

Economic Outlook and the Medium Income Trap in the Digital Era in Vietnam

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The middle-income trap is the phenomenon whereby countries find it difficult to attain high income levels after reaching middle-income levels. This is an obstacle that countries need to overcome in their socio-economic development. Since 2008, Vietnam has been struggling with its goal to shift from middle income to a high income country as Vietnam is approaching the end of the gold labor population period. This study into Vietnam's growth model and the possibility of falling into the middle-income trap aims to answer two questions: (1) Does Vietnam have a risk of falling into the middle-income trap? (2) How can Vietnam change its' economic growth model to avoid the trap? With secondary data analyses and case analyses, this study shows that Vietnam has a high risk of falling into the middle-income trap and the only way to avoid the trap is to make a robust and comprehensive change of its' economic growth model. The study analyses Vietnam's policies to provide an overview of Vietnam's long run economic growth policy and different scenarios of Vietnam's economic development by 2035. In addition, this study has examined the empirical relationship between a set of economic variables and gross national product. The findings of this study indicate that both positive and negative influences are observed from various economic indicators on the GNP of Vietnam. For the policy makers, researchers and students, this study provides significant documentary evidence for a better understanding of the relationship between the explanatory and outcome factors of the study. Additionally, this study's findings can provide a good guide for policy making and an analysis of the the economic trends in Vietnam's economy.

Key words: *Medium Income Trap; Vietnam's Economy; Economic Growth Model, GDP, GNP.*

Introduction and Background

The terms “middle income” or “middle income trap” have been regularly seen in recent national policies on economic growth, especially in East Asian countries where economic growth has become slower since the monetary crisis in 1997 (WB, 2013). The trap was not well defined in initial studies, in many case studies, mainly in the United States and developed countries, the middle-income trap was referred to as a failure to catch-up to others (Woo, 2011; Lin and Rosenblatt, 2012). In addition, other studies have claimed that the middle-income trap depends purely on delays in improving the level of per capita income of one country (Felipe et al. (2012). This concept is based on the period when one country shifts from one income level to another higher level (normally from a low to middle income level, or from a middle to high income level).

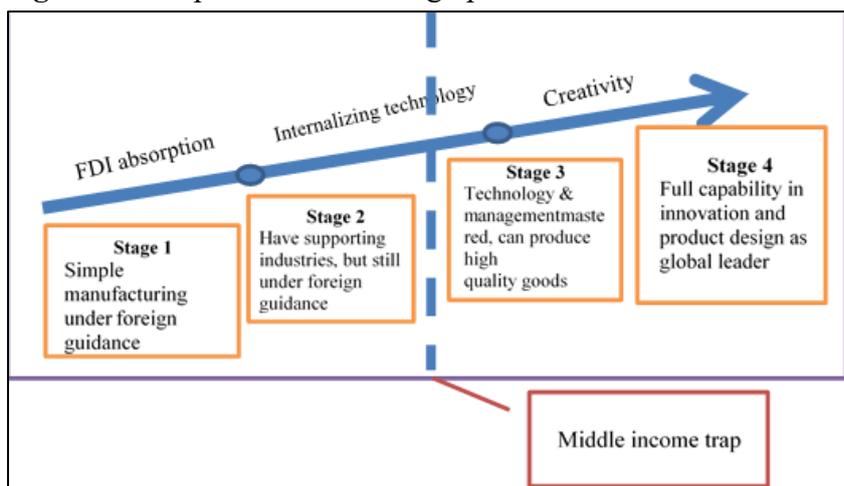
Azariadis and Drazen (1990) are pioneers in developing theories of the “middle income trap” and applying them in empirical research in developing countries. Researchers explain the causal links between the middle income trap and different national economic development models and policies, such as policies based on external aids (Agenor and Aizenman, 2010), natural resources (Antoci et al., 2011), or industrialisation (Ohno, 2009). The image of a middle-income country is familiar to most Latin American countries as most are still in the middle-income trap although they reached a middle income level in the nineteenth century. In East Asia, except for Japan, which attained high income quite early, the four Asian dragons of South Korea, Taiwan, Hong Kong, and Singapore are considered to have overcome the middle-income trap in the late twentieth century. A number of ASEAN economies such as Malaysia, Thailand, Indonesia, and the Philippines have had a middle-income level for approximately 25-30 years or even longer, they are yet to reach high income levels. In other words, they are getting stuck in the middle-income trap with a per capita income of under US\$10,000/year.

The term “middle income trap” is used to refer to the situation where a country’s growth slows after reaching middle income levels and cannot reach a high income level (World Bank, 2007). When labour wages in developing countries rise, producers assume that they cannot compete with the producers of cheaper products in the export market. Additionally, they realize that their technology is not as good as that made in developed countries. The middle income trap is the situation where a middle-income country cannot catch up to higher income countries, has delays in economic growth, and has increase labour wages while its’ product competitiveness decreases.

According to the categorization of World Bank (2012), those countries with an annual per capita income between US\$1,025 and \$12,475 are considered as being in the middle-income trap. The period of time referred to in the definition of middle-income trap can be 28 years for lower middle-income countries, or 14 years for higher middle-income countries (Felipe J., 2012). Suehiro (2014) states that the middle income trap emerges when industrialization is strengthened by cost advantages (cheap labour and capital) and these countries will fall into the trap if they sustain this economic growth model. Sharing the same view, Ohno (2006) believes that these countries are more likely to fall into the middle-income trap unless dynamic macro policies are developed to adapt to the increasing social income gaps.

Vietnam's economy has greatly developed in the past decade, which is clearly shown in its fast growth associated with poverty reduction. However, this rapid growth also reveals a number of limitations, such as: low investment efficiency, technical infrastructure irrelevance to economic development level and demand, human resources' failure to meet market demand, obstacles of legislation and administration to production and business of enterprises, and poor social security to meet social demand. Rapid growth also results in new social concerns and serious environmental pollution. The above limitations show that the quality of Vietnam's economic growth, efficiency and competitiveness is not high. Therefore, whether Vietnam is at risk of falling into the middle-income trap, and how Vietnam can attain higher economic growth to get out of the trap, become practical research questions. Figure 1 below provides the stages of the industrialization, the middle-income trap occurs between stages 2 and 3 (Ohno, 2006; 2009).

Figure 1. The process of catching up with the forerunners



Source: Ohno, 2006

Review of the Literature

There is a close relation between the middle income trap and economic growth since the middle income trap marks a period in one country's economic growth. The middle income trap is created and emerges in one country's industrialization and modernization process, which an economy is supposed to experience when they has the advantages of natural conditions, climate, geographical location and resources (Ohno, 2009). Economic growth in industrialization has four stages:

Stage 1: Massive investment of FDI inflows, domestic production in the form of processing only, simple assembly of products for foreign companies, and labour force of low knowledge level.

Stage 2: FDI investment flow is significant enough to enlarge production scale and increase the localization in the supply chain. Foreign companies expand intensive investment with higher requirements in supporting industries. This promotes development and competition among major foreign producers of supporting equipment and local suppliers. However, income and wage experience limited growth because technology and management are in foreigners' hands.

Stage 3: Industrial production develops dynamically. Most foreign-operated components are replaced with local ones, processing turns into producing high quality products which are exported to several international markets, and products become highly competitive in international markets; this stage results in higher incomes and wages.

Stage 4: The nation becomes a developed economy and possibly leads the market orientation with high income and social security, has developed education and health systems which meet the high demands of the public.

In addition, a range of other studies also provide their own theoretical and empirical contributions, these all cover the middle-income trap in various economies (Agénor, Canuto, & Jelenic, 2012; Aiyar, Duval, Puy, Wu, & Zhang, 2013; Eichengreen, Park, & Shin, 2013; Felipe, Abdon, & Kumar, 2012; Kamran et al., 2016; Kharas & Kohli, 2011; Lee, 2013; Ohno, 2009; Usman, Ali, Kamran, & Khalid, 2012; Kabir & Ahmed, 2019; Pinto Moreira, 2019; Sankaranarayanan, 2019; Suehiro, 2019). Antoci et al., (2011) examined the concept of middle income trap (MIT) by developing a conceptual framework. Firstly, they presented a literature context about the MIT and explained why various economies are trapped in such situations. Secondly, they listed the countries in such situations. It was observed that 60.2% of the countries in the sample data are classified as being in the MIT.

Jayasooriya (2017), specified that middle income trade is increasingly capturing growing economies, which then eventually face a sudden stop in the form of middle income. It is believed that economic growth significantly depends upon changes in various demographic factors, while both positive and negative relationships between exist between demographic factors and economic growth.

Other authors reviewed the idea of the MIT with a focus on: income inequality (Egawa, 2013), middle income gaps and policy options with consequences (Dhamani, 2008), growth shutdowns and middle income gaps (Eichengreen, Park, & Shin, 2013; Kamran, Arshad, & Omran, 2019), avoiding MIT and the growth of various industries (Ohno, 2009), and MIT in Latin America and other regional economies (Paus, 2019). This research is among the initial contributions to target the problems of MIT, economic growth, GNP and other economic indicators in Vietnam. This study and its' contributions will fill the gaps in the existing literature, in both a theoretical and empirical perspective. More specifically, the consideration of GNP as a significant measure of the MIT has provided a good understanding for its relationship with other macrocosmic variables in Vietnam.

Research Models of the Study

The study analyses secondary data by reviewing and comparing features of Vietnam's current economic model and typical features of the MIT, to determine if Vietnam has fallen into the trap. The data includes economic growth rate and per capita income growth in Vietnam between 1990 and 2015. In addition, the data also includes the characteristics of industrial policy and the efficiency of foreign investment in particular, and total investment in general.

The data is reliable because it was collected by the World Bank (WB) and the General Statistics Office of Vietnam (GSO) between 1990 and 2015. To understand the relationship between the GNP and various macroeconomic variables, the following equations are developed and empirically examined. Equation 1/Model 1 considers the causal relationship between GNP and the first six economic indicators, while Equation 2/Model 2 observes the relationship between GNP and the economic indicators ranging from 7-14 as explained under the description of the variables. Equation 3/Model 3 analyse the relationship between GNP and the remaining economic indicators of the study. Various sectors like financial growth, economic growth, and infrastructure are also under observation to assess their empirical relationship with GNP as observed through Equations 4-6. Sectoral impact from public sector indicators, social development, trade and urban development is observed through Equations 7-10 respectively.

$$GNP = B0 + B1(GDSLUCU) + B2(GDSPGDP) + B3(GDILCU) + B4(GSUSD) + B5(GSCLCU) + B6(GSGNI) + e$$

Equation 1

$$GNP = B0 + B1(GSGDP) + B2(GNED) + B3(GNEUSD) + B4(GNELCU) + B5(GNECLCU) + B6(GNEC 2010) + B7(GNEOFGDP) + e$$

Equation 2

$$GNP = B0 + B1(GCF \% GDP) + B2(NPLs) + B3(EDS \% GNI) + B4(GFCF) + B5(GFCPGDP) + B6(GDSS) + e$$

Equation 3

$$GNP = B0 + B1(Broad_Money) + B2(BankCap2 Asset) + B3(FDI) + B4(IR_Spread) + B5(MCLC) + B6(DCPS \% GDP) + B7(CB_Branches) + B8(OER) + B9(Real_IR) + e$$

Equation 4

$$GNP = B0 + B1(Export_G\&S) + B2(GDPCurrent \$) + B3(ImportG\&S) + B4(Industry.V.Added) + B5(EXP \% GDP) + B6(Total.D.Service) + B7(Revenue\&Grants \% GDP) + e$$

Equation 5

$$GNP = B0 + B1(INV.Transprt) + B2(EP_consumption) + B3(R.Internal.F.W.Resource) + B4(Fixed.TP.Subscription) + B5(R.Lines.Total) + B6(Fixed.BB.Subscription) + B7(Mob.Cellular.Subscription) + e$$

Equation 6

$$GNP = B0 + B1(Net.AcqFA) + B2(NetInv.of.Fin.Assets) + B3(NetInv.of.Non.Fin.Assets) + B4(Net.Lending) + B5(Total.Tax\&Contr.Rate) + B6(Tax.Revenue) + e$$

Equation 7

$$GNP = B0 + B1(L.Force.Part.Rate) + B2(Life.Expetency.at.Birth) + B3(Unemployment) + B4(chidern.in.employment) + B5(school.enrollment) + B6(Vul.employment) + e$$

Equation 8

$$\begin{aligned} GNP = & B0 + B1(\text{Energy.Imports}) + B2(\text{Fue.Exports}) + \\ & B3(\text{Int.Tourism}) + B4(\text{Mer.Trade}) + B5(\text{H.Tec.Export}) \\ & + B6(\text{Lead.time.to.export}) + e \end{aligned}$$

Equation 9

$$\begin{aligned} GNP = & B0 + B1(\text{Pop.In.Urban}) + B2(\text{U.poverty.Gap}) + \\ & B3(\text{Pop.Living.slums}) + B4(\text{U.Poverty.Headcount}) + e \end{aligned}$$

Results and Discussion

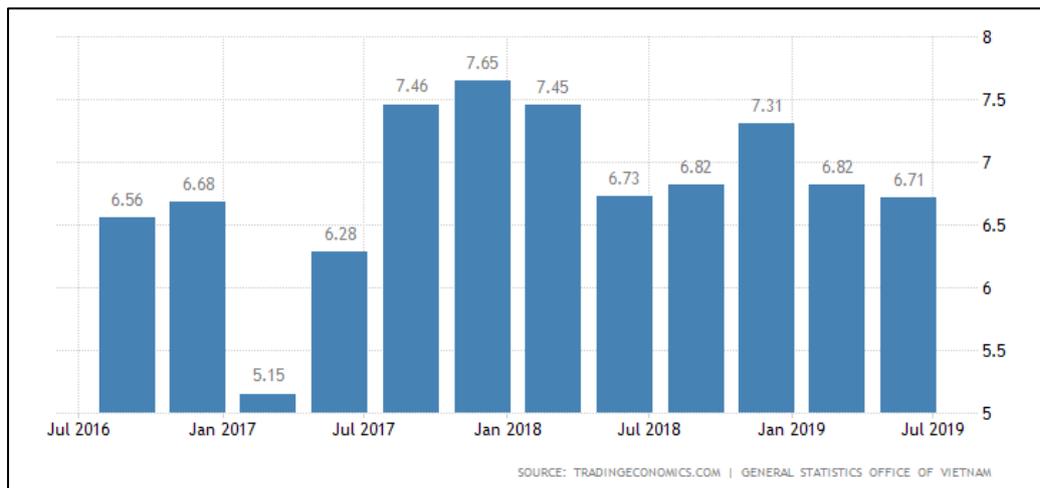
Evaluation of the current economic model of Vietnam

Vietnam's economic growth model, which has been applied since 1986, has been affirmed as an extensive economic growth model which takes advantage of the abundance of natural resources and cheap human resources (Chu Van Cap, 2015). This economic model brings about rapid increases in economic growth and per capita income but reveals a number of limitations such as, no real engine to narrow the gap between Vietnam and other developed countries, low quality of growth due to the low rate of localization for FDI investment which cannot generate strong motivation in order to improve per capita income, low wages, and a poor quality labour force. On the above, the following hypothesis was developed:

H0: Vietnam's economy has fallen into the middle-income trap

The hypothesis is proved by a review of the features of the current economy against the criteria of an economy that is considered to have fallen into the middle-income trap; such criteria are obtained from the secondary data that is taken from reliable sources. Growth based on macroeconomic stability, socio-economic and health institutions, and infrastructure, reveal limitations with the slow improvement of competitiveness.

Figure 2. Vietnam GDP growth rate



One of the most significant achievements in Vietnam's reform is maintaining its' GDP growth, which will lead to an increasing per capita income. Vietnam officially became a middle-income country in 2008 when its' per capita income reached US\$1,018. Although the average income increases, this growth is in the lower middle-income positions, with annual per capita income and economic growth of US\$ 118 and 5.1% in 1990, US\$ 639 and 8.4% in 2005, US\$ 1,074 and 5.32% in 2009, US\$ 1,910 and 5.42% in 2013, and US\$ 2,200 and 6.87 in 2015 (Tran Van Tho, 2012; World Bank 2013, 2015).

Has been significant change in Vietnam's economic structure alongside its' economic growth. Non-agriculture contribution to GDP has risen remarkably, from 61.26% in 2009, to 75.7% in 2000, 79.34% in 2009, and 81.6% in 2013. The economy's development gradually increases with the rapid growth of industry and service contributions, and a shift from an agriculture-based economy to an industry and service-based economy.

The industrial sector witnessed a significant flow of FDI in 1991-1997 and 2005-2008. In 2013-2015, the total annually registered and licensed capital was US\$22.4 billion, and the disbursed capital was US\$11.5 billion, accounting for 50% of FDI (according to GSO). FDI strongly grew in processing and manufacturing under foreign guidance. Vietnam could only contribute industrial land and labour forces in these partnership. Vietnam's supporting industries remained weak and in initial stages of development, with small scale production of simple spare parts with low value add and the development greater gaps between locally made products and global producers' quality requirements. For instance, despite its position as a spearhead industry of Vietnam, the garment and textile industry imports 70% of its materials. Though attaining an impressive growth rate in electronic industry, Vietnam is actually the world's assembly workshop for global producers, because 90% of the spare parts

used are imported (Ohno, 2006). The poor development of Vietnam's supporting industries shows that the attraction of FDI investment in Vietnam is mainly dependent on its comparative advantages of low cost land use and abundant natural resources. Production remains "raw" and is yet to be "refined" with higher added values of high-quality products. Based on Ohno's (2009) description of the catching up with the forerunner period, Vietnam is possibly in the first stage of development.

According to the WEF's report on global competitiveness, Vietnam's competitiveness has not significantly improved since 2001; it even became lower in 2008 and 2009, where it ranked 75/133 and 70/134 in 2009 and 2008 respectively. It then ranked 70/148 in 2013 and was much improved to be 56/140 in 2015. However, there remains a great gap between Vietnam and regional countries (Vietnam ranks sixth in ASEAN). In summary, based on the features of an economy and with consideration of the features of an economy in the MIT, and of the catching up with the forerunner period developed by Ohno (2006), the researchers conclude that hypothesis H0 has been disproved and state that Vietnam has yet to fall into the middle-income trap since it is still in the first stage of development.

Scenarios of economic models and possibility of falling into the middle-income trap of Vietnam

The proceedings of the eleventh Vietnam Communist Party Congress in 2011 stated "it is important to shift from extensive development to reasonably extensive and intensive development with more emphasis on its effectiveness and quality". As such, Vietnam has officially shifted to a mixed quantity and quality focused economic model. However, since Vietnam is still in the first stage of the transitional period, its' economy is significantly aligned with the quantity based economic model with signals showing a high risk of falling into the middle-income trap. In particular, the slow growth of per capita exceeds the allowable time (28 years for a lower middle-income country). Vietnam's economic growth model and the possibility of falling into the trap are summarized in Table 1.

Table 1: Vietnam's economic growth model and the possibility of falling into the middle-income trap

Scenario of economic growth model	Estimated annual growth rate	Estimated per capita income (USD based on PPP)			Possibility	Possibility of falling into MIT	Forecast sources
		2035	2040	2050			
Quantity-quality model with more emphasis on quantity (<i>maintaining current model</i>)	Current (about 5%)	8,500*	10,000*	11,000* (2059)	High	High	Authors (with signal *)
	>= 7%/year	12,000	14,000	15,000 (2059)	Low	Medium	OECD
Quantity-quality model with more emphasis on quality (<i>dynamic reform</i>)	Approximately 5%/year	15,000	18,000	22,500*	Ambitious	Low	WB
	6%/year	18,000	22,000	27,000*	Too ambitious	Very low	WB
	>= 7% year	22,000	25,000	31,500*	Hardly reached	Very low	WB

Source: WB, OECD and authors' estimates

Vietnam's labour productivity remains low. According to the GSO's annual survey on labour and employment in 2014, 81.8% are unskilled labourers, 3.7% have an intermediate training level, 2.1% are college graduates and 7.6% are university graduates (GSO, 2014). The quality of human resources in science and technology, which are a spearhead of industry in Vietnam, is low compared to regional and global levels. The proportion of investment in research and development in GDP is also low compared to regional and global levels, 2% of the state budget or 0.5% of GDP (China - 17% of GDP, Brazil - 13%, Canada - 20%, and South Korea - 37%) (OECD, 2014). Research is not closely related to innovation and labour productivity promotion. Businesses' low investment in research and development, only 50% of the state investment (OECD), places Vietnam at 98/133 in the world rankings of technological absorption (VEF, 2013).

Empirical relationship between Economy and GNP

Table 2 provides the empirical findings for analysing the relationship between the various economic factors and middle-income output through gross national product. It is observed that GNP effects Gross Domestic Saving in terms of LCU (GDSLUCU) and has a negative and significant influence. The coefficient of -0.934 implies that the higher the gross domestic saving, the more adverse the influence is on GNP and vice versa. The effect of the second economic indicator on GNP is measured at 1.684, with the standard error of 0.044. This indicates that the higher the gross domestic savings in terms of GDP, the more positive and significant impacts on GNP will be observed. This impact implies that there is a significant need to increase the value of GDSGPDP in the economy of Vietnam.

The effect of Gross domestic income (constant LCU) on GNP is -0.870, and is significant at 1 percent. This means that Gross domestic income (constant LCU) has a negative but highly significant influence on the gross national product of Vietnam. The effect of Gross savings (current US\$) on GNP is -0.812 with the standard error of 0.024. This shows that GSUSD significantly and adversely impacts on the value of GNP during the period of study. This implies that there is a significant need to analyse this adverse influence. However, through Gross savings (current LCU), the impact of GNP is found to be positively insignificant. The influence of Gross savings (% of GNI) on GNP is 1.935 with the standard error of 0.626 and t-score of 3.09. This shows that GSGNI has a highly positive and significant impact on determining the value of gross domestic product in Vietnam. It is observed that under Model 1 (Table 2), the overall R-square is 68.4%, which specifies that all the explanatory variables are causing a reasonable variation in GNP during the sample period.

Table 2: Relationship between GNP and Economic Indicators (Model 1)

GNP	Coef.	St.Err	t-value	p-value	Sig.
GDSLUCU	-0.934	0.080	-11.53	0.000	***
GDSPGDP	1.684	0.044	38.53	0.000	***
GDILCU	-0.870	0.021	-42.09	0.000	***
GSUSD	-0.812	0.024	-33.16	0.000	***
GSLUCU	0.086	0.100	0.860	0.943	
GSGNI	1.935	0.626	3.09	0.000	***
_cons	193.346	17.72	11.88	0.000	***
Mean dependent var	31.246		SD dependent var	10.133	
R-squared	0.684		Number of obs	28.000	
F-test	32.568		Prob > F	0.000	

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 3 indicates the impact of various economic indicators on GNP as observed through regression Models 7-14. The effect of Gross savings (% of GDP) or GSGDP is -0.517 with a standard error of 0.002; this impact is highly significant at 1 percent. This means that the higher the gross saving as a percentage of GDP the more adverse the influence on GNP in Vietnam. The effect of GNED on GNP is also highly significant and negative with the coefficient of -0.483. This shows that the more the Gross national expenditure deflator, the more there is a negative impact on GNP. Gross national expenditure (current US\$) has shown it has a significant and positive influence by accepting the argument that GNP will be increased with the increase in the value of GNEUSD as observed through a regression coefficient of 3.312 and standard error of 0.777.

Gross national expenditure (current LCU) or GNELCU predicted the effect of -1.671 on GNP, showing an adverse and highly significant influence. Whereas the effect of Gross national expenditure (constant LCU) is found to be negative and highly significant. Meanwhile, when the effect of Gross national expenditure (constant 2010 US\$) on GNP is observed, a coefficient of -0.008 is found, showing its' negative and significant impact at 5% chance of error. Additionally, the factor of GNEOFGDP is positively and significantly influencing on GNP, showing a direct impact.

Table 3: Relationship between GNP and Economic Indicators (Model 2)

GNP	Coef.	St.Err	t-value	p-value	Sig.
GSGDP	-0.517	0.120	-4.308	0.000	***
GNED	-0.483	0.042	-11.50	0.000	***
GNEUSD	3.219	0.777	4.15	0.001	***
GNELCU	-1.671	0.398	-4.20	0.000	***
GNECLCU	-1.540	0.382	-4.03	0.001	***
GNEC2010	-0.008	0.004	-2.12	0.047	**
GNEOFGDP	0.009	0.004	2.00	0.060	*
_cons	99.933	15.079	6.627	0.000	***
Mean dependent var	27.070		SD dependent var	9.294	
R-squared	1.000		Number of obs	28.000	
F-test	40246816.589		Prob > F	0.000	
Akaike crit. (AIC)	-206.886		Bayesian crit. (BIC)	-196.229	

*** p<0.01, ** p<0.05, * p<0.1

For regression model 3, Table 4 provides the empirical findings. The effect of gross capital formation, as a percentage of GDP, shows a positive but insignificant influence as the t-value is below the 1.96 point threshold. However, bank non-performing loan to gross advances or NPLS shows the highest influence, with a coefficient of -106.86 and a standard error of

46.361. Both of these values have provided a regression outcome in the form of t-statistical values of -2.31, significant at 5%. This means that increasing the ratio of NPLs in Vietnam has an adverse influence on the value of GNP. In addition, with the increasing value of external debt as a percentage of GNI, a coefficient of -54.63 indicates a significant and negative impact on GNP. Similarly, for the influence of GFCF or gross fixed capital formation, there is a significant and negative influence on GNP. However, the effect of gross capital formation as a percentage of GDP is negatively insignificant at 10%, showing no relationship between them. For GDSS, the effect of 0.413 provides that there is a positive but insignificant influence on GNP in Vietnam.

Table 4: Relationship between GNP and Economic Indicators (Model 3)

GNP	Coef.	St.Err	t-value	p-value	Sig.
GCF%GDP	0.073	0.335	0.22	0.830	
NPLS	-106.865	46.361	-2.31	0.031	**
EDS%GNI	-54.636	23.839	-2.29	0.032	**
GFCF	-52.794	22.730	-2.32	0.030	**
GFCPGDP	-1.056	0.726	-1.46	0.160	
GDSS	0.413	0.672	0.61	0.545	
_cons	97.083	9.683	10.03	0.000	***
Mean dependent var	27.070		SD dependent var	9.294	
R-squared	0.993		Number of obs	28.000	
F-test	1288.940		Prob > F	0.000	
Akaike crit. (AIC)	75.766		Bayesian crit. (BIC)	83.759	

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 5 provides the findings for the impact of financial sector indicators, economy and growth indicators and infrastructure structure indicators on annual value of GNP as observed through robust regression findings. It is observed that the effect of broad money under financial sector indicators is negatively insignificant. Whereas the influence from bank capital to asset ratio is highly significant and positive. This indicates that the higher the bank-capital to asset ratio in Vietnam, the more positive impacts on GNP will be observed and vice versa. Similarly, the influence of FDI on GNP is .710, significant at 1%. This shows the increasing trend of foreign investment in the local market of Vietnam has a direct impact on GNP during the sample period of the study. However, factors like interest rate spread, market capitalization of listed companies, domestic credit to private sector (DCPS%GDP), number of commercial bank branches (CB Branches), official exchange rate, and real interest rate show an insignificant influence on GNP. As per the value of robust R2, the overall variation in GNP through financial sector indicators is found to be 71.2%.

The impact of selected economy and growth factors on GNP are also presented under Table 5. It is observed that exports of goods and services, industry value added, and export as percentage of GDP, are significantly and positively impacting on GNP with the coefficients of .448, .157, and .242 respectively. Whereas, an insignificant influence is observed from the current level of GDP as measured through US dollars, total debt service, import of goods and services, and revenue and grants as percentage of GDP. Furthermore, Model 3 in Table 5 provides the impact of infrastructure indicators on the value of GNP. It is observed that electric power or EP consumption shows a negative and significant influence on GNP, meaning that the higher the consumption of EP in the country, the more there is an adverse influence on GNP and vice versa. Factors like renewable internal freshwater resources, fixed telephone subscription, and fixed broadband show and their insignificant impact on GNP. Furthermore, the impact of mobile cellular subscription on GNP is .768, showing a positive and significant impact.

Table 6 provides the findings for the impact of the public sector, social development, and trade and urban development indicators on GNP. Under Model 1 (Table 6), significant and positive impact on GNP are observed through total tax and contribution rates, with a coefficient of 2.40 and a standard error of .714. However, none of the other indicators under the title of public sector have explained their significant influence on GNP. Social development factors, like life expectancy at birth, are positively and significantly associated with GNP. However, the higher the involvement of children in the labour market, the more there is a significant and negative impact on GNP, with the coefficient of -0.00212. While the factor of school enrolment shows a direct impact on GNP (i.e. coefficient = 20.24, standard error = 10.95).

Likewise, the impact of Trade indicators in terms of international tourism show a positive and significant impact with a coefficient of 56.50 and a standard error of 11.46. This means that the higher the international tourism in Vietnam, the more increases there will be in GNP. Similarly, the impact of high technology exports on GNP is also significant and positive, providing evidence that there is a significant and positive relationship between both. However, the remaining indicators under the title of trade are found to be insignificant determinants of GNP. In terms of urban development, the influence of population living in the slums and urban poverty headcount ratio are found to be negatively significant in Vietnam. This shows that both of these issues are adversely influencing the value of GNP.

Table 5: Regression Findings for the relationship between various Sectoral Indicators and GNP

	(1)		(2)		(3)
VARIABLES	Financial Sector Indicators		Economy and Growth Indicators		Infrastructure Indicators
	GNP		GNP		GNP
Broad Money	-0.390 (0.283)	Export G&S	0.448*** (0.106)	INV. Trnsprt	0.0194 (0.113)
Bank Capital-Asset Ratio	6.38e-09*** (1.28e-09)	GDP Current \$	-1.142 (1.959)	EP Consumption	-2.07e-09*** (7.09e-10)
Foreign Direct Investment (FDI)	0.710*** (0.164)	Import G&S	0.0689 (0.0604)	R Internal F.W Resource	0.151 (0.101)
IR Spread	-0.263 (1.266)	Industry V Added	0.157*** (0.0507)	Fixed. TP. Subscriptions	-0.107 (0.175)
Market Cap. Listed Companies	-0.285 (1.066)	EXP%GDP	0.242** (0.106)	R. Lines Total	0.843** (0.348)
DCPS%GDP	0.275 (1.113)	Total D. Service	-0.0299 (0.0640)	Fixed BB Subscription	1.69e-09 (1.57e-09)
CB Branches	-0.635 (1.116)	Revenue & Grants% GDP	-0.194 (0.117)	Mob. Cellular Subscription	.768** (0.309)
Official Exchange Rate	0.423 (1.086)				
Real IR	-1.25e-09 (1.52e-09)				

Constant	24.31***		8.093		11.60
	(3.457)		(8.838)		(8.629)
Observations	29		29		29
R-squared	.712		0.669		0.933

Note: Robust standard errors in parentheses, Indicating *** p<0.01, ** p<0.05, * p<0.1

Table 6: Regression Findings for the relationship between various Sectoral Indicators and GNP

VARIABLES	(1) Public sector Indicators		(2) Social Development		(3) Trade Indicators		(4) Urban Development Indicators
	GNP		GNP		GNP		GNP
Net Acq. Fin. Assets	-484.7	L. Force part. Rate	44.61	Energy Imports	58.56	Pop. In Urban Area	16.56
	(331.0)		(27.85)		(53.68)		(62.93)
Net Inv. Of Fin. Assets %GDP	469.1	Life Expectancy at Birth	0.00100*	Fuel Exports	1.30e-05	U. Poverty Gap	-25.95
	(306.9)		(0.000561)		(7.34e-05)		(72.52)
Ne Inv. Of N-Fin. Assets %GDP	-104.6	Unemployment	-30.95	Int. Tourism	56.50***	Pop. Living in Slums	-78.01**
	(244.6)		(57.79)		(11.46)		(37.01)
Net Lending% GDP	110.2	Children in Employment	-0.00212*	Mer. Trade	-7.29e-06	U. Poverty Headcount Ratio	-67.92**
	(228.1)		(0.00119)		(7.44e-05)		(27.18)
Total Tax and Contr. Rate	2.40***	School Enrollment	20.24*	H. Tech. Export	83.53***		
	(.714)		(10.95)		(14.27)		
Tax Revenue	-236.5	Vul. Employment	3.42e-06	Lead time to	-126.3		



				export			
	(284.2)		(2.34e-06)		(125.7)		
Constant	40.98*		808.5		148.8		15.48***
	(21.49)		(523.0)		(98.29)		(2.818)
Observations	29		29		29		29
R-squared	0.301		0.704		0.567		0.543

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

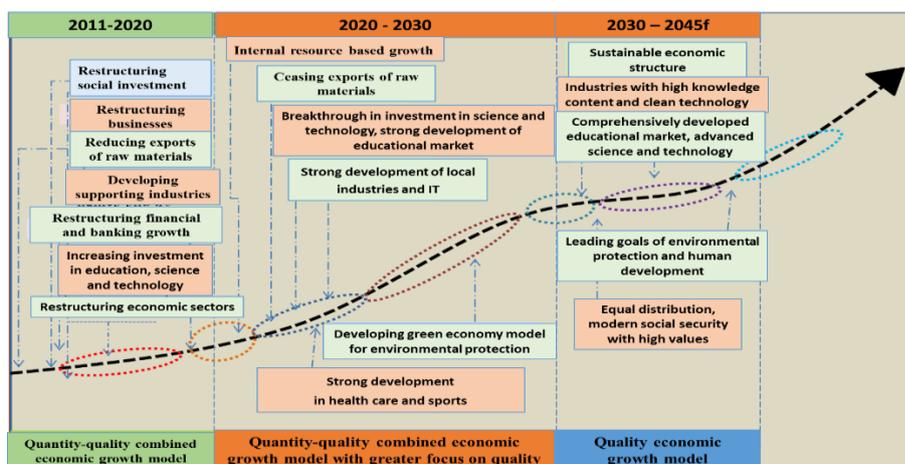
Discussions and Policy Recommendations for Vietnam

The above analysis shows that Vietnam has a high possibility of falling into the middle-income trap and that its' economic growth will significantly slowdown in the next 10-15 years without solid actions to change the economic growth model (Ohno, 2009; WB, 2016). Table 1 shows that Vietnam needs to apply quality based economic growth models, which prioritizes increased labour productivity, efficient use of resources and increased competitiveness of the economy, in order to ensure balanced economic development, environmental protection, social progression, and equality. Vietnam started to apply an investment focused economic model in 2011 (with focus on quantity) and is currently shifting to a quantity-quality economic growth model.

To get out of the trap, Vietnam should be determined to have a robust reformation of its' economic growth model, moving towards a purely quality based economic growth model. According to the researchers' proposed scenarios, in order to become a high-income economy by 2035, the economic reform should be carried out in a “sequential and progressive way that does not lead to a social shock”. Therefore, this paper presents a justification of Vietnam’s economic growth model in three phases (see Figure 3). The following three categories can provide a better understanding for the overall economic growth and quantity-quality combination.

- 2011-2020: quantity-quality combined economic growth model
- 2020-2030: quantity-quality combined economic growth model with greater focus on quality
- 2030-2045: quality economic growth model.

Figure 3. Justification of the economic growth model over the phases



Source: Authors' recommendation



Conclusion of the Study

Vietnam was a low-income country when it mainly relied on the exploitation of resources, exports of monoculture farm produce, subsistence agriculture, or foreign aid. A country is considered as falling into the middle-income trap when its' growth is slowed down or stagnates after attaining a middle-income level. To avoid the trap, Vietnam needs to develop specific goals for the country and its' businesses. It is also important to move its' economic growth model toward an advanced model. The advance model focuses on quality (structure, efficiency, competitiveness, position of one economy in the regional and international labor division system, etc.) rather than quantity (GDP growth, savings, investment, imports and exports, etc.).

Governmental policies should emphasize: Increasing quality of human resources, raising labour productivity, enhancing the influence of comprehensive productivity factors, improving capital use efficiency, economic development based on sectors and areas with added values, reducing mediating costs, being retroactive in production and exports of high technology products on the basis of making full use of the country's competitive advantages, and synchronizing exploitation and production and processing. All of these require intensive investment in resources as the fundamental factor of sustainable growth.

This study has provided an empirical understanding while examining the relationship between GNP and macroeconomic variables. It is observed that GNP is significantly associated with the set of macroeconomic variables of this study.

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