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Long Run Economic Success Factors of the "Asian Tigers"

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Abstract

The purpose of this research study was to establish long run factors responsible for the economic success of the "Asian tigers". The East Asian model of development has been debated since the 1980's. There is, therefore, a need to establish a long run relationship that explains the factors responsible for the economic success of these countries which can be emulated by developing nations through their economic policies as they strive towards progressing economically. The study used a longitudinal panel series research design and annual secondary data on Gross Domestic Product, exports, imports, age dependency ratio and population growth from 1962 to 2018. Both descriptive and inferential statistics were used to analyze data. Panel Dynamic Ordinary Least Square Method was used to test the effect of independent variables (exports, imports, age dependency ratio and population growth) on dependent variable i.e., Economic Growth. The results indicated that there's a positive relationship between (exports, imports, age dependency ratio and population growth) on dependent variable i.e. economic growth. The study recommended that; developing countries import goods and services that cannot be produced at home and those that are more costly to produce at home than to import from foreign countries, focus on boosting the export sector in terms of strengthening value addition to the exported goods and services, encourage compulsory saving policies for both private and government employees to enable them use their savings to earn a leaving during periods of retirement, work towards having productive populations in terms of promoting and supporting research and innovations, supporting talent like sports, commit themselves towards ensuring that economic policy and politics work hand in hard obtain effective results in terms of their economic success.

Keywords: Asian tigers, economic success factors

Introduction

The "Asian tigers" refers to four East Asian Nations of Hong Kong, Singapore, South Korea and Taiwan as (Bruno Marshal, 2014) explains. It is important to note that in the 1960's, these nations were part of the developing world (Severns, 2021). A number of studies have been made on the success factors of the East Asian Economies of Hong Kong, Singapore, Korea and Taiwan, most of them have identified performance in human capital, fiscal discipline, aggressive export development. Oleksiyenko & Manning, K. D. (2021). According to Fitzgerald, R. (2013). these nations were named "Asian miracles" given the fact that they kept their real Gross Domestic Product growth rates at 6% from the period 1960 to 1995, these countries' government policies ensured compulsory saving and offering of subsidies to foreign capital, emphasis on both human capital empowerment through investing in education, attaching priority to physical capital accumulation in form of buildings and machines, they also focused on the export-oriented industrialization and import substitution industrialization, Haggard, S. (2018).

Literature Review

There has been controversy on the reasons for the success of the "Asian tigers", Egea Diaz, L. (2018). ranging from inability to distinguish between actual growth rate from steady or long run growth rate and contentions on whether the economic success of the "Asian tigers" was as a result of factor accumulation or total factor productivity. Lin, J., Cader, M., & Pietronero, L. (2020). The East Asian model of development has been debated since the 1980's Toma, S. G. (2019). There is, therefore, a need to establish a long run relationship that explains the factors responsible for the economic success of these countries which can be emulated by developing nations through their economic policies as they strive towards progressing economically. The study had four research questions that included; what is the effect of exports on the Asian tiger's economic growth? What is relationship between imports and the economic growth of the "Asian tigers"? What is the influence of population growth on the economic growth of the "Asian tigers"? What is the effect of age dependence ratio on the economic growth of the "Asian tigers"? These research questions were tested using inferential and descriptive statistics to establish their significance.

The study was underpinned by the Harrod–Domar model (Harrod (1939), Domar (1946), which assumes that interest rates are given and fixed and that at full employment, saving is equal to investment in a two-sector model. Model. Hochstein, A. (2020). According to the theory, economic growth is a function of capital, labour and resources.

$Y = F(K, L, R)$ and it is upon this background that the study considered age dependency ratio, population growth, and capital accumulation which basically stands for investment in machinery and therefore exports and imports. The Harrod Domar model was also used since it is a combination of the classical economists who base on the supply side economy and Keynesian economists who focus on the demand side of the economy, Vandenberg, H. (2019). This section discusses documented evidence and similar studies conducted in regard to the economic success factors of the "Asian tigers", the research designs, findings and recommendations of those studies. This section further evaluates empirical studies in line with the research topic and identifies their gaps. The gaps of these empirical studies serve as an opportunity for investigation and hence contributions to knowledge in this particular study as economists explore the secret behind the Asian Miracle.

A study conducted on East Asian nations, Hian Teck, H. O. O. N., Hsiao, F. S., & Hsiao, M. C. W. (2020) of Korea, Taiwan, Hongkong, Singapore, Malaysia, Philippines, and Thailand, revealed that there was bidirectional causality between exports and Gross Domestic Product. The variables of the study were; Gross Domestic Product, Foreign Direct Investment and exports. The study used both time series data and panel data from 1986 to 2004 and a Vector Auto regression and Vector Error Correction tests were conducted and the study recommended that Foreign Direct Investment should be used as the major determinant of economic growth rather than exports. According to Kotrajaras, P., Tubtimtong, B., & Wiboonchutikula, P. (2011), in their study to ascertain whether financial development affects economic growth identified that there was a positive relationship between the two variables. The GMM (Gaussian Mixture Model) was used and panel data for thirteen Asian developing countries was used for the period 1990 to 1998. In a study on export performance of the Asian Miracle economies of Japan, Korea, Singapore, China, India, Taiwan, Ang, Madsen, & Robertson, (2015), panel data for the period 1953 to 2010 was used with the use of the Instrumental Variable fixed effect estimator alongside the Vector Correction Model and Fully Modified Ordinary Least Square estimator. Results revealed that export performance and productivity of these Asian Miracle Nations were highly driven by research and development as well as innovation. Rao et al, (2010), in their study entitled, "What is the long run growth rate of the "Asian tigers" used panel data from 1972 to 2006 for Hongkong, Korea, Singapore and Taiwan was used with the Gaussian Mixture Model as their estimation technique. The study revealed that the economic success of these four "Asian tigers" was a result of factor accumulation and not total factor productivity. Whereas most studies have focused on Foreign Direct Investments, export performance and productivity driven by research and innovation to be the major determinants of economic growth of the "Asian tigers", this study, however, focuses on four independent variables of exports, imports, age dependence ratio and population growth as the determining factors for the Asian miracle. Additionally, this study uses the panel Dynamic Ordinary Least Square Method different from the estimation techniques used by previous similar studies and also considers the period 1962 to 2018 to establish the outstanding factors and secret behind the economic success of "Asian tigers" up until 2018.

Methods Of Study

This section explored the sampling procedures, population and sample size determination as well as research design used for the study.

Sampling Procedures

The study used annual secondary data on world development indicators provided by World Bank from 1962 – 2018 the most recent by then and therefore 57 observations from the three countries of Singapore, Hongkong, South Korea. EViews 10 version was used to analyse data to identify long run determinants of the economic success of these East Asian nations.

Research Design

In this paper, a longitudinal panel series research design was used and a quantitative method was used, where a data set from the World Bank website to identify economic growth indicators for the three East Asian nations of Singapore, Hongkong, South Korea. The dependent variable is economic growth, and independent variables were; exports, imports, age dependence, and population growth; both descriptive and inferential statistics are used to analyze data

Results

Statistics and Data Analysis

Test for Cointegration

The group co-integration test revealed that there was co-integration or long run associations between the series since the majority probability values of the t statistic for the Augmented Dickey Fuller Test, Phillips Peron test, Panel rho and Panel v statistic within dimension and between dimensions were less than 0.05. The null hypothesis that there is no cointegration was therefore rejected and the alternative hypothesis was accepted.

Test for Normal Distribution

The probability of the Jarque Bera was 0.19 which is greater than 0.05 and therefore, the null hypothesis that there is normal hypothesis was accepted and alternative hypothesis rejected.

Correlation Analysis

The Spearman's rank correlation method was used and it was observed that there was a moderate positive correlation between economic growth (0.5943) and exports, a moderate positive correlation between imports and economic growth (0.6373), an intermediate positive correlation between population growth and economic growth (0.2984) and an intermediate positive correlation between age dependency ratio and economic growth (0.4124).

Individual Unit root test for GDP (Gross Domestic Product

GDP was stationary at level with individual intercept with probability values of the t statistic of the ADF test, PP test, Levin and Shu t* test and Im Pesaran test being 0.00 meaning the null hypothesis that there was unit root was rejected.

Unit root test for Exports

Export was stationary at level with individual intercept with probability values of the t statistic of the ADF test, PP test, Levin and Shu t* test and Im Pesaran test being 0.00 meaning the null hypothesis was rejected.

Unit root test for Population growth

Population Growth was stationary at level with individual intercept with probability values of the t statistic of the ADF test being 0.0001, PP test was 0.0001, Levin and Shu t* test was 0.0015 and Im Pesaran test being 0.00. These were all less than 0.05 meaning the null hypothesis that there was unit root was rejected.

Unit root test for age dependency ratio

Age dependence ratio was stationary at level with individual intercept since the probability values of the t statistic of the ADF Fisher Chi-square test (0.00), PP Fisher Chi-Square Test (0.0032), Levin, Lin& Chu t*

test (0.00) and Im Pesaran tests (0.00) were less than 0.05. The null hypothesis that there is unit root was rejected and the alternative hypothesis was accepted.

Regression Analysis

Table 6: Panel OLS regression equation (fixed random effect model)

Dependent Variable: GDP
Method: Panel Least Squares
Date: 02/07/20 Time: 17:16
Sample: 1962 2018
Periods included: 57
Cross-sections included: 3
Total panel (balanced) observations: 171

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.775358	0.749408	1.034627	0.3024
EXPORTS	0.099873	0.033725	2.961415	0.0035
IMPORTS	0.174750	0.030132	5.799576	0.0000
AGEDEPEND	0.042879	0.016244	2.639612	0.0091
POP_GROWTH	0.623748	0.245409	2.541664	0.0120
Effects Specification				
Cross-section fixed (dummy variables)				

R-squared	0.532104	Mean dependent var	6.895853
Adjusted R-squared	0.514985	S.D. dependent var	4.342041
S.E. of regression	3.023927	Akaike info criterion	5.091064
Sum squared resid	1499.638	Schwarz criterion	5.219670
Log likelihood	-428.2860	Hannan-Quinn criter.	5.143247
F-statistic	31.08416	Durbin-Watson stat	1.483831
Prob(F-statistic)	0.000000		

Regression equation

$$GDP = 0.7753 + 0.09X + 0.174M + 0.0429AgeDep + 0.624Popgr + U_t$$

Where; GDP is Gross Domestic Product, X: is Exports, M: is exports, Age Dep: is age dependency ratio, Popgr: is Population growth and U_t: is error term.

The R^2 value was 0.532 showing 53.2% variation in economic growth explained by the

Independent variables. The adjusted R^2 value was 0.514, explaining inflation of the R^2 value.

The probability values of the t statistic for exports, imports, age dependence ration and population growth were; 0.0035, 0.000, 0.0091 and 0.012 respectively indicating significance of the independent variables given the fact that the probability values of these values were less than 0.05. The null hypothesis that each independent variable was insignificant was rejected and the alternative hypothesis accepted.

The probability of the F Statistic was 0.000 indicating that the regression equation was valid since 0.000 is less than 0.05. The null hypothesis that the regression equation is insignificant was rejected and the alternative hypothesis was accepted.

Discussion

Exports and Economic Growth

The study had an objective of examining the effect of exports on the economic growth of the "Asian tigers" and results of the regression equation for the study revealed that a one unit increase in exports for the three East Asian nations for Singapore, Hongkong and South Korea leads to increase in their economic growth for the period 1962 to 2018. Exports generate government revenue and improve a country's balance of payment position through reducing budget deficits. This finding is in line with literature on the success factors of the Asian Tiger as Munir, K., & Shahid, F. S. U. (2020) points out that exports have a positive and significant impact on economic growth when a country has attained some level of economic development.

Imports and Economic growth

The study aimed at identifying the effect of imports on economic growth of the "Asian tigers" and the research findings for the regression equation revealed that a one unit increase in imports for the three countries of; Singapore, Hongkong and South Korea leads to increase in their economic growth by 0.174. This is evidenced by Bakari, S., & Mabrouki, M. (2017) in their study on the impact of exports and imports on economic growth where the findings reveal that imports are a source of economic growth in Panama.

Age Dependency ratio and economic growth

The study had the objective of determining the effect of the age dependency ratio for the "Asian tigers" on their economic growth. Testing the hypothesis revealed that a one-unit increase in age dependency ratio led to an increase in their economic growth by 0.0428 units. Although some studies indicate a negative relationship between age dependency ratio and economic growth, Bidisha, S. H., Abdullah, S. M., Siddiqua. (2020) that is to say; increase in working age population in relation to the nonworking age population led to an increase in the per capita Growth Domestic Product of 15 Asian countries, the findings of this study are in line with empirical literature that explains compulsory saving policies that the "Asian tigers" put in place to reduce the dependency ratio in terms of reducing pension payments to retired civil servants thus reducing government expenditure in this regard and hence reducing their budget deficits.

Population Growth and Economic Growth

The study had an objective of determining the effect of population growth for the "Asian tigers" on their economic growth. Testing the hypothesis revealed that a one unit increase in their population growth led to increase in their economic growth by 0.623 units. Peterson, E. W. F. (2017), reveals that there is no significant relationship between population growth and economic growth. The findings of this study is in line

with Ahmad, M., & Khan, R. E. A. (2019), who in their study on East Asian countries on economic growth and demographic transition observed that, added productivity on a population growth in form of health, and human capital policies can lead to economic growth. According to Abdulrasheed, A., & Aminu, B. I. (2021). A. (1997), high rates of savings and investments, improvement in education and increase in labour force led to economic growth among the "Asian tigers".

Conclusion

The study aimed at determining the factors responsible for the economic growth of the "Asian tigers" (South Korea, Hongkong and Singapore). Economic growth measured by Gross Domestic Product was conceived the dependent variable while exports, imports, age dependency ratio, and population growth were the independent variables. The research findings indicate that there is a positive effect of exports, imports, age dependency ratio, population growth on economic growth.

Recommendations to the Developing Countries

Developing countries should focus on boosting the export sector in terms of strengthening value addition to the exported goods and services. Exports generate foreign exchange and increased exports reduce on the balance of payment deficits. If government policies encourage local content requirements in terms of allowing a considerable number of nationals to be employed in domestic industries, this too generates employment opportunities to a county's nationals and helps infant industries to grow and export their global market.

Secondly, developing countries should import goods and services that are appropriate to their economies. They should only import goods and services that cannot be produced at home and those that are more costly to produce at home that to import from foreign countries.

Thirdly, governments in developing countries should encourage compulsory saving policies for both private and government employees to enable them use their savings to earn a leaving during periods of retirement. This reduces on government spending on pension and therefore reduces their government deficits.

In order for developing countries to have a positive outcome of increase in their population growth increasing their economic growth rather than leading to unemployment, their governments have to work towards having productive populations in terms of promoting and supporting research and innovations, supporting talent like sports which should be geared towards generating government revenue through exports.

Recommendation for further research

This study recommends that further research should be carried out especially in terms of factors responsible for economic development in terms of standard of living, literacy rates, access to health facilities among others for the "Asian tigers" rather than factors responsible for their economic growth (in terms of Gross Domestic Product figures alone) Further research needs to be done on the type of education systems in relation their labour market

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