., 2023; Resilience, 2025; Rivera, Ruiz, & Miral, 2024; Thawley, Crystallin, & Verico, 2024). This was followed closely by the Philippines with 5.1 percent, while Thailand had the lowest rate at 1.1 percent. For other ASEAN countries such as Myanmar, Cambodia, Laos, and Timor Leste, no comparable data was available, so they were excluded from the ranking chart (Savitri, 2024).

From these figures, it can be concluded that for every hundred members of Indonesia's labor force, around five people were unemployed in 2024, with the majority being high school graduates. This illustrates that the unemployment situation remains a serious issue.

The prevalence of unemployment among high school graduates can be explained by the fact that less-educated workers tend to accept any available job, while graduates of high school or higher education often require better qualifications, creating fiercer competition (Khurniawan et al., 2019). Data on average wages from 2021–2023 reinforces this, showing that elementary school graduates earn the lowest hourly wages, while university graduates receive the highest. This demonstrates the important role of education in determining wage levels.

The education sector has an undeniable role in advancing economic development, reducing unemployment, and improving community welfare. A higher level of education directly contributes to social welfare by equipping the workforce with greater skills and abilities. Higher education is also expected to enhance national competitiveness through innovation, technological development, and support for a knowledge-based economy.

The seriousness of the Indonesian government in improving the quality of education can be seen from various programs, one of which is *Wajar Dikdas* (Compulsory Basic Education), first launched on May 2, 1984, by President Soeharto. This program aimed to provide equal opportunities for all children aged 7–12 to access basic education. It was not mandatory but encouraged parents to send their children to school. The government supported this program by providing school facilities, teachers, and principals, as well as scholarships and the *Gerakan Nasional Orang Tua Asuh* (GN-OTA). The program successfully improved educational attainment

with the goals of equitable access, increasing Gross Participation Rate (APK) and Pure Participation Rate (APM), reducing illiteracy, and supporting national development.

Ten years later, compulsory education was extended to nine years through Presidential Instruction No. 1 of 1994 and strengthened by Government Regulation No. 47 of 2008, derived from Law No. 20 of 2003 on the National Education System (Fanji Farman et al., 2025; Kaya, 2015; Sukmayadi & Yahya, 2020). In 2012, the *Pendidikan Menengah Universal* (PMU) or 12-Year Compulsory Education Program was introduced, supported by Regulation of the Minister of Education and Culture No. 80 of 2013, aiming to continue the success of the 9-Year Program and prepare Indonesia's *Generasi Emas 2045*.

The background for compulsory education can be traced to workforce conditions in 1992, when 73.7% of Indonesia's workforce had only completed basic education or less, far behind ASEAN neighbors such as Singapore. Economically, compulsory education is considered an effort to improve human resource quality and economic growth by diversifying productive activities (Cahyaningsih, 2016). For students, it expands opportunities to gain knowledge, critical thinking skills, and technical capabilities, thereby raising the minimum entry age of the productive workforce. Still, while education is viewed as expanding job opportunities, 2024 data shows that six provinces—Papua, Riau Islands, DKI Jakarta, Maluku, North Sulawesi, and Aceh—had high school averages but also recorded high unemployment. This indicates a mismatch between education output and labor market needs (Cabus & Somers, 2018; Özer & Suna, 2020).

Several studies, such as Cazes & Verick (2013), emphasize the crucial role of schools and universities in equipping citizens with literacy and numeracy skills aligned with human capital theory, which assumes longer education increases job opportunities. However, other studies (Altindag et al., 2022; Rodríguez, 2018) indicate that higher education does not always guarantee employment because graduates are often more selective, and job markets cannot always absorb them. Conversely, Rahmawati & Putri (2021) find that high school APK and government spending on education significantly reduce unemployment, while literacy rates do not, as seen in Banten where literacy is already high. Similarly, Rizqi (2019) shows that improved literacy reduces unemployment by making individuals more employable and capable of entrepreneurship.

Further, Johar et al. (2023) highlight that average years of schooling have a negative and significant relationship with unemployment. BPS data in 2024 reports the national average at 9.22 years (equivalent to completing junior high). Student survival from Grade 1 through elementary school reached 96.20%, suggesting low dropout risk at this level, though junior high reported a dropout rate of 0.82%. While this reaches the minimum education requirement according to Law No. 20 of 1999, low education still correlates with low wages and poor welfare. Conversely, some studies show contradictory findings. Paramita (2023), Pratiwi (2025), and Fitri & Junaidi (2016) argue that higher education levels can increase unemployment because graduates wait longer for suitable jobs. On the other hand, Rosintan & Iman (2022) suggest that formal education has no impact in Banten, where skills are increasingly obtained through training or social media.

In addition to education, the Human Development Index (HDI) also influences unemployment by shaping individual capacity, technology adoption, and job creation. Baihawafi

& Sebayang (2023) find that in West Java, a 1% increase in HDI reduces the unemployment rate (TPT) by 1.24. Another critical factor is the Provincial Minimum Wage (UMP). Kaufman & Hotckiss (1999) argue that overly low wages increase unemployment, while excessive wage hikes reduce hiring. Nuzulaili (2022) supports this, showing that in Java, UMP has a significant negative relationship with unemployment (coefficient = –1.01).

Based on these analyses, this study used five indicators: the Gross Participation Rate (APK) of high school/equivalent, Literacy Rate (AMH), Average School Length (RLS), Human Development Index (HDI), and Provincial Minimum Wage (UMP). The study focuses on the impact of the 9-Year and 12-Year *Wajar* programs on unemployment in Indonesia, both partially and simultaneously, over 20 years. The intended outcome is to assess the effectiveness of compulsory education in lowering open unemployment. The benefits of the research include academic contributions in the form of references for students and practitioners, as well as practical recommendations for the government in designing education and labor policies, while supporting educators in producing more competitive graduates.

METHOD

This study employed a quantitative approach with panel data regression analysis. It focused on variables related to the Open Unemployment Rate (TPT) in Indonesia, with independent variables consisting of the Gross Participation Rate (APK) for junior high school/equivalent and high school/equivalent, Literacy Rate (AMH), and Average School Length (RLS) to measure the effectiveness of the 9-Year and 12-Year *Wajar* programs. Two control variables were included, namely the Human Development Index (HDI) and the Provincial Minimum Wage (UMP).

The data analyzed comprised panel data from 34 provinces during the period 2005–2024, covering the implementation of the 9-Year and 12-Year *Wajar* programs. Data were obtained from secondary sources such as the Central Statistics Agency (BPS), the Ministry of Education and Culture, and other official government institutions.

The analysis was conducted using panel data regression through the Ordinary Least Squares (OLS), Fixed Effect Model (FEM), and Generalized Method of Moments (GMM) to address potential endogeneity issues. The validity and consistency of the models were tested with the Sargan and Arellano-Bond tests. Hypothesis testing was then performed to examine both partial and simultaneous relationships between variables, with the assumption that increases in APK, AMH, RLS, HDI, and UMP contributed to reductions in Indonesia's open unemployment rate.

RESULT AND DISCUSSION

Hypothesis Test Results

The following are the results of the hypothesis test that has been researched in a thesis entitled The Effect of Reasonable Programs (Compulsory Learning) on the Unemployment Rate in Indonesia.

1. Results of Multiple Regression Test of Ordinary Least Square Panel

Below is a table of the results of the research data processing using multiple regression tests using the Ordinary Least Square Panel (POLS) method through the Stata 17 application.

Table 4.1 POLS Test Estimated Results

Variable	*Dependent Variable*: Open Unemployment Rate (OUR)		
	Model 1	**Model 2**	**Model 3**
OUR (-1)	0.8090*** (0.0165)	0.7979*** (0.0169)	0.7852*** (0.0177)
GER_JHS	0.0069 (0.0071)		0.0184** (0.0078)
GER_SHS		-0.0141*** (0.0051)	-0.0197*** (0.0056)
LTR	0.0012 (0.0019)	0.0026 (0.0019)	0.0023 (0.0019)
MYS	0.0541 (0.0444)	0.1350*** (0.0513)	0.1473*** (0.0514)
HDI	0.0033 (0.0095)	0.0022 (0.0093)	-0.0043 (0.0096)
PMW	-0.0196 (0.0510)	0.0853* (0.0485)	0.0348 (0.0529)
C	-0.2337 (0.3891)	-0.6778* (0.4091)	-0.6977* (0.4077)
R2	0.8288	0.8306	0.8320
No. of Cross-section	34	34	34
No. of Observation	646	646	646

Note: Symbols * is Prob. < 10%, ** is Prob. < 5%, and *** is Prob. < 1%.Source: Secondary data processed with Stata 17, 2024

1) Model 1

In this model, only one dependent variable (Y) is used, namely the Open Unemployment Rate (TPT) with the symbol "OUR" with the coefficient of Table 4.1 being 0.8090 and the probability is less than one percent or statistically significant. From this coefficient, it shows that every one percent increase in unemployment in the previous year will cause an increase in the TPT rate by 0.81% this year.

The result of the coefficient for the independent variable of the Gross Participation Rate (APK) of junior high school/equivalent (X1) with the symbol "GER_JHS" is 0.0069 which means that for every one percent increase in the number of junior high school APK / equivalent, there will be an increase in TPT by 0.01%. The coefficient of the Literacy Rate (AMH) with the symbol "LTR" is 0.0012 which means that for every one percent increase in the AMH number, there will be an increase in TPT by 0.001%. Variable X3, namely the Average School Length (RLS) with the symbol "MYS" has a coefficient value of 0.0541 which means that for every one percent increase in the RLS number, there will be an increase in TPT by 0.05%. Furthermore, the X4 variable, namely the Human Development Index (HDI) with the symbol "HDI" has a coefficient value of 0.0033 which means that for every one percent increase in the HDI figure, there will be an increase in TPT of 0.003%. The value of the variable coefficient of the Provincial Minimum Wage (UMP) with the symbol "PMW" is -0.0196 which means that for every one percent increase in UMP, there will be a decrease in TPT by 0.02%.

The R-Square (R2) value in Table 4.1 of 0.8288 shows that the contribution of independent variables, namely GER_JHS, LTR, MYS, HDI, and PMW to the TPT or OUR number, is 82.88% and the remaining 17.12% is influenced by other variables (var interfere or ε).

2) Model 2

This model still uses one dependent variable (Y), namely TPT with the symbol "OUR" with a coefficient of 0.7979 and a probability number that is smaller than one percent, so it is statistically significant. The results of the coefficient show that every one percent increase in unemployment in the previous year will cause an increase in the TPT rate by 0.80% this year.

For the value of the variable coefficient X1 in this model using the SMA/equivalent APK data with the symbol "GER_SHS", which is -0.0141 which means that every one percent increase in the number of SMA/equivalent APKs, there will be a decrease in TPT by 0.01%. The coefficient of LTR is 0.0026 which means that for every one percent increase in the AMH number, there will be an increase in TPT by 0.002%. The variable coefficient of MYS is 0.1350 which means that for every one percent increase in the RLS number, there will be an increase in TPT by 0.14%. Furthermore, the HDI variable has a coefficient value of 0.0022 which means that for every one percent increase in the HDI figure, there will be an increase in TPT by 0.002%. The value of the PMW variable coefficient is 0.0853 which means that for every one percent increase in UMP, there will be a decrease in TPT by 0.08%.

The R-Square (R2) value in model 2 of 0.8306 shows that the contribution of independent variables, namely GER_SHS, LTR, MYS, HDI, and PMW to the TPT or OUR number, is 83.06% and the remaining 16.94% is influenced by other variables (interfering var or ε).

3) Model 3

In model 3, the variable Y used remains OUR with a coefficient of 0.7852 and a significant probability number of less than one percent. The value of the coefficient shows that every one percent increase in unemployment in the previous year will cause an increase in the TPT rate by 0.78% this year.

In this model, the X1 variable used is derived from the APK data of junior high school/equivalent (GER_JHS) and high school/equivalent (GER_SHS) which are 0.0184 and -0.0197, respectively. This coefficient means that for every one percent increase in the number of junior high school APK/equivalent, there will be an increase in TPT by 0.02%, while for every one percent increase in the number of high school APK/equivalent, there will be a decrease in TPT by 0.02%. The coefficient of the LTR is 0.0023 which means that for every one percent increase in the AMH number, there will be an increase in TPT by 0.002%. The variable coefficient of MYS is 0.1473 which means that for every one percent increase in the RLS number, there will be an increase in TPT by 0.15%. Furthermore, the HDI variable has a coefficient value of -0.0043 which means that for every one percent increase in the HDI number, there will be a decrease in TPT by 0.004%. The value of the PMW variable coefficient is 0.0348 which means that for every one percent increase in UMP, there will be a decrease in TPT by 0.04%.

The R-Square (R2) value in model 3 of 0.8320 shows that the contribution of independent variables, namely GER_JHS, GER_SHS, LTR, MYS, HDI, and PMW to the TPT or OUR number, is 83.20% and the remaining 16.8% is influenced by other variables (interfering var or ε).

2. Multiple Regression Test Results Panel Fixed Effect

Below is a table of the results of research data processing using multiple regression tests using the Panel Fixed Effect method through the Stata 17 application.

Table 4.2 Estimated Results of Fixed Effect Panel Test

Variable	*Dependent Variable*: Open Unemployment Rate (OUR)		
	Model 1	**Model 2**	**Model 3**
OUR (-1)	0.6084***	0.5764***	0.5610***
	(0.0248)	(0.0255)	(0.0259)
GER_JHS	0.0183*		0.0275***
	(0.0098)		(0.0097)
GER_SHS		-0.0321***	-0.0356***
		(0.0067)	(0.0068)
LTR	-0.0042**	-0.0025	-0.0025
	(0.0020)	(0.0020)	(0.0020)
MYS	-0.2314***	-0.0877	-0.0765
	(0.0584)	(0.0647)	(0.0644)
HDI	0.0386***	0.0248**	0.0247**
	(0.0113)	(0.0114)	(0.0114)
PMW	-0.0829	0.2730***	0.1153
	(0.0510)	(0.0710)	(0.0902)
C	1.3378***	0.1626	0.2655
	(0.4977)	(0.5306)	(0.5288)
R2	0.8057	0.7924	0.8003
No. of Cross-section	34	34	34
No. of Observation	646	646	646

Note: Symbols * is Prob. < 10%, ** is Prob. < 5%, and *** is Prob. < 1%.

Source: Secondary data processed with Stata 17, 2024

1) Model 1

The dependent variable used in this model is "OUR" or Open Unemployment Rate (TPT) with a coefficient value of 0.6084 and a probability value of less than one percent or statistically significant. The coefficient shows that every one percent increase in unemployment in the previous year will cause an increase in TPT this year by 0.61%.

In the independent variable GER_JHS, the coefficient value of 0.0183 shows that for every one percent increase in the number of junior high school APK/equivalent, there will be an increase in TPT by 0.02%. For the LTR variable that has a coefficient value of -0.0042, it shows that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.004%. Furthermore, the value of the MYS variable coefficient of -0.2314 indicates that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.23%. For the HDI variable which has a coefficient value of 0.0386, it shows that for every one percent increase in the HDI number, there will be an increase in TPT by 0.04%. The value of the PMW variable coefficient of -0.0829 indicates that for every one percent increase in UMP, there will be a decrease in TPT by 0.08%.

For the R-Square value (R2) in Table 4.1 of 0.8057, it shows that the contribution of independent variables, namely GER_JHS, LTR, MYS, HDI, and PMW to the TPT dependent variable with the symbol "OUR" is 80.57% and the remaining 19.43% is influenced by other variables (interfering var or ε).

2) Model 2

The coefficient value in the dependent variable OUR or Open Unemployment Rate (TPT) is 0.5764 and the probability value is less than one percent or statistically significant. The coefficient shows that every one percent increase in unemployment in the previous year will cause an increase in TPT this year by 0.58%.

In the independent variable GER_SHS, the coefficient value of -0.0321 indicates that for every one percent increase in the number of high school APK/equivalent, there will be a decrease in TPT by 0.03%. For the LTR variable that has a coefficient value of -0.0025, it shows that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.003%. Furthermore, the value of the MYS variable coefficient of -0.0877 indicates that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.09%. For the HDI variable which has a coefficient value of 0.0248, it shows that for every one percent increase in the HDI figure, there will be an increase in TPT by 0.03%. The value of the PMW variable coefficient of 0.2730 shows that for every one percent increase in UMP, there will be an increase in TPT by 0.27%.

The R-Square value (R2) in Table 4.1 of 0.7924 shows that the contribution of independent variables, namely GER_SHS, LTR, MYS, HDI, and PMW to the TPT dependent variable with the symbol "OUR" is 79.24% and the remaining 20.76% is influenced by other variables (disruptive var or ε).

3) Model 3

The value of the variable coefficient of OUR in model 3 is 0.5610 with a probability number of less than one percent. From the value of this coefficient, it shows that any increase of one percent in unemployment in the previous year can cause an increase in the TPT rate by 0.56% this year.

In this model, the value of the coefficient of the GER_JHS variable is 0.0275, while the GER_SHS variable is -0.0356. The magnitude of this coefficient means that for every one percent increase in the number of junior high school APK/equivalent, there will be an increase in TPT by 0.03%, while for every one percent increase in the number of APKs for high school/equivalent, there will be a decrease in TPT by 0.04%. The coefficient of LTR is -0.0025 which means that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.003%. Then the variable coefficient of MYS is -0.0765 which means that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.08%. Furthermore, the HDI variable has a coefficient value of 0.0247 which means that for every one percent increase in the HDI figure, there will be an increase in TPT of 0.025%. The value of the PMW variable coefficient is 0.1153 which means that for every one percent increase in UMP, there will be an increase in TPT of 0.12%.

The R-Square (R2) value in model 3 of 0.8003 shows that the contribution of independent variables, namely GER_JHS, GER_SHS, LTR, MYS, HDI, and PMW to the TPT or OUR number is 80.03% and the remaining 19.97% is influenced by other variables (disruptive var or ε).

3. Endogeneity Test Results

Below is a table of the results of the endogeneity test conducted through the Stata 17 application.

Table 4.3 Endogeneity Test Results

Variable	*Dependent Variable*: Open Unemployment Rate (OUR)		
	Model 1	**Model 2**	**Model 3**
Prob. Durbin-Wu-Hausman Test	0.0000***	0.0000***	0.0000***
No. of Cross-section	34	34	34
No. of Observation	646	646	646

Note: Symbols * is Prob. < 10%, ** is Prob. < 5%, and *** is Prob. < 1%.

Source: Secondary data processed with Stata 17, 2024

Based on the results of Table 4.3, the results of the endogenicity test using the Durbin-Wu-Hausman Test (DWH) were shown in the four models tested. All models show a probability value of 0.0000, which is smaller than the significant limit of 5% (**), indicating the existence of endogeny problems in the variables used in each model. In other words, there is a possibility of a negligible cause-and-effect relationship between independent and dependent variables in these models, so the use of estimation methods such as Pooled OLS (Ordinary Least Squares) can provide biased results if this endogenicity problem is not addressed.

These figures indicate a large enough sample size to perform regression analyses that can provide reliable results. However, it is worth noting that despite the large sample size, the results of the DWH test show that these models need to use more complex estimates such as fixed effect models to deal with the endogenicity problem.

4. Hasil Uji Regresi Panel Generalized Method of Moment

Below is a table of the results of research data processing using regression tests using the Generalized Method of Moment method through the Stata 17 application.

Table 4.4 Estimated Test Results of the Generalized Method of Moment Panel Test

Variable	*Dependent Variable*: Open Unemployment Rate (OUR)		
	Model 1	**Model 2**	**Model 3**
OUR (-1)	0.5748***	0.4701***	0.4771***
	(0.0093)	(0.0124)	(0.0100)
GER_JHS	0.0292***		0.0349***
	(0.0027)		(0.0030)
GER_SHS		-0.0684***	-0.0665***
		(0.0047)	(0.0042)
LTR	-0.0068***	-0.0069***	-0.0029***
	(0.0010)	(0.0008)	(0.0010)
MYS	-0.3955***	-0.0392**	-0.0590**
	(0.0308)	(0.0166)	(0.0276)
HDI	0.0547***	0.0421***	0.0496***
	(0.0035)	(0.0057)	(0.0071)
PMW	-0.1520***	0.5688***	0.2660***
	(0.0420)	(0.0346)	(0.0854)
C	1.9452***	-1.9479***	-1.6250**
	(0.4761)	(0.4267)	(0.6889)
AR (1) (p-value)	0.0000	0.0000	0.0000
AR (2) (p-value)	0.3561	0.7857	0.9568
Sargan Test (p-value)	0.8590	0.8447	0.8722
No. of Cross-section	34	34	34

No. of Observation	646	646	646

Note: Symbols * is Prob. < 10%, ** is Prob. < 5%, and *** is Prob. < 1%.

Source: Secondary data processed with Stata 17, 2024

1) Model 1

The coefficient value of the dependent variable OUR or Open Unemployment Rate (TPT) is 0.5748 and the probability value is less than one percent or statistically significant. The coefficient shows that every one percent increase in unemployment in the previous year will cause an increase in TPT this year by 0.58%.

In the independent variable GER_JHS, the coefficient value of 0.0292 shows that for every one percent increase in the number of junior high school APK/equivalent, there will be an increase in TPT by 0.03%. For the LTR variable that has a coefficient value of -0.0068, it shows that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.007%. Furthermore, the value of the MYS variable coefficient of -0.2314 indicates that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.23%. For the HDI variable which has a coefficient value of 0.0547, it shows that for every one percent increase in the HDI number, there will be an increase in TPT by 0.06%. The value of the PMW variable coefficient of -0.1520 indicates that for every one percent increase in UMP, there will be a decrease in TPT by 0.15%.

The results of the Arellano Bond Test on the Sym-GMM model have a Pvalue value AR(1) < a (0.05) and a Pvalue value AR(2) < a (0.05), so that the H0 test results are rejected and H1 is accepted in accordance with the AB test requirements, namely in AR(1) has significant results, while in AR(2) has insignificant results. Thus, it can be concluded that the results of the 1 GMM model estimate in this study passed the Arellano-Bond test, which means that the estimation results are declared consistent and there is no autocorrelation. Furthermore, the results of the sargan test on the Sym-GMM model have a Pvalue value of > a (0.05), so that the H0 test results are rejected and H1 is accepted. Thus, the GMM estimation results on model 1 passed the Sargan test or the estimation results were declared valid.

2) Model 2

The value of the coefficient in the dependent variable OUR or Open Unemployment Rate (TPT) is 0.4701 with a probability value of less than one percent or statistically significant. The coefficient shows that every one percent increase in unemployment in the previous year will cause an increase in TPT this year by 0.47%.

In the independent variable GER_SHS, the coefficient value of -0.0684 indicates that every one percent increase in the number of APKs in high school/equivalent will decrease the TPT rate by 0.07%. For the LTR variable that has a coefficient value of -0.0069, it indicates that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.007%. Furthermore, the value of the MYS variable coefficient of -0.3955 indicates that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.4%. For the HDI variable which has a coefficient value of 0.0421, it shows that for every one percent increase in the HDI figure, there will be an increase in TPT of 0.04%. The value of the PMW variable coefficient of 0.5688 shows that for every one percent increase in UMP, there will be an increase in TPT by 0.57%.

The results of the Arellano Bond Test on the Sym-GMM model have a Pvalue value AR(1) < a (0.05) and a Pvalue value AR(2) < a (0.05), so that the H0 test results are rejected and H1 is accepted in accordance with the AB test requirements, namely in AR(1) has significant results, while in AR(2) has insignificant results. Thus, it can be concluded that the results of the 2 GMM model estimation in this study passed the Arellano-Bond test, which means that the estimation results are declared consistent and there is no autocorrelation. Furthermore, the results of the sargan test on the Sym-GMM model have a Pvalue value of > a (0.05), so that the H0 test results are rejected and H1 is accepted. Thus, the GMM estimation results on model 2 passed the Sargan test or the estimation results were declared valid.

3) Model 3

The value of the variable coefficient of OUR in model 3 is 0.4771 with a probability number of less than one percent. The value of the coefficient shows that any increase of one percent in unemployment in the previous year can cause an increase in the TPT rate by 0.48% this year.

In this model, the value of the coefficient of the GER_JHS variable is 0.0349, while the GER_SHS variable is -0.0665. The amount of this coefficient means that for every one percent increase in the number of junior high school APK/equivalent, there will be an increase in TPT by 0.04%, while for every one percent increase in the number of APK for high school/equivalent, there will be a decrease in TPT by 0.07%. The coefficient of LTR is -0.0029 which means that for every one percent increase in the AMH number, there will be a decrease in TPT by 0.003%. Then the variable coefficient of MYS is -0.0590 which means that for every one percent increase in the RLS number, there will be a decrease in TPT by 0.06%. Furthermore, the HDI variable has a coefficient value of 0.0496 which means that for every one percent increase in the HDI figure, there will be an increase in TPT by 0.05%. The value of the PMW variable coefficient is 0.2660 which means that for every one percent increase in UMP, there will be an increase in TPT of 0.27%.

The results of the Arellano Bond Test on the Sym-GMM model have a Pvalue value AR(1) < a (0.05) and a Pvalue value AR(2) < a (0.05), so that the H0 test results are rejected and H1 is accepted in accordance with the AB test requirements, namely in AR(1) has significant results, while in AR(2) has insignificant results. Thus, it can be concluded that the results of the estimation model 3 GMM in this study passed the Arellano-Bond test, which means that the estimation results are declared consistent and there is no autocorrelation. Furthermore, the results of the sargan test on the Sym-GMM model have a Pvalue value of > a (0.05), so that the H0 test results are rejected and H1 is accepted. Thus, the GMM estimation results on model 3 passed the Sargan test or the estimation results were declared valid.

Discussion

The following are the results of the discussion of the data that has been researched in a thesis entitled The Influence of Reasonable Programs (Compulsory Learning) on the Unemployment Rate in Indonesia.

1. The Influence of APK SMP & SMA/equivalent on TPT

Based on the estimated results of the Panel Generalized Method of Moment (GMM) test, it shows that the Gross Participation Rate (APK) of junior high school/equivalent with the symbol "GER_JHS" has a positive and significant influence on the Open Unemployment Rate (TPT) with the symbol "OUR", while the APK of high school/equivalent with the symbol "GER_SHS" has a negative and significant influence on TPT. For the coefficient value obtained GER_JHS of 0.0292 to 0.0349 which means that when there is an increase in the number of junior high school APK/equivalent by one percent, the TPT figure will also increase by 0.03 to 0.04 percent. The coefficient value obtained GER_SHS is -0.0665 to -0.0684 which means that when the high school APK/equivalent increases by one percent, it will result in a decrease in TPT by 0.07 percent. APK itself is an important indicator in measuring the level of community participation in education and also to see the success rate of the Wajar program. The higher the APK, the higher the level of community participation in education. In this case, the Junior High School APK can measure how many junior high school children attend the junior high school level, while the High School APK can measure how many high school age children attend the high school level.

The difference in the estimated results obtained between the APK of junior high school/equivalent and high school/equivalent on unemployment can show that increasing public participation in the nine-year compulsory learning program (Reasonable) or at the junior high school level/equivalent has not been able to reduce the unemployment rate in Indonesia. Meanwhile, increasing public participation in the twelve-year Fair program or at the high school level/equivalent can reduce the unemployment rate by 0.07 percent. This result is also in line with the government's efforts to increase educational participation which was previously only up to the Normal Nine-year Dikdas, to Normal twelve years through the Universal Secondary Education (PMU) program with the target of Indonesian citizens aged 16 to 18 years who want to continue to the secondary education level, and accelerate the achievement of APK of secondary education to 97% in 2020.

Although the PMU program does not yet have a strong legal umbrella like Wajar Dikdas, this program has been stated in the Strategic Plan (Renstra) of the Ministry of National Education for 2010-2014 with one goal to be achieved, namely the availability and affordability of quality, relevant and equal secondary education services in all provinces, districts and cities, as well as as an effort to prevent the large number of junior high school graduates/equivalent who do not continue their education. so that it is still not suitable for work and has the potential to increase the unemployment rate in Indonesia. Another consideration that strengthens the Government to implement this program is the Law of the Republic of Indonesia Number 13 of 2009 concerning Manpower which explains that junior high school graduates/equivalent are not yet fit to work. Therefore, if they do not continue their education to secondary school, it is assumed that they will have a more complex social impact (Subijanto, 2017).

Therefore, even though the results of the research from the APK of junior high school/equivalent are not in accordance with the hypothesis proposed, the results are still in line with Adam Smith's theory (1776) regarding the concept of human resources, as well as the analogy between humans and machines which shows that a person who has been educated with the sacrifice

of a lot of energy and time to gain knowledge and work experience, It is expected to increase agility, skills and proficiency in work so that it can produce extraordinary performance which ultimately brings higher economic value than before, so that education investment is an important factor for a country in an effort to reduce the unemployment rate.

Another theory that also supports the results of this study is Kolomiiets & Petrushenko (2017) who theoretically explain that the difference in unemployment rates between educational groups can occur because more educated people find jobs faster, while people with low education have a harder time finding jobs. Even if they get a job, the risk of being dismissed because they are unskilled and incapable of working is more frequent. Furthermore, empirically, education groups also have a great influence on job opportunities, meaning that human capital with a good level of education can reduce the occurrence of unemployment in a region.

Previous research from Mincer (in Riddle & Song, 2011) also supports that shorter duration of unemployment is felt by workers with higher education, while according to Riddle & Song (2011) found that students' chances of working after graduating from high school/equivalent are forty percent, and each increase of one school year will increase the chances of working by about 4.7 percent. In Bairagya's research (in Salama, 2017) said that in developed countries, unemployment decreases along with increasing education levels, while in developing countries, unemployment tends to increase along with increasing education levels. Another study was also conducted by Salama (2017) in Palestine in 2005-2010 which found that the highest unemployment rate was experienced by people with low levels of education, namely in 1-6 years, and 7-9 years, while low unemployment rates occurred at higher levels of education, namely 10-12 years, and 13 years of schooling or more.

The significant positive influence of the APK junior high school education indicators/equivalent on unemployment in this study is supported by the findings of Paramita (2023) in Makassar City in 2007-2022 which shows the results of the education level variable coefficient of 0.684, which means that if the education level increases by 1 unit, the number of unemployed will also increase by 0.684. Another study was shown by Fitri & Junaidi (2016) which showed that education had a positive effect on the unemployed educated in Jambi Province in 2000-2015 due to the long duration spent in education causing the opportunity to get a job longer. In addition, the research of Nisa & Sugiharti (2022) also explained that the cause of the positive influence of education on youth unemployment in ASEAN-5 in 2010-2019 is that people who have just completed their education find it difficult to access jobs because they must be able to compete with other labor forces who already have skills and experience. The results of positive findings of education on unemployment in Indonesia are also shown by Prawira (2018) in the 2011-2015 time series research data which is caused by the high criteria of companies that require the workforce to have the last education in the form of diploma or bachelor's education.

The empirical research that supports the significant negative findings of the high school APK education indicators/equivalent to unemployment in this study is shown by Rahmawati & Putri (2021) and Tantri and Ratnasari (in Rahmawati & Putri, 2021) who found that high school APK/equivalent has a negative and significant influence on TPT. Then Singh & Shastri's (2020)

research also found that educational attainment proxied by APK at the secondary education level has a negative effect on the unemployment rate both in the long term and in the short term.

From the previous theories and research that have been described, it can be concluded that the implementation of the nine-year compulsory education program presented using junior high school APK data has not been effective enough to reduce the unemployment rate, while the twelve-year compulsory education program presented using high school APK data has been effective enough to reduce the unemployment rate in Indonesia.

2. The Effect of Literacy on TPT

Based on the estimated results of the Panel Generalized Method of Moment (GMM) test, it was shown that the Literacy Rate (AMH) with the symbol "LTR" had a negative and significant influence on the Open Unemployment Rate (TPT) with the symbol "OUR" with a coefficient value of -0.0029 to -0.0069. This result can mean that when there is an increase in the AMH rate by one percent, the TPT rate will decrease by 0.003 to 0.007 percent. Likewise, when the AMH decreases by one percent, the TPT rate will increase by 0.003 to 0.007 percent.

The results of this study are in accordance with the theory of Cazes & Verick (2013) which explains that schools and universities have an important role in preparing citizens in a country to be able to live through the development of literacy and numeracy skills in order to help create jobs. According to Rizqi (2019), education level measured by literacy rates has a negative influence on unemployment. So if the literacy rate that can be measured by a country's Literacy Rate is high, then it can be said that the community also has adequate knowledge and skills. With adequate knowledge and skills, job seekers can be absorbed in job opportunities and even be able to create jobs so that the unemployment rate will decrease.

The results of this thesis research are also strengthened by the results of previous research conducted by Putri, et al. (2023) that the literacy variable has a significant influence with a value of $0.21 < 0.05$ or above 5 percent on the unemployment rate variable with a regression coefficient value of 0.95 which means that every increase in the literacy rate of 1 percent will decrease the unemployment rate by 0.9%. The results of Rizqi's (2019) research analysis also show that a decrease in the percentage of the population that cannot read and write and an increase in the literacy rate of poor people aged 15-55 years will result in a decrease in the open unemployment rate. Furthermore, the research of Tantri and Ratnasari (in Rizqi, 2019) shows that literacy also has a negative and significant influence on TPT. So it can be concluded that the assumption of an increase in AMH can reduce TPT, while a decrease in AMH can increase the number of TPT in Indonesia.

From the previous theories and research that have been described, it can be concluded that the results of this study on the AMH variable are in accordance with the hypothesis proposed or H0 is rejected and H1 is accepted, or in other words the implementation of compulsory learning programs presented using AMH data is proven to reduce the unemployment rate in Indonesia.

3. The Effect of Average School Length on TPT

Based on the estimated results of the Panel Generalized Method of Moment (GMM) test, it shows that the Average School Length (RLS) with the symbol "MYS" has a negative and significant influence on the Open Unemployment Rate (TPT) with the symbol "OUR" with a coefficient value of -0.0392 to -0.3955. This result can mean that when there is an increase in the RLS rate by one percent, the TPT rate will decrease by 0.04 to 0.40 percent. Likewise, when the RLS decreases by one percent, the TPT rate will increase by 0.04 to 0.40 percent.

The results of this study are supported by the theory of human capital which has the assumption that the number of years spent in the school system can increase a person's ability to get a job. And also in the research of Cahyaningsih (2016) who explained that compulsory learning when viewed from the perspective of economic interests is an effort to improve the quality of Human Resources (HR) which can provide higher added value to economic growth. With the average primary education continuing to grow, it is possible for them to be able to expand their horizons in creating more diversified economic activities. Then when viewed in terms of the interests of students, increasing the compulsory learning age will provide higher maturity in mastery of knowledge, thinking skills and skills. So that the more opportunities for learning up to 9 to 12 years old, the minimum age of the productive workforce can continue to be increased from 10 years to 15 years or so on.

The results of this thesis research are also strengthened by the results of previous research conducted by Johar (2023) which revealed that the average coefficient value of school duration is -1.17 and if education increases by 1 year, it can reduce the open unemployment rate by 1.17 percent (ceteris paribus). In addition, the average probability value of school age (X) of 0.02 is smaller than the alpa level value of 5 percent. This shows that the equation of average length of school (X) has a significant effect on the open unemployment rate (Y). Then the value of R square in equation I shows 0.76. It can be seen that the change in the rise and fall of the open unemployment rate is influenced by the average length of school (X) of 76.17 percent, while the remaining 23.82 percent is the influence of other variables not registered in this study. Mustakim's research (2022) also showed the same results that the average length of school in Kendari City from 2010-2021 had a negative and significant influence on the open unemployment rate.

From the theory and previous research that has been described, it can be concluded that the results of this study on the AMH variable are in accordance with the hypothesis proposed or H0 is rejected and H1 is accepted, or in other words the implementation of compulsory learning programs presented using RLS data is proven to reduce the unemployment rate in Indonesia.

4. The Effect of the Human Development Index on TPT

Based on the results of the estimation in the Panel Generalized Method of Moment (GMM) test, it shows that the Human Development Index (HDI) with the symbol "HDI" has a positive and significant influence on the Open Unemployment Rate (TPT) with the symbol "OUR" with a coefficient value of 0.0421 to 0.0547. This result can mean that when there is an increase in the HDI rate by one percent, the TPT rate will also increase by 0.04 to 0.06 percent. Likewise, vice

versa when the HDI decreases by one percent, the TPT figure will also decrease by 0.04 to 0.06 percent.

Although the results of this study are not in accordance with the theory of human capital and the theory of Todaro (2003) which says that human development has a key role in creating job opportunities and reducing the unemployment rate, the increase in HDI rates, especially from education indicators, can also be directly proportional to unemployment if the workforce with higher education tends to be more selective in choosing job offers. He even prefers to be unemployed in order to get a job that meets his expectations. This is in line with the results of research by Altindag, et al. (2022) in Turkey which showed that people with higher education have a longer frequency of unemployment and are less likely to get a job before the benefit period of their Unemployment Insurance (UI) or unemployment insurance ends.

A direct comparison between HDI and unemployment can also occur if the unemployed do not have all the skills, training, experience or geographical preferences that are in accordance with the job options offered in an economy or commonly referred to as structural unemployment. Robinson (1947) explained that the imbalance between the types of jobs available and the types of jobs offered can occur due to changes in technology, consumption patterns, and transformation of economic sectors so that mismatches or mismatches occur even though economic growth is high. Another theory was explained by Todaro (1969) regarding urban unemployment which describes the concept of increasing unemployment in the middle of cities that is more advanced both in terms of education, health, and income due to migration from villages in many developing countries but is not accompanied by the availability of jobs. The comparison of the amount of wages obtained often makes rural people interested in migrating to the city in the hope of improving their quality of life, while the available jobs in the city do not increase as quickly.

Previous research that had the same results was shown by Marliana (2022) who found that partially HDI did not have a significant effect on TPT. Also the results of research by Palindangan & Bakar (2021) that HDI has a positive and significant influence on the unemployment rate in Mimika Regency. This is because the quality of human resources in terms of education and health is getting better, thereby increasing competition between job seekers, while the number of available jobs has not increased significantly, as a result only a small number of job seekers can be absorbed in the world of work.

5. The Effect of the Provincial Minimum Wage on TPT

Based on the results of the estimation in the Panel Generalized Method of Moment (GMM) test, it shows that the Provincial Minimum Wage (UMP) with the symbol "PMW" has a significant influence on the Open Unemployment Rate (TPT) with the symbol "OUR", but with different properties between the three models used. In model 1 with a coefficient value of -0.1520, it means that the UMP has a negative and significant effect on the TPT, or in other words, if there is an increase in the UMP number by one percent, the TPT number will decrease by 0.15 percent. Meanwhile, in models 2 and 3, the value of the coefficient has a positive and significant influence

of 0.2660 to 0.5688. This means that for every increase in the UMP figure by one percent, the TPT figure will increase by 0.27 to 0.57 percent.

From these differences, each has theories and previous research that support the results of the influence of the research. Based on the theory from Kaufman & Hotckiss (1999), there is a relationship between wages and unemployment where the higher the amount of wages set by the government, the more likely it is to result in a decrease in the number of people working. Then when viewed from a different side, the effect of the minimum wage on unemployment can be negative or positive. As in terms of labor, the negative influence can be seen if the wages set in an area are too low, it will result in a low interest in labor to work so that the number of unemployed in the area is high, or if the minimum wage offered increases, it will spur individuals to look for jobs and immediately accept existing job offers so that it will reduce unemployment (Kuntiarti in Sambaulu, et al., 2022). However, a different thing is felt from the entrepreneur side, namely that increased wages can cause the costs incurred by the company to be quite high, so that entrepreneurs will take a policy of reducing labor to reduce production costs. This will result in high layoffs and the number of unemployed will increase. Because wage increases are certainly encouraging for workers but on the other hand they can be detrimental to the company.

According to Mankiw (2003), unemployment can be caused by wage rigidity due to the adjustment between the number of workers who want a job and the number of jobs available. So that the increase in wage levels will make labor supply increase and labor demand decrease, resulting in a labor surplus or unemployment. The causes of this wage rigidity include minimum wage regulations, labor unions and wage efficiency. According to Gilarso (2004), open unemployment occurs in the young generation who have just completed their education and are still trying to find a job according to the desire to work in the modern sector or in the office and with a fairly high wage. To be able to get that opportunity, this young generation is willing to wait for a long time, so it tends to increase the unemployment rate.

Previous research that supports the negative influence on Model 1 is the Sambaulu study (2022) which shows that the minimum wage has a significant negative effect on unemployment in Manado City during the period 2006-2021, and the Nuzulaili (2022) study which found that the Provincial Minimum Wage (UMP) is negatively and significantly related to unemployment on the island of Java with a coefficient of -1.01. The results of the research by Filiasari & Setiawan (2021) also found a negative and significant influence of UMP on the unemployment rate in Banten Province in 2002-2019 with a coefficient value of -0.138. In the research of Mahihody, et al., (2018) also showed a negative and significant influence on unemployment with a coefficient value of -4.8682 which means that if there is an increase in wages by one percent, it will reduce unemployment in Manado City in 2007-2016 by 4.86%. Mahihody, et al., (2018) suspect that this influence is caused by the point of increase in the wage rate which is below the equilibrium point, so that if there is an increase in wages, the unemployed will feel motivated to immediately look for a job and the number of unemployed in Manado City will decrease. Therefore, it is hoped that the government can increase training for the community as a form of improving the quality of human resources, so that the productivity and income of the company can increase.

The previous research that showed the positive influence of UMP on unemployment was revealed by Yacoub & Firdayanti (2019) with a coefficient value of 0.5609. Then the research of Aswanto & Ahmad (2022) also found a positive and significant influence between the regional minimum wage on unemployment in Riau Province in 2010-2020. In the study of Hasan & Dinar (2018), every one percent increase in the minimum wage in South Sulawesi will increase the unemployment rate by 18.06 percent. This minimum wage policy is also often used as the subject of problems that cause the real wage level to become rigid. This is because the minimum wage is a legal obligation that has legal force, so every company must comply with these rules and must not provide wages under the UMP. In addition, the minimum wage is also often used as an excuse for trade unions to prevent a decrease in wages under the UMP, as well as become a new force to demand a regular increase in the UMP through the government.

Basically all companies have the goal of maximizing profits. The company will also replace inputs that have relatively higher costs with relatively lower inputs. So that if the company's costs for labor wages continue to increase due to the provisions of the UMP, the company will try to replace it with other cheaper inputs or reduce the number of workers so that the profits obtained are maximized. The provision of an increase in the minimum wage also causes changes in the production process that was previously labor-intensive, becoming more capital-intensive and demanding for skills.

CONCLUSION

The study found that the junior high school Gross Participation Rate (APK) had a positive and significant effect on the Open Unemployment Rate (TPT), indicating that the 9-Year *Wajar* program was ineffective in reducing unemployment. In contrast, the high school APK showed a negative and significant effect, proving that the 12-Year *Wajar* program was more effective. Both Literacy Rate (AMH) and Average School Length (RLS) also had negative and significant effects, confirming that higher educational attainment contributed to lowering unemployment. However, the Human Development Index (HDI) had a surprising positive effect, with higher HDI associated with increased unemployment, while the Provincial Minimum Wage (UMP) showed mixed results, alternately having positive and negative effects depending on the model used. Future research should explore the underlying reasons why higher HDI correlates with rising unemployment and investigate regional labor market dynamics and job absorption capacity to provide more precise policy recommendations.

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