

---

**FACTORS AFFECTING VIETNAM'S PARTICIPATION IN THE  
GLOBAL VALUE CHAIN OF THE ELECTRONIC INDUSTRY**

Nguyen Thi Phan Thu  
Department of Development Economics  
University of Economics and Business, VNU Hanoi

Dong Thi Kieu Trang  
Division of Strategy and Policy Study  
Institution of Strategy and Policy for Agriculture and Rural Development

**Abstract**

The participation of Vietnam in the global electronics value chain (GEVC) is currently limited and influenced by many factors. This paper uses gravity model with panel data of 6 countries including China, Hong Kong, Japan, US, South Korea and Vietnam in the period of 2007-2017 to assess the factors affecting Vietnam's participation in the global value chain of electronics. We focus on the current status and the ability of Vietnam to participate in different stages of GEVC, analyze the factors affecting Vietnam's participation in GEVC, and then propose recommendations to help promote the development of Vietnam's electronics industry in the global value chain (GVC).

**Keywords:** electronics value chain, electronics industry, Vietnam's electronics industry

**INTRODUCTION**

The electronics industry is currently one of the key sectors in the socio-economic development of Vietnam in recent years. However, Vietnamese enterprises are just in the stages of assembling, processing and exploiting old products - stages with low added value in the global value chain of the electronics industry. The export value of electronic products in Vietnam increased rapidly but the FDI sector is still the largest contributor and the domestic enterprises account for a low proportion. In 2018, phones and components were the key export electronics products in Vietnam with an export turnover of over US \$ 49 billion, of which FDI enterprises contributed up to 99.7% to the export value (GSO, 2018). There is only 21% of Vietnamese SMEs are involved in the global supply chain (GSO, 2018). Therefore, SMEs are less likely to benefit from the spillover effects of FDI through technology transfer, knowledge and productivity enhancement. The industry of e-commerce in Vietnam is still at the lowest production stages in the GEVC, resulting in an added value of only 5 to 10% per year (GSO, 2018). The promotion of globalization, deep participation in GEVC is an opportunity for Vietnam to accelerate the integration process into the global IT industry, acquire and transfer advanced technology and techniques and shorten the gap with other countries including developed countries.

Therefore, we selected the topic "Factors affecting Vietnam's participation in the global value chain of electronics industry" to dig into the current status and the possibility of Vietnam's participation in different stages in GEVC, analyze the factors affecting Vietnam's participation in

GEVC, thereby proposing policies for the Government to develop Vietnam's electronics industry.

The paper aims to assess the factors affecting Vietnam's participation in the global value chain of electronics. To achieve that goal, the paper resolves the following research questions:

- What are the benefits of participating in the global value chain of the Vietnamese electronics industry?
- What factors affect Vietnam's participation in the global value chain of electronics?
- What current status of Vietnam in the global value chain of the electronics industry?
- How to enhance the position of Vietnam's electronics industry in the global value chain?

This paper is structured in 5 parts. The following is an overview of the literature. The next section is the research method, which gives a research model and explains the variables selected for inclusion in the regression model. After that, there is the result of the research model. The final section is the conclusion and discussion, this section provides recommendations for the Vietnamese government as well as Vietnamese enterprises in the field of electronics.

## **LITERATURE REVIEW**

### *Studies related to research issues*

Studies on global value chains have been formed and become popular in the world in many fields, especially in the field of economics. The main research direction for determining a nation's participation in GEVC is the use of input-output data. In several studies on the participation of OECD countries, the value-added at each stage of the value chain was estimated based on the analysis of the database "Value-added trade" (TiVA). Some of the main studies include: Kowalski, Gonzalez, Ragoussis, and Ugarte (2015) focused on the benefits and necessity of participating in GVC in international economic integration. Some other studies including Frederick and Lee (2017); Frederick and Gereffi (2013) analyzed countries' participation in the global value chains of electronics using the global value chain framework. An assessment of the position of countries in the global electronics value chain and the identification of opportunities for greater participation by specific methods is carried out in the research by Lu (2017) and Frederick and Gereffi (2016). Honore, Tanya, and Daria (2017), Dash and Chanda (2017), Kowalski Kowalski et al. (2015) examined the factors affecting countries' participation in global value chains. In term of measuring a nation's participation in GVC, the approach that has gained the most attention is of Hummels, Ishii, and Yi (2001) on the vertical specialization index. This index was further studied and adjusted by Koopman, Powers, Wang, and Wei (2011) and UNCTAD (2015).

In Vietnam, there have been many studies on GVC and GEVC. In particular, Anh (2009) examined the global value chains of the electronics industry. The author pointed out that the level of participation of e-businesses in the global value chain is assessed by the level of business transactions with foreign partners and the function of enterprises in GVC. Nhiều (2009) and Anh (2009) analyzed the factors affecting Vietnam's participation in GEVC. Khôi (2014); Thu

(2015); Tùng and Thanh (2007); Mitarai (2004) pointed out the participation process in the global value chain of other countries and proposed lessons for Vietnam. Thu (2015) pointed out that by taking advantage of abundant human resources, cheap prices, and low labour costs, China has achieved certain success when actively participating in GEVC. Anh (2017) studied and synthesized methods of locating Vietnamese production in GVC. In general, value chain analysis is a tool to understand how businesses and countries participate in the global economy. This approach is particularly useful for developing countries trying to enter the global market to bring about sustainable income growth.

### *Studies using gravity models*

The two main directions of studies using the gravity model are cross-country trade flows and value-added measurement in the value chain. Gravity model was used for the first time by Tinbergen (1962) in the analysis of trade flows between countries. Noguera (2012) first applied the gravity equation in the analysis of GVC. The results of the value-added gravity equation vary from country to country, determined by the size and participation of each country in the GVC. Kowalski et al. (2015) shown that structural and policy factors are the main determinants of a country's participation in GVC. Kwizera (2019) analyzed the factors affecting participation in GVC in the case of East African countries based on the approach of the gravity model.

In Vietnam, the gravity model is used to analyze the factors affecting Vietnam's export of goods to a specific regional market or major trading partners of the country. Thai (2006) analyzed the main factors affecting two-way trade: rice exports between Vietnam and 23 EU and OECD countries in the period of 1993-2004. Bac (2010) analyzed the factors affecting Vietnam's exports to the market including the 15 biggest trading partners of the country in 1986-2006. Nhã (2017) used an expanded gravity model to analyze the main factors affecting Vietnam's agricultural exports to the EU market in the period of 2005-2015. However, with our efforts, we could not find any study in terms of using the gravity model to analyze the value chain of one specific industry.

## **METHODOLOGY**

### *Model*

The gravity model is used to explain the bilateral trade relationship between the two countries when other economic theories cannot be solved. The gravity model is shown by the following formula:

$$F_{ij} = G \frac{M_i M_j}{D_{ij}^2}$$

Where:

*F<sub>ij</sub>*: gravity

*M<sub>i</sub>, M<sub>j</sub>*: the mass of objects *i* and *j* respectively

*Dij: the distance between two objects*

This paper applies the gravity model to analysis trade flows (total imports and exports) between Vietnam and 5 countries (China, USA, Korea, Hong Kong, Japan) in electronics. The dependent variable is the total import-export turnover of the electronics industry (TXNK) and 5 independent variables including GDP per capita (GDP), geographical distance (DIST), infrastructure index (INFRAS), technology index (TECH) and government burden index (BUREG).

**Model:**

$$\begin{aligned} \text{Ln (TXNK}_{ijt}) = & \beta_0 + \beta_1 \text{Ln (GDP}_{ijt}) \\ & + \beta_2 \text{Ln (DIST}_{ij}) \\ & + \beta_3 \text{Ln (INFRAS}_{ijt}) \\ & + \beta_4 \text{Ln (TECH}_{ijt}) \\ & + \beta_5 \text{Ln (BUREG}_{ijt}) + \varepsilon_{ijt} \end{aligned}$$

*Where:*

i = 1: Vietnam

j = 1,...,5: corresponding index for 5 countries

t = 2007, 2008,..., 2017

TXNK<sub>ijt</sub>: The total import-export turnover from country i to country j in year t

GDP<sub>ijt</sub>: Gross domestic product per capita of country i and j in year t

DIST<sub>ij</sub>: Distance between two countries i and j

INFRAS<sub>ijt</sub>: Infrastructure index of two countries i and j in year t

TECH<sub>ijt</sub>: Technology readiness index of two countries i and j in year t

BUREG<sub>ijt</sub>: Government burden index of two countries i and j in year t

$\beta_0 > 0$ : Constant coefficient

$\beta_i$  (i = 1,...,5): regression coefficients;

( $\beta_i > 0$  shows the positive relationship between the independent variable and the TXNK;

$\beta_i < 0$  shows the opposite relationship between the independent variable and the TXNK)

$\varepsilon_{ijt}$ : Random error of the model

Data

**Table 1. The criteria of the expanded gravity model**

Variables	Description of criteria (meaning, calculation unit)	Sources	Expectation
TXNK	Total import-export turnover of Vietnam's electronics industry. Unit: thousand USD	International Trade Centre (ITC)	
GDP (GDP capita) per	Average GDP per capita across countries, represents market size. Unit: thousand USD / person	Word Bank (WB)	+
DIST (Distance)	The average distance between Vietnam and other countries, calculated from their capitals, represents shipping costs (assuming transportation costs do not change over time). Unit: km	Centre d'Etudes Prospectives et d'Informations Internationales (CEPii)	-
INFRAS (Infrastructure)	The average index of infrastructure among countries, affecting the time and cost of production, transportation and costs in international trade transactions. Use a scale of 1 to 7 (7 is best)	Word Economic Forum (WEF)	+
TECH (Technology readiness)	The average technology readiness index among countries, is a major factor affecting electronics production and export. Use a scale of 1 to 7		+
BUREG (Burden of Government Regulation)	The average index of government policy burden among countries, affecting administrative procedures for import and export activities, reflecting the quality of government policies. Use a scale of 1 to 7		+

Notes:

(-): The positive effect

(+): The negative effect

**Table 2. Statistics describe the variables in the gravity model**

Variable	Observation	Mean	SD	Min	Max
TXNK	66	18.03023	0.9993975	15.60107	19.19925
GDP	66	9.681834	1.288642	6.803866	10.99426
DIST	66	8.457009	0.4384354	8.032304	9.388608
INFRAS	66	5.372176	1.096575	2.799779	6.774676
TECH	66	4.906275	1.095661	2.85104	6.234779
BUREG	66	3.737732	0.7655477	2.620631	5.27907

**Table 3. The correlation matrix between variables in the model**

	TXNK	GDP	DIST	INFRAS	TECH	BUREG
TXNK	1.0000					
GDP	0.3857	1.0000				
DIST	0.5142	0.5830	1.0000			
INFRAS	0.3716	0.8257	0.1579	1.0000		
TECH	0.3136	0.8733	0.2697	0.9441	1.0000	
BUREG	0.4576	0.2953	-0.0615	0.5364	0.3810	1.0000

## RESULTS

Through the test results, FEM is the most suitable model used to analyze the impact of factors on the total import-export turnover of the electronics industry in Vietnam.

**Table 4. FEM model estimation results on the impact of factors on the import and export of Vietnam's electronics industry**

Variable	Regression coefficient	P-value
<b>GDP</b>	3.302	0.000*
<b>DIST</b>	-	-
<b>INFRAS</b>	1.867	0.046**
<b>TECH</b>	1.148	0.159***
<b>BUREG</b>	5.509	0.293***
<b>Constant coefficient</b>	-168922.8	
<b>Observation</b>	66	
<b>Coefficient of determination</b>	0.6362	

Source: Authors' calculations

Note: \*  $p < 0.01$

\*\*  $p < 0.05$

\*\*\*  $p > 0.05$

The results are completely in accordance with the mention-above expectations and have the following characteristics:

- GDP per capita (GDP) has a positive effect on the total import-export turnover. This is an important element of the model because this coefficient represents both capital abundance and consumer income or in other words represents market size.
- By assumption, the distance between countries does not change over time so it does not change in FEM, so the distance is not valid.
- The infrastructure index has a positive effect on the total import-export turnover of the electronics industry. This result is entirely consistent with the reality because products of the electronics industry are scattered and easily damaged during transportation.
- Other factors of the model: technology readiness index, government burden index have no effect on the total import-export turnover of Vietnam's electronics industry because it is not statistically significant.

## CONCLUSION AND DISCUSSION

Vietnam's participation in GEVC is still weak, Vietnamese enterprises are still operating in the processing and assembling stages - the stages are at the bottom of the chain, with the lowest added value. There are two possible solutions to this problem:

*First*, Vietnam needs to shift production to stages located at the ends of the chain in order to take a position in higher value-added stages.

*Second*, Vietnam should continue to produce at stages where Vietnam has advantages in the chain but needs to upgrade both stages to achieve higher added value.

Therefore, the Vietnamese government needs to implement new policies and initiatives. The first is the Vietnamese government should propose policies to attract more FDI so that enterprises have the opportunity to learn management skills and technology transfer; do not lose opportunities for other countries. The second is to change policies towards promoting exports and liberalizing the import of intermediate products. The expansion of import and export activities is an evaluation of the openness of foreign trade of Vietnamese electronics, marking the international integration, readiness to participate and deepen into GEVC. Therefore, the government needs to have policies to promote GDP growth per capita, which has a positive impact on the total import-export turnover of electronics. At the same time, policies must be implemented to enhance transparently, clearly, and effectively. The third is the government needs to have reasonable investment policies in technology and infrastructure to help enterprises be more active and improve their competitiveness and development in the global production network. The fourth is the government needs to balance between FDI enterprises and domestic enterprises so as not to lose the majority of proportion to FDI enterprises or to give market share to foreign firms. The fifth is the government needs to develop measures to protect electricity - consumer electronics (such as defence tax, technical barriers, against commercial fraud, counterfeit goods, smuggled goods, ...). Finally, the government should focus on supporting some promising Vietnamese enterprises in the electronics field to create opportunities for them to grow and play a leading role in the domestic electronics market.

At the same time, Vietnamese enterprises participating in GEVC need a combination of both width and depth development. In terms of width, they need to strengthen the horizontal linkages in the value chain by continuing to promote outsourcing, assembling electronic products, maintaining and strengthening existing links to push export activities and promote the consumption of electronics in the domestic market, taking advantage of labour resources. Also, it is necessary to build electronic industrial hubs, concentrated information technology hubs, business incubators and hi-tech hubs to attract foreign investment. In terms of depth, product development research is the stage to create higher added value than other stages. Therefore, if promoting the research and design of new products with many features, beautiful designs and competitive prices, it will create favourable conditions for Vietnam's electronics industry to deeply participate in the GEVC. Vietnamese enterprises need to focus on in-depth investment and actively seek partners, especially developed countries in the electronics industry (ie. Korea, Japan,...). Besides, they need to identify the stages or high value-added products that they have advantages and focus on one specific area to create products with high competitiveness.

All in all, although the paper achieved research objectives, there are still limitations. Firstly, the paper only analyzes information based on secondary data sources, without any research or consultation, actual investigation of the situation of production, import and export of Vietnamese electronics enterprises. Secondly, the paper only accesses the database of import and export of electronic goods, not calculating the specific level of value-added in each stage of the value chain. Thirdly, the paper does not provide an in-depth and comprehensive analysis of the factors affecting Vietnam's participation in the GEVC.



**REFERENCES**

- Anh, Đ. T. H. 2017. Định vị nền sản xuất Việt Nam trong bản đồ chuỗi giá trị toàn cầu. Tạp chí công thương, 4-5.
- Ánh, N. H. 2009. Nghiên cứu chuỗi giá trị toàn cầu (global value chain-GVC) và khả năng tham gia của các doanh nghiệp ngành điện tử của Việt Nam. (B2007-08-22).
- Bac, N. X. 2010. The Determinants of Vietnamese Export Flows: Static and Dynamic Panel Gravity Approaches. *International Journal of Economics and Finance*, 2(4), 8.
- Dash, A., & Chanda, R. 2017. Indian firms in the electronics global value chains: sectoral analysis. Retrieved from <http://wtocentre.iift.ac.in/workingpaper/Working%20Paper%2041.pdf>
- Frederick, S., & Gereffi, G. 2013. Costa Rica in the electronics global value chain: Opportunities for upgrading. Retrieved from
- Frederick, S., & Gereffi, G. 2016. The Philippines in the electronics and electrical global value chain. Retrieved from
- Frederick, S., & Lee, J. 2017. Korea and the electronics global value chain. Retrieved from [https://gvcc.duke.edu/wp-content/uploads/Duke\\_KIET\\_Korea\\_and\\_the\\_Electronics\\_GVC\\_CH\\_3.pdf](https://gvcc.duke.edu/wp-content/uploads/Duke_KIET_Korea_and_the_Electronics_GVC_CH_3.pdf)
- GSO. 2018. Hợp báo công bố số liệu thống kê kinh tế - xã hội quý IV và năm 2018. Retrieved from <https://www.gso.gov.vn/default.aspx?tabid=621&idmid=&ItemID=19040>
- Honore, H. C., Tanya, S., & Daria, T. 2017. Vietnam at a crossroads engaging in the next generation of global value chains. Retrieved from <http://documents.worldbank.org/curated/en/808541488967692813/Vietnam-at-a-crossroads-engaging-in-the-next-generation-of-global-value-chains>
- Hummels, D., Ishii, J., & Yi, K.-M. 2001. The nature and growth of vertical specialization in world trade. *Journal of International Economics*, 54(1), 22. doi:[https://doi.org/10.1016/S0022-1996\(00\)00093-3](https://doi.org/10.1016/S0022-1996(00)00093-3)
- Khôi, N. V. 2014. Chuỗi giá trị toàn cầu của các tập đoàn xuyên quốc gia-Những tiếp cận thực tiễn từ Trung Quốc. Hà Nội: Nhà xuất bản Đại học Quốc gia Hà Nội.
- Koopman, R., Powers, W., Wang, Z., & Wei, S.-J. 2011. Give Credit Where Credit is Due: Tracing Value Added in Global Production Chains. Retrieved from
- Kowalski, P., Gonzalez, J. L., Ragoussis, A., & Ugarte, C. 2015. Participation of developing countries in global value chains: implications for trade and trade-related policies (179).
- Kwizera, P. A. 2019. The factors influencing countries to participate in global value chains evidence from East Africa community (EAC). *International Journal of Information Research and Review*, 6(1), 5.
- Lu, Y. 2017. China's electrical equipment manufacturing in the global value chain: A GVC income analysis based on World Input-Output Database (WIOD). *International Review of Economics & Finance*, 52, 13.
- Mitarai, H. 2004. Issues in the ASEAN Electric and Electronics Industry and Implications for Vietnam.
- Nhã, Đ. T. H. 2017. Các yếu tố tác động đến xuất khẩu nông sản của Việt Nam vào thị trường EU: Cách tiếp cận mô hình trọng lực. Tạp chí công thương.

- Nhiều, N. T. 2009. Chuỗi giá trị toàn cầu mặt hàng điện tử và khả năng tham gia của Việt Nam.
- Noguera, G. 2012. Trade Costs and Gravity for Gross and Value Added Trade.
- Thai, D. T. 2006. A gravity model for trade between Vietnam and twenty-three European countries. Dalarna University,
- Thu, N. H. 2015. Kinh nghiệm tham gia vào chuỗi giá trị toàn cầu của Trung Quốc và hàm ý chính sách cho Việt Nam. Tạp chí Những vấn đề Kinh tế và Chính trị Thế giới, 6, 9.
- Tinbergen, J. 1962. An Analysis of World Trade Flows.
- Tùng, T. V., & Thanh, V. Đ. 2007. Công nghiệp điện tử Đông Á trong mạng lưới sản xuất toàn cầu. Tạp chí Đông Bắc Á, 5, 12.
- UNCTAD. 2015. ASEAN Investment Report 2015: Infrastructure Investment and Connectivity. Retrieved from Switzerland: United Nations: [http://unctad.org/en/PublicationsLibrary/unctad\\_asean\\_air2015d1.pdf](http://unctad.org/en/PublicationsLibrary/unctad_asean_air2015d1.pdf)

APPENDIX

Appendix 1. Results of the FEM model

Fixed-effects (within) regression		Number of obs	=	66
Group variable: country		Number of groups	=	6
R-sq: within	= 0.6362	Obs per group: min	=	11
between	= 0.1465	avg	=	11.0
overall	= 0.1612	max	=	11
corr(u_i, Xb) = -0.7588		F(4, 56)	=	24.48
		Prob > F	=	0.0000

  

TXNK	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GDP	3.301526	.4906788	6.73	0.000	2.318579 4.284474
DIST	0	(omitted)			
INFRAS	1.861828	.9122183	2.04	0.046	.0344356 3.689221
TECH	1.148436	.8038715	1.43	0.159	-.4619116 2.758784
BUREG	5.508853	5.192789	1.06	0.293	-4.893553 15.91126
_cons	-168922.8	38959.41	-4.34	0.000	-246967.9 -90877.74

  

sigma_u	96403.291
sigma_e	13260.797
rho	.98142987 (fraction of variance due to u_i)

  

F test that all u_i=0:	F(5, 56) =	203.01	Prob > F =	0.0000
------------------------	------------	--------	------------	--------

Appendix 2. Correlation between variables in the model

```
. correlate TXNK GDP DIST INFRAS TECH BUREG
(obs=66)
```

	TXNK	GDP	DIST	INFRAS	TECH	BUREG
TXNK	1.0000					
GDP	0.3857	1.0000				
DIST	0.5142	0.5830	1.0000			
INFRAS	0.3716	0.8257	0.1579	1.0000		
TECH	0.3136	0.8733	0.2697	0.9441	1.0000	
BUREG	0.4576	0.2953	-0.0615	0.5364	0.3910	1.0000

Appendix 3. Government burden index

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	3.57	3.86	3.91	4.00	3.93	4.16	4.28	4.05	3.97	4.15	4.38
US	3.51	3.44	3.39	3.48	3.42	3.33	3.40	3.39	3.62	4.04	4.68
South Korea	4.35	3.83	2.83	2.81	2.64	2.93	3.25	3.18	3.12	2.99	3.11
Hong Kong	4.78	4.93	5.17	5.15	5.02	5.00	4.92	4.95	5.23	5.23	5.28
Japan	4.09	4.47	3.90	3.28	3.20	3.19	3.39	3.53	3.56	3.61	3.55
Vietnam	2.62	2.74	2.71	2.62	2.71	2.94	3.06	3.08	3.24	3.24	3.32

**Appendix 4. Infrastructure index**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	3.97	4.22	4.31	4.44	4.63	4.46	4.51	4.66	4.73	4.71	4.66
US	6.10	6.10	5.92	5.65	5.68	5.81	5.77	5.82	5.87	5.94	6.01
South Korea	5.55	5.63	5.60	5.59	5.94	5.92	5.85	5.74	5.82	5.96	6.08
Hong Kong	6.24	6.32	6.54	6.77	6.71	6.72	6.74	6.69	6.69	6.69	6.70
Japan	5.98	5.80	5.83	5.69	5.69	5.92	6.03	6.13	6.21	6.29	6.34
Vietnam	2.80	2.86	3.00	3.56	3.59	3.34	3.69	3.74	3.84	3.88	3.90

**Appendix 5. Technology readiness index**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	3.00	3.19	3.38	3.44	3.57	3.50	3.44	3.53	3.70	3.96	4.18
US	5.43	5.57	5.61	5.10	5.23	5.84	5.72	5.78	5.85	6.02	6.23
South Korea	5.46	5.51	5.50	5.05	5.33	5.70	5.57	5.42	5.50	5.54	5.65
Hong Kong	5.48	5.60	5.68	5.96	6.11	6.16	6.03	6.10	6.13	6.21	6.17
Japan	5.06	5.11	5.23	4.87	5.06	5.70	5.59	5.61	5.72	5.81	6.01
Vietnam	2.85	3.12	3.45	3.58	3.51	3.33	3.14	3.12	3.32	3.51	3.98

**Appendix 6. GDP bình quân đầu người**

(unit: thousand USD/capita)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	2.70	3.47	3.84	4.56	5.63	6.34	7.08	7.68	8.07	8.12	8.83
US	48.06	48.40	47.00	48.38	49.79	51.45	52.78	54.70	56.44	57.59	59.53
South Korea	23.06	20.43	18.29	22.09	24.08	24.36	25.89	27.81	27.11	27.61	29.74
Hong Kong	30.59	31.52	30.70	32.55	35.14	36.73	38.40	40.32	42.43	43.74	46.19
Japan	35.28	39.34	40.86	44.51	48.17	48.60	40.45	38.11	34.57	38.97	38.43
Vietnam	0.90	1.14	1.21	1.31	1.52	1.72	1.87	2.01	2.07	2.17	2.34