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Examining the Associations Between Employment, Unemployment, Government Expenditure on Education, Human Capital Index, Foreign Direct Investment and Economic Growth: Experience of Malaysia and Singapore

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ABSTRACT

Reducing unemployment and achieving rapid economic growth are two major economic goals for every nation. Using annual time series data from January 1980 to December 2022, this study examines related human resource and other macroeconomic issues like employment, unemployment, human capital index, government education spending, and foreign direct investment, which are important for economic growth for both countries. The vector autoregressive (VAR) model can be successfully identified using the Akaike information criterion (AIC), and Vector Error Correction Model (VECM) has at least one cointegration link. All variables are integrated at the first difference I(1), according to the test results. Additionally, according to the Johansen Juselius co-integration test, a long-term association is found in Malaysia and Singapore. In conclusion, economic growth is significantly impacted by employment, unemployment, the human capital index, government spending on education, and foreign direct investment.

Keywords: Human Capital, Economic Growth, Macroeconomic variables, Econometrics, Malaysia

INTRODUCTION

A person's extensive amount of knowledge, abilities, experience, and talent may be utilized to build up their human capital, which is seen to be the main component of intellectual capital. Thus, investing in human capital, especially via education, is essential to creating a skilled and effective workforce that supports economic growth. As such, economic growth and employment are both crucial elements of macroeconomic variables as economic performance measures among various nations. (Rambeli, et al., 2016; Soylu et al., 2017).

Continuous increases in a nation's income or output, mostly due to better supply of goods and services, are referred to as economic growth, which is measured by Gross Domestic Product (GDP). It is impossible for a nation to survive in the outside world if its economy is weak. The economic growth of Malaysia and Singapore has been significantly impacted by a number of recessions, including the global financial crisis in 2008–2009 and more recently, the COVID-19 epidemic. In Malaysia, GDP plummeted drastically four times during the study period, in 1985, 1997, 2009, and 2020 (World Bank, 2023). Compared to its neighboring country, Singapore had been declared as an advanced country since 1990, with the average growth of 7.7

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percent, though it faced five major downturns, the 1973-1975 oil crisis, the 1985 global trade slowdown, the 1997-1998 Asian financial crisis, the 2000-2001 recession caused by the dotcom bubble and the 9-11 terrorist attack, and the 2008-2009 global economic turmoil (World Bank, 2023). Slow economic growth is often associated with high unemployment, poverty, and interest rates, which in turn lead to limited borrowing for investment activities. In contrary, increased job creation, lower unemployment, improved health, longer lifespans, higher living standards, political stability, and a decrease in poverty are all possible outcomes of robust economic expansion.

Therefore, this paper tries to examine whether employment, unemployment, government expenditure on education, human capital index, and foreign direct investment (FDI) influence the growth of two ASEAN economies, Malaysia and Singapore.

LITERATURE REVIEW

Several studies have clarified the impact of macroeconomic variables, specifically employment, unemployment, government expenditure, human capital index, and foreign direct investment on the growth of various countries' economies. Rambeli et al. (2016) suggest that Malaysia's economic growth is heavily influenced by employment and exports, whereas foreign direct investment has no effect. In addition, Hashim A. et al. (2019) reveal that real export and real Gross Domestic Product (GDP), real import and real GDP, and lastly, labor and real GDP have bidirectional relationships, except REER and real GDP, which have no causal relationship. According to Muhamad Amin & Khalid (2022), employment, foreign direct investment, and government expenditure positively impact Malaysia's economic growth. Moin and Bakar (2022) assert that more than half of total employment in Malaysia, which is 59 percent, is contributed by Small and Medium Enterprises and play a key role in economic growth. Bekhet and Latif (2018) mention that along with capital, employment, and power consumption, technical innovation and the caliber of governance institutions have all had a favorable impact on Malaysia's sustainable growth. Meanwhile, Irpan et al. (2016) state that the number of foreign workers, GDP, and foreign direct investment all have a big impact on Malaysia's unemployment rate.

Numerous studies show that investment in government expenditure in education can boost economic growth. In Malaysia, government spending on education has a positive correlation with economic growth, and education is Granger cause economic growth in the short run (Hussin et al., (2012). This is also true for other ASEAN countries. According to Alkeelani and Haryati (2017), in Indonesia, Malaysia, and Singapore, the number of high schools and higher education spending are positively correlated with economic growth. In contrary, Wong and Yusoff (2018) discover that public education spending and economic growth are inversely related in the long run from the result of ARDL Bound Testing. Meanwhile, GDP, unemployment rate, inflation rate, and working age population are crucial factors in public education spending in the short run. Senawi and Sulaiman (2020) add that Malaysia's higher government spending on the fields of health, education, transportation, and defense is positively correlated with economic growth in the long run. Taasim (2020) also discovers that the aging population and growing government spending on education have positive effects on economic growth.

The accumulation of human capital is a crucial element for economic progress. Maitra (2016) states that employment and human capital investments both boost Singapore's economy, with the former driving long-term growth following a four-year gestation lag. Despite being exogenous, economic growth has the potential to increase employment and investment possibilities in the economy (Yussof et al., 2013). According to Islam et al. (2016), human capital and education are essential for attaining sustained economic growth. The study comes to the conclusion that these parameters and economic growth are positively correlated. Malaysia has an extensive natural endowment with abundance of natural resources, as such, human capital is seen as an

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increasing source of wealth (Lange et al., 2018; Managi & Kumar, 2018). Despite significant relationship between human capital index and employment, a study done by Salleh et al. (2022) reveal that the opposite result is found between human capital index and economic growth, where both variables have no significant relationship. Aside from that, study found that many youths coming from the East Coast of Peninsular Malaysia have had difficulty in seeking their career path in the regions and require them to do side jobs (Shakur, et al., 2020). Additionally, in four ASEAN nations, unemployment and population growth have a major impact on economic growth, while inflation has no discernible effect (Febryani & Kusreni, 2017). Furthermore, Hashim E., et al. (2019) discover that there is a dual causal relationship between unemployment and economic growth in the short run.

Prior studies have proven that FDI has had a substantial impact on economic growth. According to Liu et al. (2002) findings, it appears that there is a positive long-run relationship and bidirectional causality between FDI, trade, and economic growth in China. Foreign direct investment in Singapore leads to higher economic growth and better environmental quality, however, it may widen income disparity and disrupt sustainable development goals (Ridzuan et al., 2017). Azam, et al. (2017) confirm that foreign direct investment as one of the main factors that affect economic growth in Malaysia. According to Kim et al. (2020), foreign investment plays a crucial part in economic growth along with low rates of unemployment proves Okun's law, holds in Thailand, the Philippines, and Malaysia. Gonchar and Alekseievska (2022) state that FDI significantly influences Singapore's economic development, while financial account and total debt have minimal impact on GDP growth. Notwithstanding with the majority studies, Real Gross Domestic Product (RGDP) and Real Foreign Direct Investment (RFDI) have a unidirectional causal link across all six sectors of Bangladesh, based on the findings by Ai-Jun et al. (2024) using a panel VECM approach.

METHODOLOGY

This study investigates issues regarding human resources such as employment and unemployment, as well as associated problems such as the human capital index, government spending on education, and foreign direct investment, all of which matter to economic growth using yearly time series data from 1980 until 2022.

The model specification in this study is adapted from Hashim et al. (2019). Employment (referred to as EMP), unemployment (UEMP), government spending on education (EXPEDU), human capital index (HCI), and foreign direct investment (FDI) are used to examine the effects of human resource contexts on GDP, in two distinct nations in two distinct nations, Malaysia and Singapore. The specification model is as follows:

$$GDP_t = a_0 + a_1 EMP_t + a_2 UNEMP_t + a_3 EXPEDU_t + a_4 HCI_t + a_5 FDI_t + \mu_t \qquad (1)$$

According to Equation (1), GDP_t represents the economic growth indicator using gross domestic product (GDP). EMP_t is employment, while $UNEMP_t$ is unemployment. Next is $EXPEDU_t$ means the government spending on education, HCI_t stands for human capital index, FDI_t is foreign direct investment and lastly, μ_t is the white noise error term.

RESULTS AND DISCUSSION

Multivariate cointegration approaches, as proposed by Johansen and Juselius (1990), is utilized to examine the long-term cointegration of variables because all of the variables in this study have the same degree of intensity, which is I(1). This study employ lag 4, as suggested by the AIC criteria in the previous finding. If, at a given level of significance, the statistical trace and eigenvalue statistics surpass the critical levels, the null hypothesis of no co-integration will be rejected. This indicates that the variables have long-term relationships.

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Table 1 Johansen Juselius Cointegration Test in Malaysia

Data Period (1980–2022)		Cointegration: F (GDP, EMP, UEMP, EXPEDU, HCI, FDI)					
Hypothesis		**Trace Statistics**	**Critical value (5%)**	**Critical Value (1%)**	**Max. Eigenvalue**	**Critical Value (5%)**	**Critical Value (1%)**
H_0	H_1						
r = 0	r > 0	142.6201**	94.15	103.18	43.84215**	39.37	45.10
r ≤ 1	r > 1	98.77792**	68.52	76.07	42.70710*	33.46	38.77
r ≤ 2	r > 2	56.07082**	47.21	54.46	24.41252	27.07	32.24
r ≤ 3	r > 3	31.65831*	29.68	35.65	20.22143	20.97	25.52
r ≤ 4	r > 4	11.43688	15.41	20.04	11.06130	14.07	18.63
r ≤ 5	r > 5	0.375576	3.76	6.65	0.375576	3.76	6.65

(Source: Analysis Results using Eviews 10)

According to Table 1 above, Malaysia comes out with 4 cointegrations at both 5% and 1% levels at trace test. Meanwhile, max-eigenvalue test indicates 2 cointegrations at the 5% level and only 1 cointegration at 1% level. It is found using a trace test, which accepts the null hypothesis when all variables exhibit trace statistical values that are higher than critical values, proving the significance of the trace testing.

Furthermore, at the alternative hypothesis r > 1, the trace and max-eigenvalue tests exceed the critical values at 1% significance level, which are 98.77792 > 103.18 and 42.70710 > 38.77, respectively. However, the null hypothesis r = 0 for max-eigenvalue and r ≤ 3 for trace test exceed the critical values at 5% significance level, which are 43.84215 < 45.10 and 31.65831 < 35.65, respectively.

As a result, it can be said that there exists at least 1 long-run cointegration at 99% confidence level. The system's series are moving in unison and are unable to be separated from one another. Long-term correlations between economic growth and the independent variable are evident. Thus, according to the results, Malaysia has 4 cointegrations using trace statistics meanwhile, Max-eigenvalue only shows 2 cointegrations.

Table 2 Johansen Juselius Cointegration Test in Singapore

Data Period (1980–2022)		Cointegration F (GDP, EMP, UEMP, EXPEDU, HCI, FDI)					
Hypothesis		**Trace Statistics**	**Critical value (5%)**	**Critical Value (1%)**	**Max. Eigenvalue**	**Critical Value (5%)**	**Critical Value (1%)**
H_0	H_1						
r = 0	r > 0	204.1848**	94.15	103.18	83.13352**	39.37	45.10
r ≤ 1	r > 1	121.0513**	68.52	76.07	50.92946**	33.46	38.77
r ≤ 2	r > 2	70.12186**	47.21	54.46	27.39013*	27.07	32.77
r ≤ 3	r > 3	42.73173**	29.68	35.65	22.66059*	20.97	25.52
r ≤ 4	r > 4	20.07114**	15.41	20.04	18.42401*	14.07	18.63
r ≤ 5	r > 5	1.647125	3.76	6.65	1.647125	3.76	6.65

(Source: Analysis Results using Eviews 10)

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According to Table 2, Singapore come out with 5 cointegrations at both 5% and 1% levels at trace test. Meanwhile, Max-eigenvalue test indicates 5 cointegrations at the 5% level and 3 cointegrations at 1% level. Both the trace and max-eigenvalue tests show that the alternative hypotheses of $r > 0$ and $r > 1$ exceed the critical values at 1% significance level, which are 204.1848 > 103.18, 121.0513 > 76.07 for trace tests and 83.13352 > 45.10, 50.92946 > 38.77 for max-eigenvalue tests, respectively.

Furthermore, other alternative hypotheses at trace test also exceed the critical values at 1% significance level, which are 70.12186 > 54.46, 42.73173 > 35.65 and 20.07114 > 20.04, respectively. Meanwhile, the max-eigenvalue tests exceed the critical values at 5% significance level, which are 27.39013 < 32.77, 22.66059 < 25.52 and 18.42401 < 18.63, respectively.

As a result, it can be said that there exists at least 1 long-run cointegration at 99% confidence level. The system's series are moving in unison and are unable to be separated from one another. Long-term correlations between economic growth and the independent variable are evident. Different from Malaysia, Singapore's results show 5 co-integrations at both trace and max-eigenvalue statistics.

CONCLUSION

In conclusion, employment, unemployment, the human capital index, government education spending, and foreign direct investment all have significant impacts on economic growth. We can conclude that, it can be said that there exists at least 1 long-run co-integration at 99% and 95% confidence levels for both Malaysia and Singapore. Because this research demonstrates a long-term relationship, these variables are most likely to be regarded as advantageous for encouraging industrial output and economy-related operations, which will ultimately contribute to economic growth in the nation as a whole. As a result, such aspects must be emphasized as a way for economic growth to be compatible with the growth of both the national and international economies. Therefore, the nation's economic growth from a production-based to a knowledge-based economy is a significant step toward confronting new worldwide economic era.

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