

ANALYSIS OF DETERMINANTS OF LABOUR ABSORPTION IN THE APEC-11 REGION (2010-2022)

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<p>Info Article</p> <p>Received : 10 Maret 2023</p> <p>Revised : 02 April 2023</p> <p>Accepted : 03 Mei 2023</p> <p>Publication : 30 Mei 2023</p>	<p>Abstract: <i>The labour aspect plays a vital role in national economic progress. This sector seeks to create adequate employment opportunities to absorb the new labour force. Aspects such as the quality, quantity, and accessibility of employment become crucial benchmarks of economic development. The main focus of this study is to see the relationship in the form of wages, industrial growth, FDI, inflation, and GDP to employment in the APEC-11 region. This research utilizes panel data, drawing on secondary information obtained from World Bank during the period 2010-2022. The research employs panel data analysis, specifically Fixed Effect Model which is analyzed using the Eviews10 application. The regression analysis outcome, indicate that only the industrial growth variable affects labor absorption while the wage, FDI, inflation, and GDP variables have no impacts on labor absorption. However, simultaneously all variables have a significant impact to labor absorption in the APEC-11 Region period 2010-2022.</i></p>
<p>Keywords: Labor Absorption, Wages, Industry growth, FDI Inflation, GDP, Fixed Effect Model</p> <p>Kata Kunci: Penyerapan tenaga kerja, Upah, Pertumbuhan industri, FDI Inflasi, GDP, Fixed Effect Model</p>	<p>Abstrak: Aspek ketenagakerjaan memainkan peran penting dalam kemajuan ekonomi nasional. Sektor ini berupaya menciptakan lapangan kerja yang memadai untuk menyerap angkatan kerja baru. Aspek-aspek seperti kualitas, kuantitas, dan aksesibilitas lapangan kerja menjadi tolok ukur penting dalam pembangunan ekonomi. Penelitian fokus utama berupa melihat hubungan berupa Upah, Pertumbuhan industri, FDI, inflasi, dan GDP terhadap penyerapan tenaga kerja di wilayah APEC-11. Kajian ini memakai data panel yang berasal dari World Bank selama periode tahun 2010-2022. Metode yang dipakai yakni analisis data panel menggunakan FEM yang dianalisis menggunakan aplikasi Eviews10. Berdasarkan hasil regresi diperoleh bahwa hanya variabel pertumbuhan industri berpengaruh atas penyerapan tenaga kerja sementara upah, FDI, inflasi, dan GDP tidak mempunyai efek terkait penyerapan tenaga kerja. Namun keseluruhan variabel yang digunakan secara simultan berefek signifikan atas penyerapan tenaga kerja di negara APEC-11 direntang waktu 2010-2022</p>
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INTRODUCTION

To create and expand employment opportunities for a country's population, the government and its citizens seek to optimise the use of resources. This utilization is carried out effectively, tailored to the specific needs of the country in question, to ensure optimal use. Workforce quality and quantity are vital elements in the developmental journey, playing a critical role in production processes. The synergy between quality labour and various other inputs derives significant added value. Meanwhile, the increase in labour productivity is directly proportional to the increase in economic value added (Ganie, 2017). Indonesia is an archipelago with vast territorial waters, which is an advantage for Indonesia as one of the world's fisheries producers (Khoirudin et al., 2023). Primary conditions involve several essential aspects that ensure the survival and well-being of living things (Khoirudin et al., 2023)

The labour aspect plays a vital role in national economic progress. This sector seeks to create adequate employment opportunities to absorb the new labour force. Aspects such as the quality, quantity, and accessibility of employment become crucial benchmarks of economic development, given its two main functions, namely: (1) as a wheel of production and distribution; and (2) as a target for market development. Both of these roles are catalysts for a country's sustainable economic growth (Simanjuntak et al., 2018). The process of industrialisation can create new employment opportunities, which is one of the many indicators in measuring economic development. Although it is difficult to achieve, conditions close to full employment are still being pursued. The ability to absorb labour reflects a firm's need for human resources, due to market wage levels. The accumulation of labour employed in a business sector illustrates the level of labour absorption (Salim et al., 2024). CO₂ emissions have a significant effect on economic growth (Fika et al., 2024)

By doing work, people are able to earn income to support their purchasing power. The increase in purchasing power that occurs will result in an improved community welfare (Az Zakiyyah et al., 2023). Global economic development, including Indonesia, slowed down towards the beginning of 2020 (Suripto et al., 2023). In addition, industrial sector development has the ability about drive economic growth as well as provide employment to the community. This suggests that the measure of an industry's success is determined by the performance of that industry, among others. In the economic structure, industry is primary driver that plays a crucial part in regional income improvement

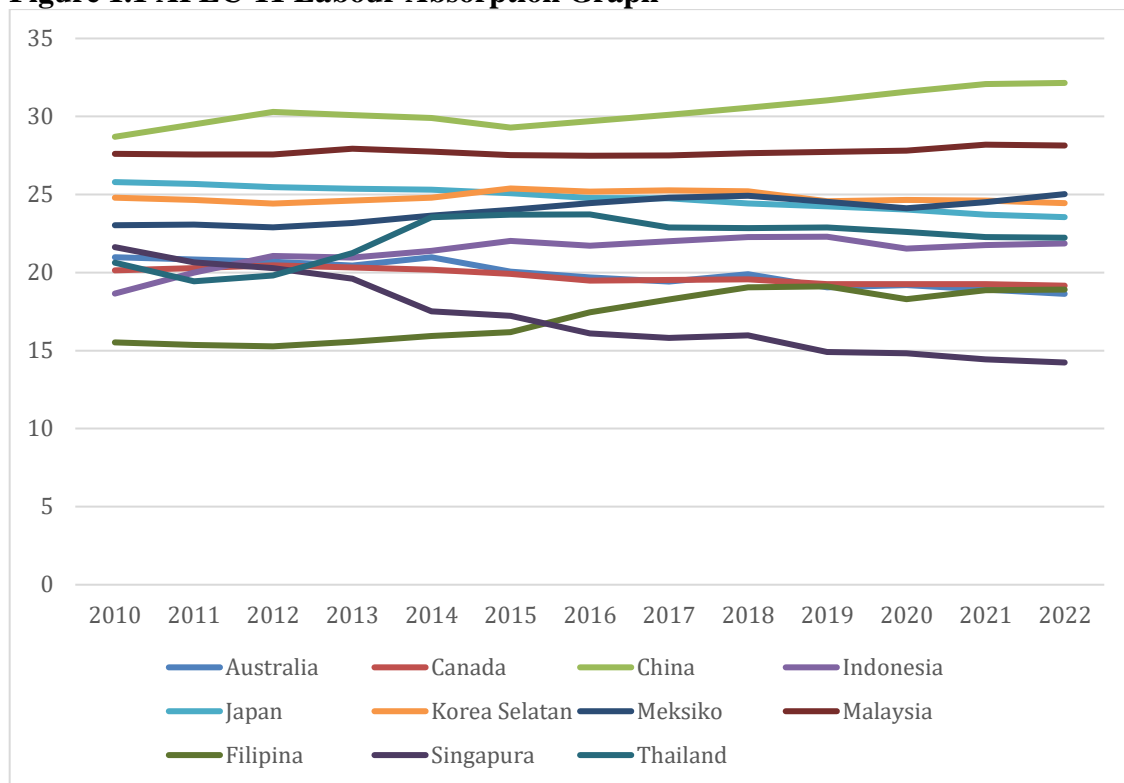
(Zenda & Suparno, 2017). The inverse “U” curve relationship between environmental degradation and economic development (Rahman et al., 2024)

This shows that the indicators of The success of the industry is determined, among other things, by the performance of the industry. While not the end goal of economic progress, industrialization serves as a key strategy for achieving sustained, robust growth rates that can elevate regional per capita income (Purnamawati & Khoirudin, 2019). Foreign direct investment (FDI) is crucial. Furthermore, the lack of a relationship between economic growth and exports or foreign direct investment (FDI) indicates that Indonesia continues to face internal economic issues such infrastructural deficiencies and labor market rigidity (Kurniawan & A’yun, 2022). In this era, most of the work in the industry is done using technology-based tools. The existence of industrial revolution 4.0 is the result of the development of science and technology that drives industrial change (Sutrisno et al., 2023). Gross Domestic Product (GDP) is the government's focus in addressing labour issues. GDP represents the added value of goods and services obtained from various production sectors of a country in defined term. An increase in GDP indicates an increase in value-added output or sales across all economic units in the country (Feriyanto, 2014). Economic growth is one of the aspects used to measure the level of development of a country or region (Nafisah & Sukarniati, 2015). New businesses or industries may be established or expanded as a result of conscious investment. In this regard, the production of goods and services must be involved, which is expected to increase the opportunities for labour to obtain employment resulting from the production of goods and services (Putra et al., 2022).

At present, many countries have been co-operating bilaterally. APEC (Asia-Pacific Economic Cooperation) is one example of economic cooperation in the Asia-Pacific region that aims to accelerate economic growth and improve regional prosperity (Kemlu RI., 2023). The Asia-Pacific region has a large population. Corresponding to United States Census Bureau, the world's three most populous countries stand out for their extraordinary number of inhabitants, namely: China, with 1,416,043,270 people, the United States, with 336,673,595 people, and Indonesia, with 281,562,465 people (United States Census., 2023). In addition to its outstanding human resources, the region accounts for about 62% of global GDP and 48% of global trade by 2021 (APEC., 2023). Although Indonesia is a large nation with thousands of islands, faculty members from outside the Java islands were included in earlier OCB research conducted in Indonesia (Fachrudin & Sholihin, 2021). The Asia-Pacific region has the potential for economic growth due to

the positive GDP growth of APEC member economies, with an average growth of 6-7% per year (APEC., 2023).

Figure 1.1 APEC-11 Labour Absorption Graph



Source: World Bank

Figure 1.1 shows that labour absorption in APEC-11 economies is based on the average percentage of job occupancy rate reflected by the number of working population from 2010 to 2022. The graph shows that labour absorption fluctuates every year. The increase or decrease in labour force absorption is due to several factors, these factors can occur in the domestic economy and global economic factors. In 2020 when the whole world experienced the covid-19 pandemic, Australia, the Philippines, Japan, and Singapore experienced a decline in the pandemic's course was significantly influenced by the economic downturn. (Arafah & Khoirudin, 2022).

Looking at references from previous research, the author tries to describe studies on labour absorption that have been carried out (Bustam, 2016) and (Ganie, 2017) Where both of them raise similar themes, but the research has various differences such as objects, variables, and the duration of the year used. Nurhasanah Bustam's research analysed Indonesia's labour absorption in 2009-2013 using multiple regression modelling. Meanwhile, Djupiansyah Ganie, with similar findings and methods, conducted research in Berau Regency, East Kalimantan. In this APEC economic

cooperation, researchers used 11 countries, namely Australia, Canada, China, Indonesia, Japan, South Korea, Mexico, Malaysia, Philippines, Singapore, and Thailand, which have the top employment rate of other APEC countries. Starting from this, researchers took the topic of labour absorption in the APEC-11 region in the period 2010 to 2022.

METHOD

The data processed at this research is secondary data by applying quantitative methods, in his methodology prioritizes empirical evidence, concentrating on concrete, quantitative information that contains numbers and is measured using statistical measuring instruments as testing calculations to get a conclusion from existing problems. In the study, a statistical data analysis application was used, namely Eviews. This study employs panel data, which integrate time-series with cross-section, focusing on 11 APEC countries in the 2010-2022 period. The research relies on secondary data collected from world bank.

$$PTK_{it} = \beta_0 + \beta_1 UPH_{it} + \beta_2 IND_{it} + \beta_3 FDI_{it} + \beta_4 INF_{it} + \beta_5 \log GDP_{it} + \epsilon_{it}$$

Notes:

PTK = Labour Absorption

β_0 = Constant Value

$\beta_1 \beta_2 \beta_3 \beta_4 \beta_5$ = Coefficient Value and Independent Variable

UPH = Wage

IND = Growth Industry

FDI = Foreign Direct Investment

INF = Inflation

GDP = Gross Domestic Product

ϵ_{it} = Standard Error of Panel Data Model

RESULT AND DISCUSSION

RESULTS

This sections retrieved the study's discovery as well as analyzes them in relation to the research objectives outlined in the introduction. Explanations can use pictures/ graphs/tables to facilitate visualization. This crucial section provides a detailed account of the data results, their analysis, and interpretation of field findings. It also explores how the research outcomes relate to relevant concepts, theories, or previous studies,

potentially leading to new theoretical insights or modifications of existing ones. Furthermore, it considers the implications for advancing scientific knowledge in the field.

Chow Test

The initial test conducted to resolve to use CEM or FEM is the Chow test with hypothesis:

H0: Common Effect Model

Ha: Fixed Effect Model

Table 1 Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	194.308606	(10,127)	0.0000
Cross-section Chi-square	399.135647	10	0.0000

Source: Processed Data 2024

The outcome of data processing with the chow test found Prob. is 0.0000 <0.05, it succeeds in rejecting H0 and accepting Ha, indicated that FEM is the most appropriate estimation model.

Hausman Test

The final test performed to pick amid FEM and also REM is Hausman test, which operates under hypothesis:

H0: Random Effect model

Ha: Fixed Effect model

Table 2 Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.223125	5	0.0011

Source: Processed Data, 2024

Analysis of data using Hausman test indicates Prob value. Cross-section random 0.0011 <0.05, it succeeds in rejecting H0 and accepting Ha, which means that the best estimation modelling conclusion by this outcome is fixed effects model (FEM). To identify the most suitable technique amidst CEM, FEM, REM approaches by using two types of tests: chow test as well as Hausman test, then FEM emerges as the best applicable method for examining the correlation among independent with dependent variables at this research

Table 3 Fixed Effect Model Result

Variable	Coefesien	T	Prob.
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Wage	0.370336	8.899481	0.0000
Growth Industry	0.086791	4.354543	0.0000
FDI	-0.335054	-7.121933	0.0000
Inflation	0.050788	1.003997	0.3173
GDP	-0.154640	-1.354341	0.1780
Constanta	3.839002	0.748078	0.4558
R-squared	0.961379		
Prob(F-statistic)	0.000000		

Source: Processed Data, 2024

Regression Equations:

$$PTK_{it} = \beta_0 + \beta_1UPH_{it} + \beta_2IND_{it} + \beta_3FDI_{it} + \beta_4INF_{it} + B5logGDP_{it} + \epsilon_{it}$$

$$PTK = 3.83900171206 + 0.370335773217 (UPH) + 0.0867905702742 (IND) - 0.335054431384 (FDI) + 0.0507879704313 (INF) - 0.154639916326 (LOGGDP)$$

Multikolinearity Test

Table 4 Multikolinearity Test Result

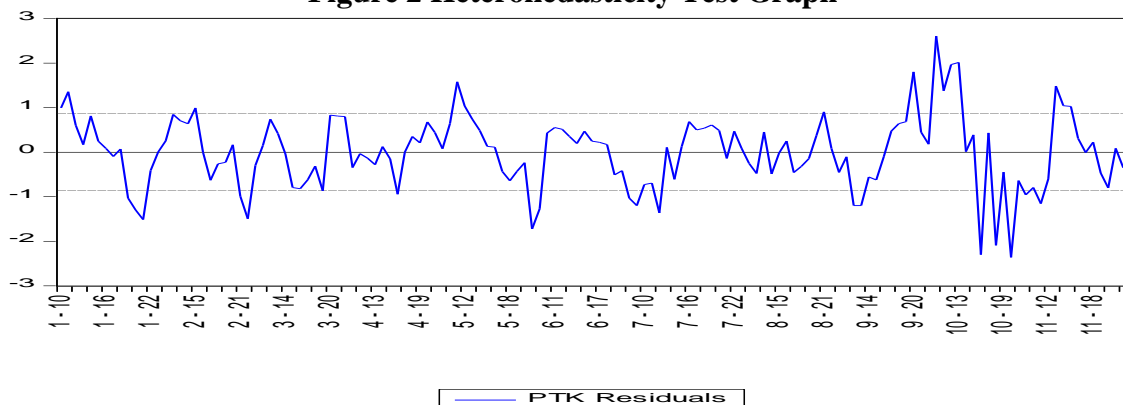
	Wage	Growth Industry	FDI	Inflation	GDP
Wage	1.0000	-0.16	0.3127	-0.3026	0.0767
Growth Industry	-0.16	1.0000	0.1747	0.2084	-0.0095
FDI	0.3127	0.1747	1.0000	-0.0331	-0.3396
Inflation	-0.3026	0.2084	-0.0331	1.0000	-0.136
GDP	0.0767	-0.0095	-0.3396	-0.136	1.0000

Source: Processed Data, 2024

The table 4 reveals the correlation between each variable: Wages, FDI Industry growth, GDP Inflation is lower than 0.85 (Napitupulu et al., 2021) interpreted that there are no symptoms of multicollinearity and passes the multicollinearity test.

Heterokedasticity Test

Figure 2 Heterokedasticity Test Graph



Source: Processed Data, 2024

Seen in Figure 2 the graph of the heteroscedasticity test results above shows that the examination is conducted to see if there are deviations from the classic hetero assumptions, which means that the regression panel analysis exhibits unequal variance in residuals. A heteroscedasticity issue exists when the graph extends beyond the +500 or -500 thresholds. If the graph stays within these limits, heteroscedasticity is not present (Napitupulu et al., 2021). And the conclusion in this test is that the residual PTK or residuals of the dependent variable are still within the 500 and -500 points, which means that in this study there are no heteroscedasticity constraints and pass the heteroscedasticity.

F-Statistic Test

The F-test acclimated analyze multiple independent variables have a significant collective impact on dependent variable. This is seen at F-statistic’s probability which is lower compare alpha 5%, this implies that all independent variables are considered to have a meaningful impact on dependent variable.

Table 5 F-Statistic Test Result

F- Statistic	210.7604
Prob (F- Statistic)	0.000000

Source: Processed Data, 2024

Hypothesis:

H0: independent variable has no significant effect on the dependent variable

Ha: independent variable has a significant effect on the dependent variable

In this study, F-statistic probability 0.0000 is lower than the 5% alpha level, leading to the rejection of H0. This indicates that the independent variables (wages, industrial growth, FDI, inflation, and GDP) generally have significant impact to dependent variable, labor absorption.

R-Squared Test

Table 6 R-Squared Test Result

R- Squared	0.961379
Adjusted R- Squared	0.956818

Source: Processed Data, 2024

R-squared is a coefficient that shows capability of independent variables used, such as: Wages, Industrial Growth, FDI, Inflation and GDP explain dependent variable, namely employment. The outcome of coefficient determination analysis found R-squared

is 0.961379, this indicates all variables of wages, industrial growth, FDI, inflation and GDP collectively account for of 96.1%. While another 3.9% of the variation is due to factors not included in the model.

Tabel 7 Fixed Effect Model Result

Variable	Coefesien	T-Count	T-Table	Prob.	Description
Wage	0.370336	8.899481	1,976931	0.0000	Significant
Growth Industry	0.086791	4.354543	1,976931	0.0000	Significant
FDI	-0.335054	-7.121933	1,976931	0.0000	Significant
Inflation	0.050788	1.003997	1,976931	0.3173	Not Significant
GDP	-0.154640	-1.354341	1,976931	0.1780	Not Significant
Constanta	3.839002	0.748078	1,976931	0.4558	
R-squared	0.961379				
Prob(F-statistic)	0.000000				

Source: Processed Data, 2024

The t-test evaluates each independent variable partially impacts dependent variable, as shown by t-statistic or probability value. The findings from data processing with FEM can be concluded that wages have a positive contribution where the coefficient is 0.37 and variable's significance is $0.000 < \alpha = 0.05$ (5%) so that wages have positive with significant impact on employment at APEC-11 countries from 2010 - 2022. In this study, industrial growth shows an effect consistent with the hypothesis, which states it has a positive impact, the t-test in this observations shows that fact industrial growth have significant results. According to the analysis of processed data, the coefficient industrial growth: 0.08, so, when industrial growth variable rise by 1%, this value will also increase the absorption of labour by 0.08% in APEC-11 countries from 2010-2022. And as for p-value of the industrial growth is 0.000, it means that the value < 0.05 or $\alpha = 5\%$, indicates the variable has a significant effect. The output analysis shows the FDI coefficient is -0.33, suggesting that when FDI increases by 1%, it means that this value also reduces 0.33% of the labour absorption in APEC-11 countries from 2010-2022. And as for the p-value of the industrial growth variable 0.000, the value is below 0.05 or $\alpha = 5\%$, demonstrating the variable's significance.

Discussion

Wages have positive-significant influence on employment in APEC-11 countries from 2010 - 2022 where when wages increase by 1% it means that this results in an increase in employment of 0.37%, and vice versa. The findings align with study by (Listri et al., 2019) which indicates a significant-positive involvement among wages and

employment in Central Java. in (Rakhmawati, A., & Boedirochminarni, 2018) where in his writing, wage variable written have positive impact on employment at Gresik Regency. More people will enter the labour force due to the role of the wage level. High wage levels also support this positive effect, as employees are involved in the distribution of labour absorption.

In the t-test results in this study, the industrial growth variable has a significant result. Because it passes the t test and this variable also passes the a priori test, the industrial growth variable has an impact on labour absorption. According to the analysis of processed data, coefficient of industrial growth worth 0.08, thus when industrial growth variable raise by 1%, this value will also increase the absorption of labour by 0.08% in APEC-11 countries from 2010-2022. The observations in this study align with existing research findings (Widyaningrum & Bintariningtyas, 2021) In Madiun, the variable that affects the level of employment is total industries which have positive effect as well as (Purwasih & Soesatyo, 2017) this study found that industrial growth in Sidoarjo Regency from 2009 to 2015 affected employment. This indicates expansion of industry positively influences employment levels. So, if industrial sector grows fast, the need and demand for labour also increases, which means that labour absorption also rises.

Based on the analysis of the processed data, FDI's coefficient is -0.33, it can be interpreted when FDI variable increases by 1%, it means that this value also reduces 0.33% of the labour absorption in APEC-11 countries from 2010-2022. In this finding, the same result was found by (Saputri & Gunawan, 2018) Investment does not have a positive impacts on labour absorption in a bug as well as medium scale processing industries in Surabaya. At this current era, capital-intensive investment tends to encourage companies to reduce production costs with technological substitution, which will reduce the number of workers employed. And in a study conducted (Steenbergen et al., 2020) it was found that FDI is also associated with total employment, this shift can drive economic restructuring by moving workers from less productive roles into more efficient sectors. These benefits are more likely to accrue to high-skilled workers, while low-skilled workers perhaps adversely affected therefore high-capability workers may be more likely than low-skilled workers.

CONCLUSION

Following the description of the conducted observations, the determined suggests, overall, five independent variables have simultaneous impact to labour absorption.

However, individually from the five factors than control labour absorption, there is only one variable that has an impact on labour absorption in the APEC-11 region. The variable is industrial growth which has a positive effect because it passes the a priori test and t-test which has a positive result on employment, but other variables, namely wages, FDI, inflation and GDP have no impact on employment in APEC-11 economies. And in fact, the independent variables, which control for the dependent variable, have different effects on employment. This is the result of the contribution of other variables in the context of the economy and country, which results in various correlations in different places and times.

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