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ECONOMIC STRUCTURE'S CHANGE BASED ON THE RELATIONSHIP BETWEEN DOMESTIC FINAL DEMAND AND PRODUCTION,VALUE ADDED AND IMPORT

Abstract:
The average annual GDP growth rate of Vietnamfrom 2000 to 2006 is about 7.5% and the average annual CPI growth rate is approximately 5%. But from 2007 until now the Vietnamese government focused its macroeconomic policy on final demand components, such as boosting consumptionandinvestmentas well as providing subsidies to export sectors. The observed macroeconomic outcome of this demand-stimulus policy is that the average economic growth rate was decreased to 5.9% and the average inflation rate increased to 13%. In this paper, we use multiplier analysis to measure the relationship of final demand to output, value added and import.

JEL classification numbers: C13, C32, C52, G10
Keywords: Economic growth, final demand, export, import, input-output tables, multiplier, value added.

I. Introduction

Annual average GDP growth in the period of 2000-2006 of Vietnam is about 7.5% and the inflation is approximately 5%. Until period of 2007-2012, the policy on the economy was changed to manage final demand. In this period almost every polices is affect to final demand (gross capital formation). Such as stimulation in consumption, investment and supported policies for export. In this period, the national average growin speed decreased to 5.9% and average inflation increased to 13%. This research is based on the relationship of Keynes-Leontief to help calculate the influence of demand's element to production, and spread to income. Elements of demand, intermediate demand and final demand, these demands consist of national processed products and imported products. Indexes of GSO in many years showed that about 60% import is aimedforproduce, 30% import for saving and 10% import for household final consumption. So, to research real structure of the induced impact coefficient of final demand to value added and import, consideration in domestic final demand is needed.

In a hint of the OECD also mentioned this research and provided methods to quantify the value added, which is diffused by exports (trade in value added: Concepts, methodologies and challenges 2012). In a study by Robert Koopman and colleagues,

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(Koopman el all) while researching about China, the country with a huge amount of export. But to consider the nature of this problem, the authors also quantified the value added of exporting crude products and value added of exporting processed products.[1]

This research is aimed to quantify the effective level of elements of domestic final demand to output, import and value added bases on 2 I/O tables of Vietnam.

This research is based on the inter-sector balance table of Vietnam in 2000 and 2010 to consider the change in induced impact's structure of both periods. I/O table in 2000 represent the period of 2000-2005 and I/O table in 2010[2] represent the period of 2006-2010. 2010's I/O table is converted to 2000's price.

To support the research's purpose, 2 tables are aggregated to 15 sectors below:

1	Agriculture
2	Fishery
3	Forestry
4	**Mining**
5	**Industry of processing agricultural products**
6	**Industry of processing consumption's product**
7	**Industry of processing production's tool**
8	**Industry of manufacturing and processing machinery and equipment.**
9	**Electricity, water and gas**
10	Construction
11	Trading
12	Transportation
13	Post and telecommunication
14	Financial sectors and real estate business
15	Other service sectors

Basic relationship of Leontief is in form:

$$X = (I-A)^{-1}*Y \qquad (1)$$

[1] Robert Koopman el all " How much of Chinese exports is really made in China? Assessing Domestic value added when processing trade is pervasive" working paper Nationa Bureau of economic research, Cambridge MA 02138, June, 2008

[2] The input output table of Vietnam 2010 is at 2000/s price

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Which: X is the vector of output. A is the matrix of coefficient of intermediate input. Y is the matrix of final demand Y = (C, I, net export), with C represent final consumption. I is the vector of gross capital formation. Relationship (1) is shown as standard input-output system (competitive – import type), the input-output system is known as non-competitive – import type as below:

$$X = (I-A^d)^{-1}*Y^d \quad (2)$$

In which: A^d represents coefficient matrix of domestic mediate cost and Y^d represents domestic final demand.

From relationship (2), induced impact from domestic final demand to value added and import are indentified.

$$GVA = v* (I-A^d)^{-1}*Y^d \quad (3)$$
$$M = m* (I-A^d)^{-1}*Y^d \quad (4)$$

Which: v and m are coefficient vectors of value added and import, GVA is the vector of gross value added, M is the vector of import.
From that, to indentifyinduced impact coefficient of final demand to output, value added and import as below:

$$X*R_y^{-1} = R_x \quad (5)$$
$$GVA* R_y^{-1} = R_V \quad (6)$$
$$M* R_y^{-1} = R_M \quad (7)$$

Which: $R_y$is a diagonal matrix with elements on the diagonal is the sum of final demand's factors. For example, there are 3 elements of domestic final demand as final consumption of domestic products (C^d), saving from domestic products (I^d) and export (E), so elements on the diagonal of R one by another as: $\sum_i C^d_i$; $\sum_i I^d_i$; $\sum_i E_i$.

II. Reality research results

The calculation's result of two I/O tables 2000 and 2010 show that the induced impact levels of domestic final demand to output are much different. Gross impact of demand's

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factors such as household consumption – C, and gross capital formation spread to output, are strongly decreased (about 14.1%and 17.1%), but the induced impact level of export to production increase is quite strong, (11.7%). But there's one thing to inform that even the induced impact level of export to production increased but the induced impact level of export to value added decreased a lot (13.3%);this mean the content of value added in export is decreasing, and almost export products are crude, resource and processing, this mean export in this period is only export for other country.

The induced impact level of investment to output is strongly decreased (17.1%) but to the value added is only 5.6%. This mean the invested money (17.1%) could not get to production, if it could, the result of 2006-2011 must be higher than that of 2000-2005.

Note that in the period of 2006-2011, the induced impact level of consumption demand to output and value added decreased very strong, corresponds with 14.1% and 20.4%.

However, the induced impact level of gross capital formation and consumption's demand to import are not better than previous periods. Isn't it when aggregate demand is intervened, output and income do not increase but prices?

For export, even it get output increase approximately by 12% but value added decreased by 13.3%, and it's more important that it strongly spread to import by 52%. This defines that exporting in this period basically; export crude products, resource, processing products and it cause serious tradedeficit.In the period of 2000 until presently, Vietnamese economy is always in circumstance of high trade deficit, top time was in 2008; product's trade deficit is over 18 billion USD. With a developing economy as Vietnam, trade deficit is not really good, if not imported products serve for production demand and domestic consumption. However, in fact, imported products are mainly served for FDI region, which almost machines, tools, materials… use for manufacture are need to be imported and then exporting back. Exporting types of product like electronic; computer and its components; mobile and its components; textiles; footwear… brought assembling and processing features, low content of value added and also not much effective for the economy. This could be seen through the research of trade deficit circumstance and the growing speed of GDP in the period of 2000-2012 (appendix 03). No mater high or low trade deficit, GDP still grows well in this period. In 2012, event surplusis 284 million USD, GDP still get 5.03% which is low in the past 12 years.

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Trends in import and export of FDI are increasingly “dominating”, slowly own the share of domestic region (appendix 04 - 05). Structure of exporting products of domestic region in 2000 was 52.98%, fell to 36.95 in 2012; FDI region increase respectively from 47.02% in 2000 to 63.07% in 2012. Structure of import also changes significantly, while domestic region have to give away 24.9% market share for FDI region in the period of 2000-2012.

From the analysis of the import and export situation mentioned above, can lead to an important conclusion, which is the problem of "self-ownership restructuring" of Vietnamese economy today. Production is increasingly dependent on imports, mostly import to serve for export and finally production sector will become "overall processing" sector.

Table 1:Induced impact coefficient of final demand to production and income.

	Year 2000			**Year 2010**		
	Final consumption	**Gross capital formation**	**Export**	**Final consumption**	**Gross capital formation**	**Export**
Induced impact from final demand to production value	**1.27**	**1.35**	**1.53**	**1.09**	**1.12**	**1.70**
Percent changed				**-14.1%**	**-17.1%**	**11.7%**
Induced impact from final demand to income	**0.60**	**0.43**	**0.69**	**0.48**	**0.41**	**0.59**
Percent changed				**-20.4%**	**-5.6%**	**-13.3%**
Induced impact from final demand to import	**0.22**	**0.39**	**0.31**	**0.19**	**0.37**	**0.48**
Percent changed				**-12.1%**	**-3.9%**	**52.0%**

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From many years ago in Vietnam, the growing speed and the structure of processing and manufacturing sectors in GDP is always happiness, sadness in the achievement report, or topics for scientificproject from national to local.

In term of structure and growth: Contributions of industrial sectors in GDP increased from 29% in 2000 to 33% in 2012, average annual growth is over 1% and the growth of average value added in this sector got to7% from 2000-2012. If just looking up those numbers above, this is a proud record of the process of industrialization and modernization. But in further research, those numbers are not just a record and contain of many risks.

According to the GSO's year-book, the gross-capital-formation's rate in industrial sectors from 2000 until now has been always high, about 41% in 2000, the average rate from 2007 to present is above 45%, but ironically the rate of value added and production value in this sector has decreased.

This rate in industrial sectors (including mining and unities) was 27% accordingly to GSO's I/O table in 2000. But in recent years (by a new I/O structure), it decreased to 23%. If only for processing and manufacturing industries, the rate of value added and production value are from 20% in previous period and decreased to 17% in the current period.

This means when the value of created products is 100 units, content of value added increased only about 17 units. And this also means the effectiveness of this region is going down, gross capital formation have to be increased for low effective business. This also shows that after 10 years of industrialization, Vietnamese economy is still mainly a processing industry.

This could be clarified if considering the economy structure to reflect how important a sector is in the whole economy, asking for import through induced impact coefficient of domestic production region and importedinduced impact in the multi-sector balanced table of Vietnam (year 2000 & 2011) by the GSO below:

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Table 2: Change of economic structure through coefficient of domestic induced impact and coefficient of imported induce impact.

		Domestic induced impact in production		Induced impact in export	
		2000	**2010**	**2000**	**2010**
1	Agriculture	0.932	1.138	0.883	0.911
2	Fishery	0.903	1.396	0.986	0.971
3	Forestry	0.842	0.970	0.858	0.936
4	Mining	0.906	0.813	0.851	0.948
5	Industry of processing agricultural products	1.443	0,885	0.883	0.898
6	Industry of processing consumption's product	1.208	0.906	**1.137**	1.289
7	Industry of processing production's tool	1.148	0.948	**1.182**	1.275
8	Industry of manufacturing and processing machinery and equipment.	1.042	0.940	**1.326**	1.253
9	Electricity, water and gas	0.816	0.900	0.938	0.846
10	Construction	1.179	0.927	1.231	1.214
11	Trading	1.012	0.847	1.009	0.886
12	Transportation	0.903	0.916	1.023	1.097
13	Post and telecommunication	0.840	0.970	0.924	0.847
14	Financial sectors and real estate business	0.943	0.948	0.912	0.836
15	Other service sectors	0.957	0.896	0.922	0.931

(Author's calculation base on I/O table published by Vietnam General Statistics Office in 2007 and 2010)

For induced impact coefficient on import, the industry of processing agricultural tools even has an increasing coefficient of induced impact but it still smaller than 1 (increased from 0.883 to 0.898), other sectors like the industry of processing consumption's products, industry of processing production's tools have induced impact coefficient larger than 1 and they still do. This shows the more develop these sectors are, the higher degree of trade deficit (see as picture below), and in fact, the value of export is virtual but import is real. This is not different as export for other country's benefit. However, an irregular thing is the industry of processing agricultural tools always has high index of induced impact coefficient in the past 20 years but now it doesn't. This sector is the only one has good induced impact coefficient but it also get weak quickly.

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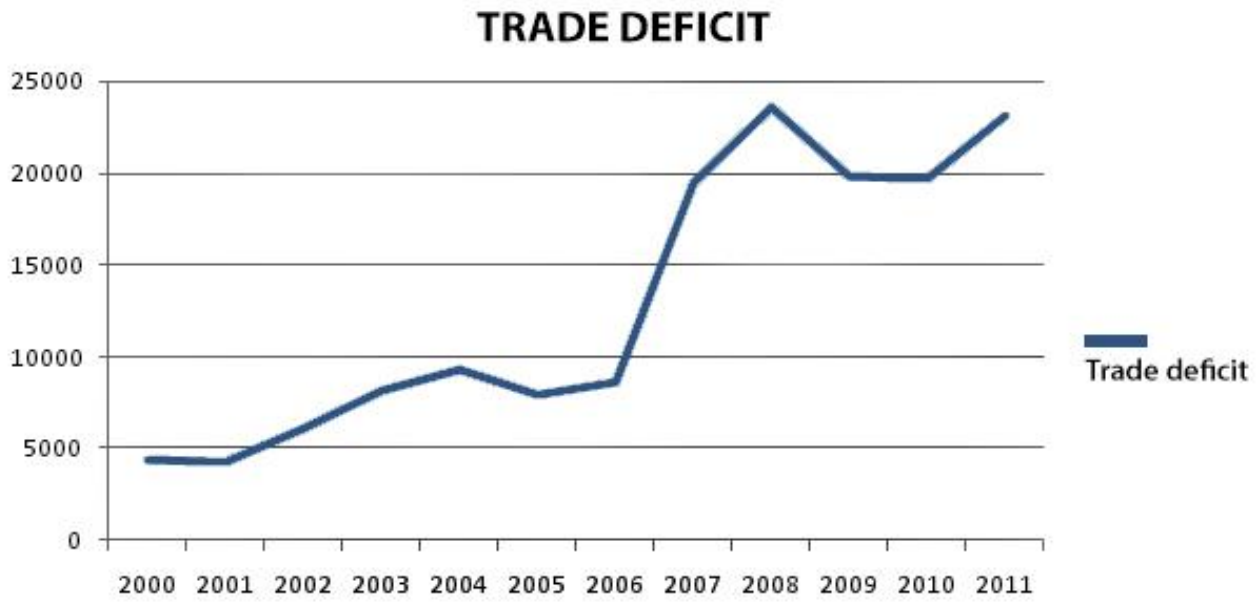

(Source: GSO)

III. Conclusion

One thing could be seen through this calculation is: the economic structure has changed. It's likely to change in direction that turn from Keynes's school (Horizontal supply line - Increasing demand only make growth in supply but not price) closer to classical school (Vertical supply line – Increasing demand only makes growth in price). It is also consistent with the trend of inflation in recent years. An opportunity to explain this is the development of domestic indexes (increasing employment, increasing resource extraction) is about saturation. The policy's meaning of this is promoted policies should focus in technology and efficiency but not production's expansion which using raw materials and labors as before.

For years ago, policy makers and experts of Vietnam usually appreciate economic structure in priority order of industrial sector, service sector, and at last is agricultural sector. The results of our study showed that the structure seems to be a mistake; for industry of processing and manufacturing (manufacturing group),it couldn't created many value added but just cause of trade deficit.

Policy of managing final demand of Vietnam in period of 2007-2012 does not seem reasonable. The intervention on final demand may seem to make prices and trade deficit rising.

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Overall use of priority policy in export may only cause low content of value added and stimulating strongly in import.

Calculation results in combination with other research[3] indicating there are two basic elements to improve the situation (1) improve production efficiency and labor productivity (2) structure in priority order should be service, agriculture, manufacturing and mining finally.

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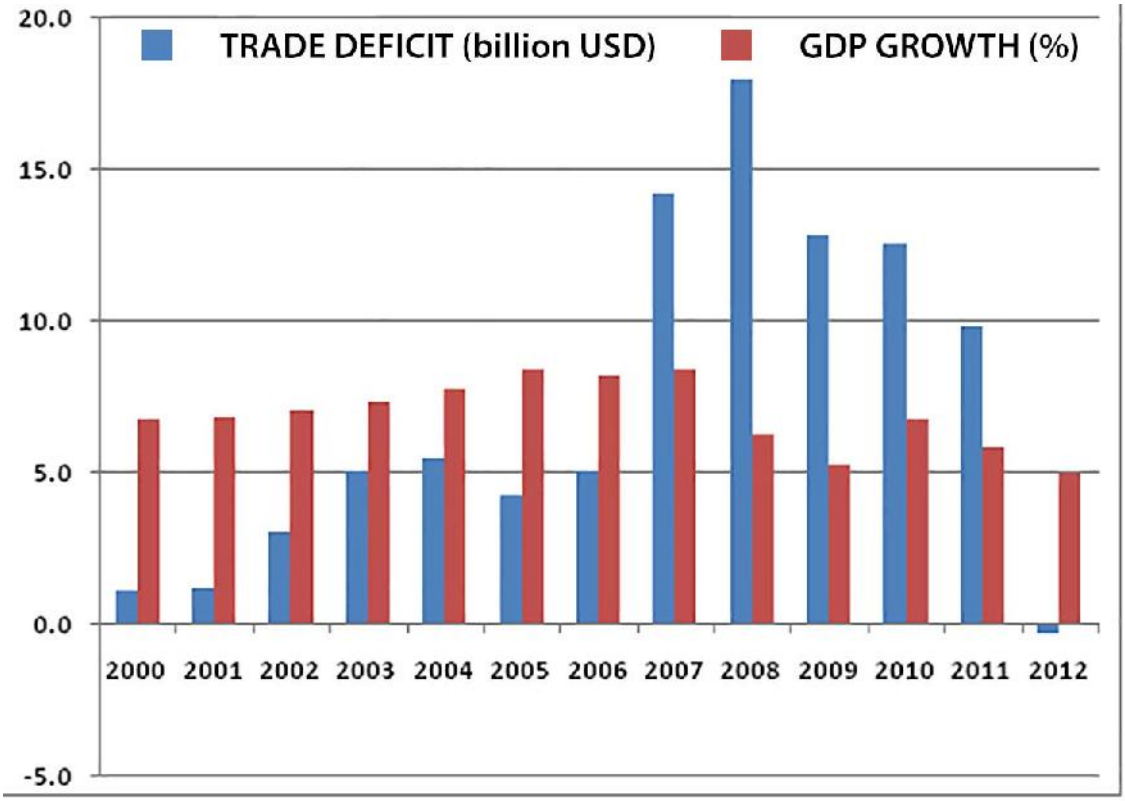
APPENDIX 1: TRADE DEFICIT AND GDP GROWTH IN PERIOD OF 2000-2012



(Source: GSO and calculation of the author)

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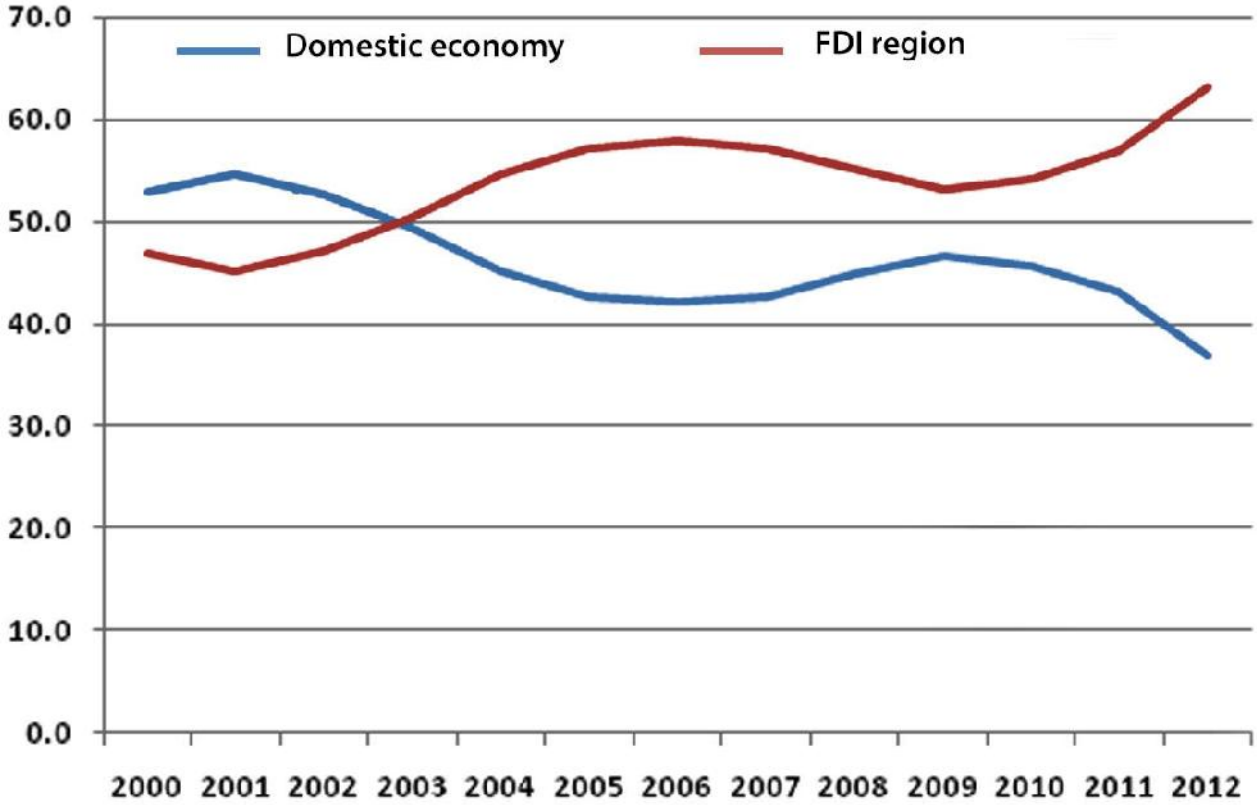
APPENDIX 2: STRUCTURE OF EXPORTING PRODUCTS IN PERIOD OF 2000-2012

Unit: Percent (%)



(Source: GSO and calculation of the author)

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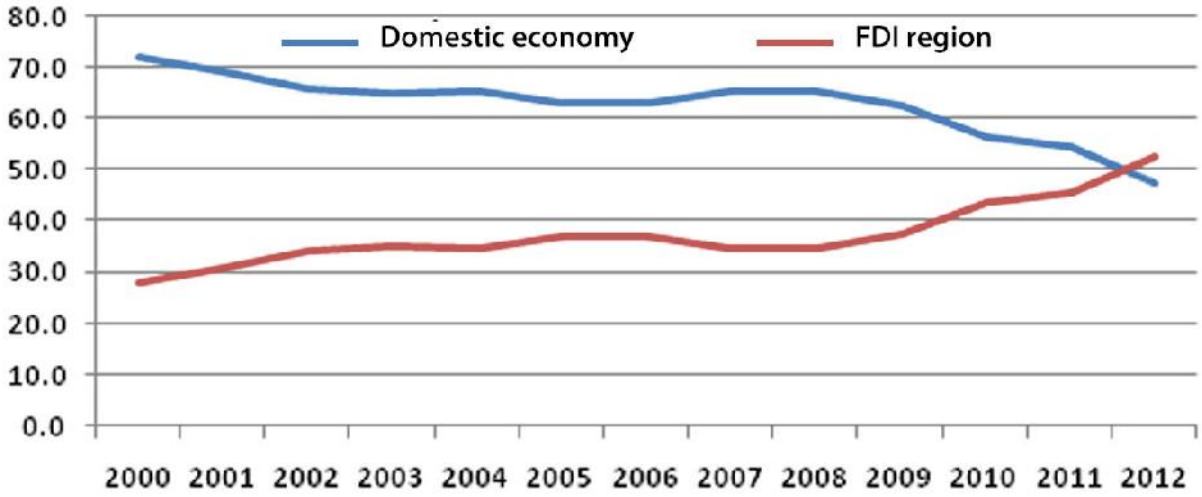
APPENDIX 3: STRUCTURE OF IMPORTING PRODUCTS IN PERIOD OF 2000-2012

Unit: Percent (%)



(Source: GSO and calculation of the author)