Some Problems on the Sectoral Structure, GDP Growth and Sustainability of Vietnam

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Abstract: The Vietnam development has been enjoying a great deal of rapid economic growth in the last decades, which thank to the opening of market-oriented economy system. However, the economic growth is slowly recent years and the increase of environmental issues. The reason for this situation is that misallocation of resource, the sectoral development policies as well as the development orientation of the government. In order to find the solution, this research applies the input output model to analysis the sectoral structure and economic growth as well as the sustainability of economic growth and the effect of economics on the environment. Then, this research recommends the better sectoral structure for Vietnam in order to allocate resources efficiently and forward to the sustainable development.

The purpose of this study was to point out the instability of Vietnam, not only for the environment but also for the whole economy. Research shows that VN is not only the face of environmental pollution, but also uncertainty about macroeconomic. It also pointed out the need to change the economic structure for economic development that the environment in a sustainable way. This research based on Leontief and Ghosh systems

Keywords: Economic, Environmental, structure, sustainability.

I. INTRODUCTION

Most natural disasters are derived from human. For over a decade the Vietnam's GDP growth rate is high (6.5% - 7%) and structural order of priority sectors with mining and manufacturing, Services and Agriculture. In the official report of Vietnam always take GDP growth and sectoral structure as above is a proud achievement. In developing countries such Vietnam is often focused on economic growth but ignoring environmental hazards. In Vietnam, in period 2000 – 2012 The forest area fires and deforestation is about 85000 ha and each year the forest area lost about 6500 ha. Forest loss causes floods in the central provinces of Vietnam worsening. Rapid urbanization rate causing many canals and rivers are disappearing or just dead river. This is the cause of flooding in big cities like Hanoi and Ho Chi Minh City cannot corrective. The government has spent a lot of money to fix flooding in big cities but not effective because the underlying causes are already forcing suicide rivers or water sources. Inefficient investments could increase GDP in the short term but in the medium and long term is not going to spread that environment only exacerbates graphics canceled. While living standard has not improved and the environment is destroyed, what is the economic growth for?

The Vietnam development has been enjoying a great deal of rapid economic growth in recent decades, which is thanked to the opening of market-oriented economy system. It is, however, controversies over environmental issues as side-effect of speedy growth have been reported national wide. A great number of research has extensively considered environmental issues as a threaten reason, which might impose negative impacts on the benefits of growth itself, or that may keep current economic trends from being sustainable. Through the development of environmental accounts, the country can track and analyze how its economy and its environment depend on each other in the growth process. The accounts make it possible to identify policy choices that will allow growth to occur without harming the environment or harming humans through environmental degradation, and will ensure that current growth patterns will not be reversed because of the environmental harm they cause. Recently, Vietnam's leaders were making slogans rapidly developing economy and sustainability, but in my mind this problem is only talking. The status deforest is until not change, the rivers has been filled. Vietnam is an outsourcing economy and selling resources. In the report of the central and local Government achievement growth is still seen as a proud achievement. Section on the environment is very superficial. The first the Vietnam Government need to set up a framework in order to management disasters.

The linkage between pollution matrix and intersectoral structure was many researchers mentioned such as W. Leontief (1970), Schoonbeek, L. (1990), Ebiefung, A.A., Udo, G. (1999), Dobos, I. and Floriska, A. (2005), Yu Fan *et al.* (2016). Nowadays,

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parallel with the system of National Account (SNA) the United Nation introduced the System of Environmental – Economic Accounts (SEEA), which added the environment account. If traditional I/O table is the center of SNA, "Hybrid IO framework" is the center of SEEA system.

In Vietnam, there are also some studies on using input-output system to analyze and measure the linkages between economic and environmental as K. Kobayashi and T. Bui (2011), T.Bui & Phong N. V (2013), T. Bui & Hoa P. L (2017). In these papers, in order to estimate emissions for Vietnam by sector they have to borrow direct emission coefficient vector of others countries, in paper of T. Bui and Hoa P. L borrowed this vector of China in order to measure the impacts of economic activities to environmental. In this research used direct GHG emission coefficient vector of Vietnam themselves.

The purpose of this study is to find out the inadequacies of the economy, thereby helping policy makers make decisions that better economic and environment. The input – output system is applied for the purpose of this study. This study tried to estimate greenhouse gas (GHG) emissions in production processing of a value added unit. It also find how current economic structure impact to environment (GHG emissions). We tried to be looking for which sectors good for economy but damaging the environment, which sector has not spread further to the income, caused trade deficit but has caused environmental damage. The research results indicate mistakes in the allocation of resources that the economy at risk in the medium to long term and not sustainable.

II. METHODOLOGY

This research applies the Leontief and Ghosh systems in order to estimate GHG emissions when GDP growth, sectorial structure and investigating in the allocation of capital for Vietnam's policy makers oriented on their policies.

The Leontief standard relationship as below:

$$X + A.X = Y \quad (1)$$

Where: $A = (a_{ij})_{nxn}$; n is number of sector; A; aij = X_{ij}/X_j, with Xij present sector j used product I in production processing of industry j, Xj is output of sector j matrix A call direct input coefficient matrix and Y is final demand matrix

Transpose input – output framework the equation (1) is recalled as below:

$$X = A^*X + V \quad (2)$$

With: $A^* = (a^*_{ij})$ nxn and: a^*_{ij} = Xij/ Xi and V is value added matrix, This equation shows the inputs depend on structure of intermediate demand, So It can re-write:

$$X = (I-A^*)^{-1}V \quad (3)$$

$$\text{Put: } e_i = E_i/X_i \quad (4)$$

With $e = (e_i)_{1xn}$ and $E = (E_i)_{1xn}$ and Ei is pollution of sector i in productions procession

Multiplying both sides of equation (4) with e:

$$E = e(I - A^{*'})^{-1}. V \quad (5)$$

In the case the economy invest for abating pollutions, the gross capital formation we was broken down to I_1 and I_2, I_1 is investment for abating of emissions and I_2 is investment for production. The investment I_1 can be moved to technical norms of internal economy, in this case GDP will reduce and emissions also reduce, In Miyazawa's concept, the input – output model was extended with household consumption group and income group. In this case the exogenous variables become endogenous variables. Based on Miyazawa's concept, in this research extended the input – output framework a column on investment for abating pollutants and a row of a part of operating surplus. The equation will be below:

$$X = (I – A – I_1.C_1)^{-1}.Y^* \quad (6)$$

Where: C_1 is operating surplus ratios for total income from capital and I_1 is a corresponding vector of gross capital formation coefficients and Y* is remain of final demand.

On the other hand, in order to investigate on capital allocation, we can considerate below:

$$\text{Putt: } k_i = K_i/X_i$$

$k = (k_i)_{1xn}$ and $K = (K_i)_{1xn}$

Where : K_i is capital stock of sector i

Multiplying both sides of equation (3) with k we have:

$$K = k(I-A^{*'})^{-1}.V \quad (7)$$

$$\Delta K = k_1(I-A^{*'})^{-1}.\Delta V \quad (8)$$

Note that: $\Delta K = K(t+1) - K(t) = I(t)$

From (8):

$$I(t) = k_1(I-A^{*'})^{-1}.\Delta V$$

Data Source

This study use the input-output table in 2012 of Vietnam[1] aggregated follow 17 sectors (Appendix 1) and coefficients of direct air emissions by 17 sector of Vietnam[2] (Appendix 2).

III. SOME FINDINGS

The greenhouse gas (GHG) emissions calculated based on two scenarios (1) the average growth of GDP annually from 2012 to 2020 was 6.5% structure of agricultural added value down 15% by 2020, industry and services 85% (CN: 40%; DV: 45%) and scripts (2) agricultural structure reduced to 10%, industry and services 90% (CN: 45%; DV: 45%) and the trend dose not improvement in reduce waste by sector.

In scenario 1 the volume of CO2 emissions increased from 155 million tons in 2010 to 263 million tons in 2020 and increased the total greenhouse gas from 298 million tons to 480 million tons in 2020. In this scenario average growth on CO2 is about 6.8%, while GDP average growth is 6.5%.

In scenario 2 the amount of CO2 emissions from production in during 2012 – 2020 increasing from 155 million tons to 288 million tons, and the total greenhouse gas increase from 298 million tons in 2012 to 491 million tons in 2020. We can see the structure of industry in GDP is increasing, the environmental hazards as adjacent.

In the case move a part of investment for pollution abatement (10%), the CO2 emissions in 2020 reduce about 12,5% and greenhouse gas reduce 13.8%. compare with scenario 2. But greenhouse gas increase about 41% and average increase each year 4,4%. In this case GDP growth is only about 3.3%.

Thus, in order to reduce pollution and maintain GDP growth, Vietnam need to combine economic structural change and investing for reducing pollution from within the production process.

The sectors have greenhouse gas emissions larger than the average level (greater 1) and the sectors have greenhouse gas emissions smaller than the average level (less than 1). The Figure **1** shows manufacturing sectors group such as sector 3, sector 5, sector 6, sector 7, sector 8, sector 10 and sector 11 caused greenhouse gas highest.

However, while the manufacturing sectors group emit greenhouse gas high but spread to the factors of low added value. Note that a final demand unit induced to the operating surplus of construction sector is very high, while induced to income of labor is very low. The final demand of some sectors such as Agriculture, Forestry, Animal Husbandry& Fishery (sector 1), Manufacture of Foods, Beverage & Tobacco (sector 3), Manufacture of Textile, Wearing Apparel & Leather Products (sector 4), Other Manufacture (sector 10), Production and Supply of Electric Power, Heat (sector 12), Transport, Storage, Post, Information Transmission, Computer Services & Software (sector 13), Financial Intermediation (sector 16) and Other Services (sector 17) have spread from the final demand to high-income and low greenhouse gas emissions.

Final demand of Manufacturing group do not induce to value added but emit to environment very high GHG emissions and strong stimulate imports caused the trade deficit. Thus, we can see the manufacturing of Vietnam essentially outsourcing with outdated technology to be not friendly with environment. This Verdict is consistent with T. Bui and PL United (2017) when they compare economic structure of Vietnam and China "Vietnam seems to have not any auxiliary product. The products label Vietnamese brand, but it is the fact that these products are also imported products"

Considering the resource allocation and economic effectively, the research analysis the capital and labor allocation. In this part the input – output table was aggregated to three sectors, first sectors is Agriculture, Forestry, Animal Husbandry& Fishery, second sectors is mining and manufacturing and third sectors is services. Calculating capital requirement of three sectors to get a value added unit, when using competitive – import type of input – output table, we can find that the capital requirement to get a Value Added unit when using the domestic input is much lower than that using imported input. T. Bui al all

[1]www.gso.gov.vn

[2]The Ministry of Natural Resources and Environment "The initial biennial updated report of Vietnam to the United Nations framework convention on climate change", Vietnam Publishing house of natural resources, Environment and Cartography, 2014.

Table 1: Greenhouse Gas Follow Scenario 1

	GHG emissions (2012)	GHG emissions (2020)	Average growth
CO2 (Thousand ton)	155	263	6.84%
CH4 (Thousand ton)	95	144	5.35%
N2O (Thousand ton)	49	73	5.29%
Total GHG	299	480	6.13%
GVA (100million USD)			6.50%

Table 2: Greenhouse Gas Follow Scenario 2

	GHG emissions (2012)	GHG emissions (2020)	Average growth
CO2 (Thousand ton)	155	288	7.47%
CH4 (Thousand ton)	95	134	4.44%
N2O (Thousand ton)	49	68	4.33%
Total GHG	299	490	6.07%
GVA (100million USD)			6.50%

Table 3: Greenhouse Gas Emissions when Investing for Reducing Pollution

	GHG emissions (2012)	GHG emissions (2020)	Average growth
CO2 (Thousand ton)	155	252	106.26%
CH4 (Thousand ton)	95	111	101.96%
N2O (Thousand ton)	49	60	102.56%
Total GHG	299	423	104.43%
GVA (100million USD)			3.30%

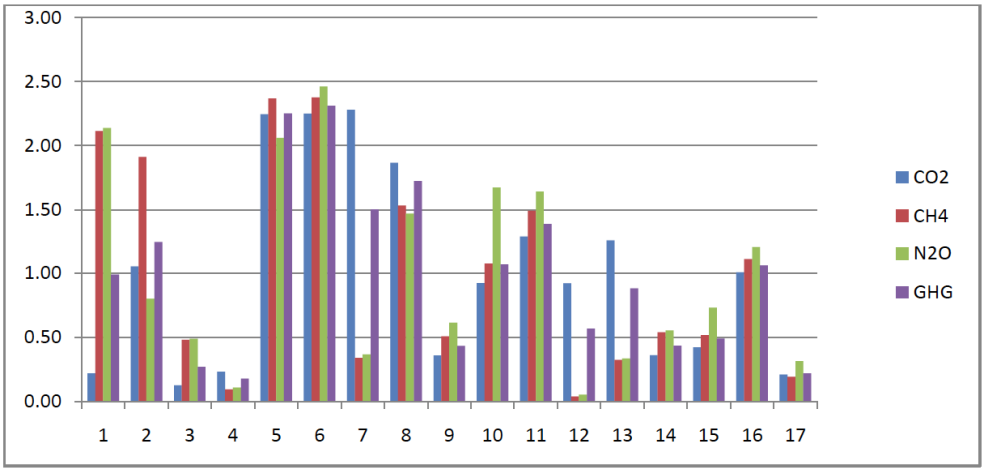

Figure 1: Sensitively on air emissions created of a value added unit.

explained that "the investment efficiency will be improved if Vietnam develops supporting industries…" The Figure **4** also shows the mining and manufacturing sector group requires a huge amount of investment to get a value added units compared to sector group I and sector group III. This result also indicates the resource allocation unreasonable in the Vietnamese economy, the mining and manufacturing sector group causing pollution, spread to low-income; stimulate import but absorbing capital resources of the economy. Such,

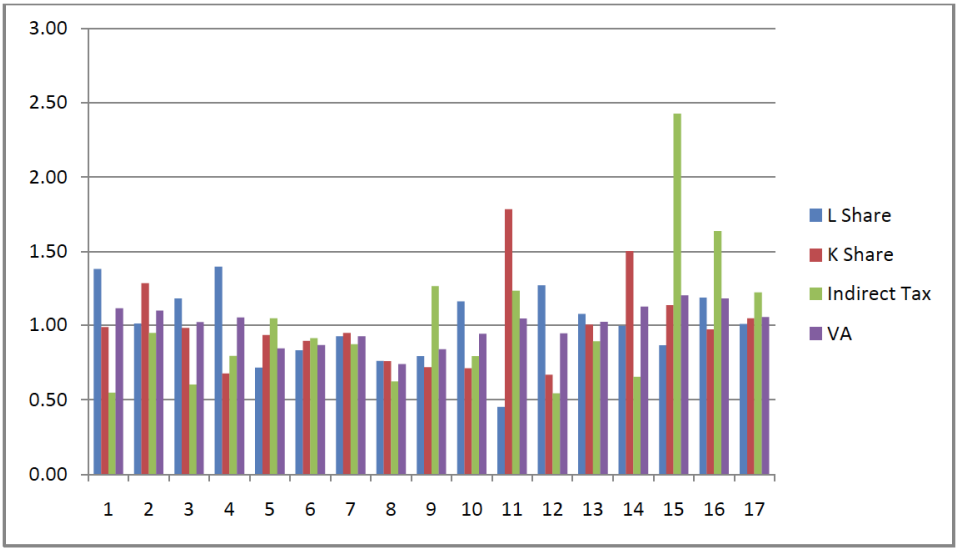

Figure 2: Induced impact of final demand to factor of value added.

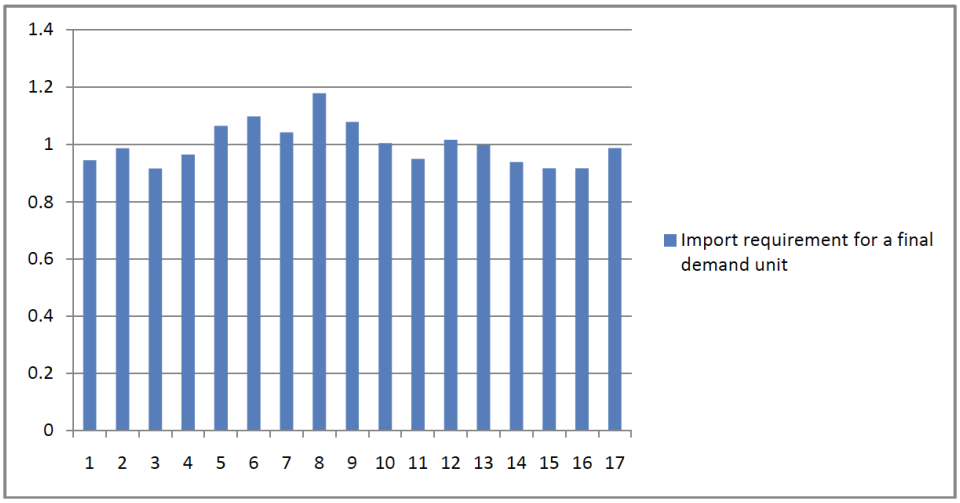

Figure 3: Import requirement for a final demand unit.

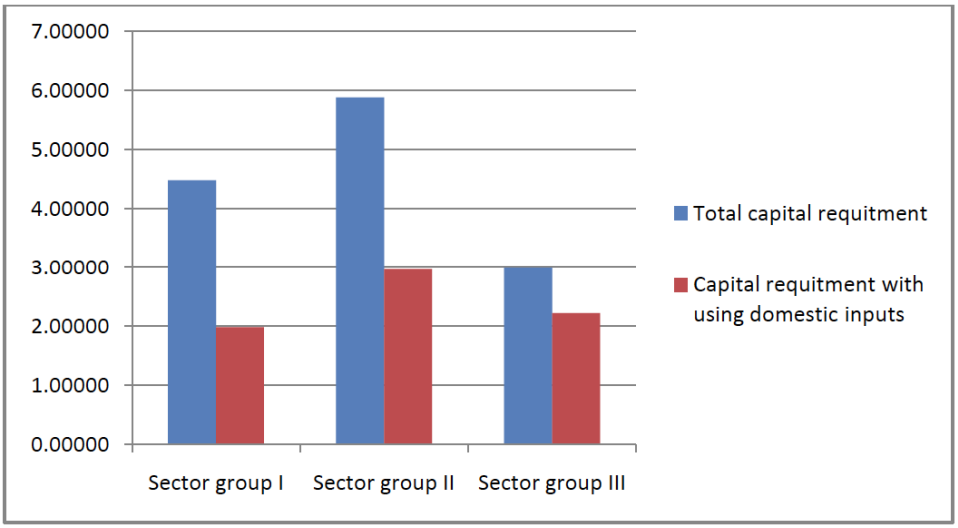

Figure 4: Capital requirement for a unit value added.

Source: Calculated based on the Input output table and Vietnam annual enterprise surveys in 2012.

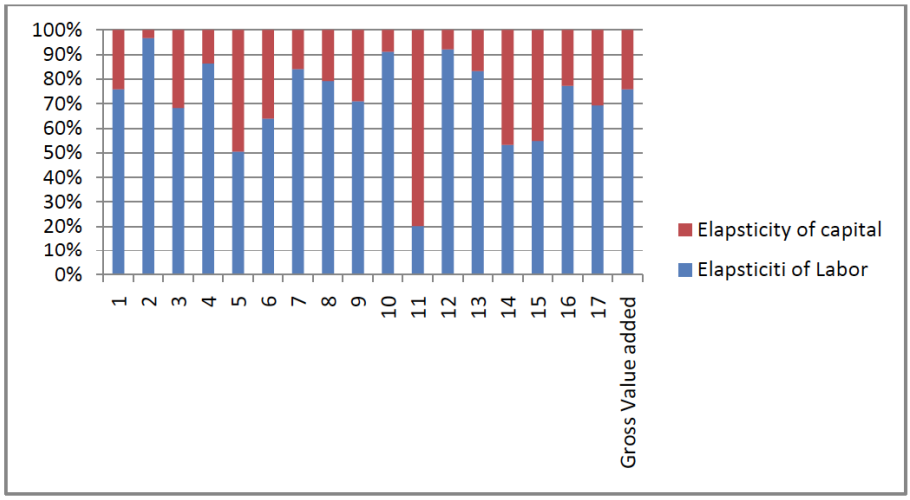

Figure 5: Elasticity of Labor and capital of 17 sectors (under the assumption yields unchanged (α + β = 1)).

dose development priority policy this sector group to be a wrong policy?

On the other hand, the input – output table of Vietnam shows the structure of factors as labor share and capital share in gross value added of economy present illogical. The partial elasticity of labor(α) in gross value added is 76% and elasticity of capital (β)is only 24% (α+β=1), this means Vietnam's economy is an economy of labor-intensive, labor productivity is very low, it takes a huge amount of new capital can create growth. Figure **5** shows the sectors number 2.4, 7, 8, 9, 10 has the elasticity of low capital; this suggests that there must be a huge amount of capital newly acquired value added (at basic price), this calculation seems consistent with the statement most industrial sectors (mining and manufacturing) are not create more value added or require a huge amount of new capital to create value added. Another interesting thing is the construction sector seems to be highly profitable (Purchase price higher than producer price so much)? This can lead to high risk of bad debts of the banking system.

IV. CONCLUSION

The manufacturing sectors group of VN basically outsourcing (Appendix 3), so the export products of these sectors are essentially export for other countries. If VN does not change the economic structure with GDP growth based on export products of manufacturing and mining to not only face environmental risks but also caused economic regardless in the medium and long term.

The sectors should be focusing resources on capital and priority policy to be the sectors cause less harm to the environment, spreading to higher income and use many domestic products with technological processes eco-friendly bare.

When Vietnam allocation reverse of resources will lead to hard on the budget, the budget constraints will lead to new revenue and the recovery of resources would make the economy continuing to weaken in the next cycle.

APPENDIX

Appendix 1: 17 Sectors in the Economy (Input – Output Tables)

No.	Sectors	No.	Sectors
1	Agriculture, Forestry, Animal Husbandry& Fishery	10	Other Manufacture
2	Mining	11	Construction
3	Manufacture of Foods, Beverage & Tobacco	12	Production and Supply of Electric Power, Heat
4	Manufacture of Textile, Wearing Apparel & Leather Products.	13	Transport, Storage, Post, Information Transmission, Computer Services & Software
5	Coking. Gas and Processing of Petroleum	14	Wholesale and Retail Trades, Hotels and Catering

6	Chemical Industry	15	Real Estate, Leasing & Business Services
7	Manufacture of Nonmetallic Mineral Products	16	Financial Intermediation
8	Manufacture and Processing of Metals and Metal Products	17	Other Services
9	Manufacture of Machinery and Equipment		

Source: General Statistics Office.

Appendix 2: Direct Coefficients Vector of GHG Emissions

No.	Sectors	2010 GHG emissions (GgCO2eq.)/ *100 million USD of output*			
		CO2	CH4	N2O	Total
1	Agriculture, Forestry, Animal Husbandry& Fishery	3.02	105.38	56.15	164.55
2	Mining	6.62	70.71	0.02	77.35
3	Manufacture of Foods, Beverage & Tobacco	7.14	0.01	0.03	7.18
4	Manufacture of Textile, Wearing Apparel & Leather Products.	16.51	0.03	0.07	16.62
5	Coking. Gas and Processing of Petroleum	15.60	0.01	0.03	15.65
6	Chemical Industry	14.11	0.02	0.04	14.17
7	Manufacture of Nonmetallic Mineral Products	252.41	0.24	0.50	253.15
8	Manufacture and Processing of Metals and Metal Products	10.57	0.02	0.04	10.63
9	Manufacture of Machinery and Equipment	9.89	13.81	11.85	35.55
10	Other Manufacture	36.62	23.30	29.96	89.88
11	Construction	7.77	7.77	7.77	23.31
12	Production and Supply of Electric Power, Heat	146.36	0.05	0.37	146.78
13	Transp ort,Storage,P o st, Information Transmission, Computer Services & Software	150.57	0.50	0.42	151.49
14	Wholesale and Retail Trades, Hotels and Catering	6.20	8.06	4.35	18.61
15	Real Estate, Leasing & Business Services	5.15	5.15	10.30	20.60
16	Financial Intennediation	6.19	6.19	6.19	18.56
17	Other Services	6.25	3.12	6.25	15.62

Source: The Ministry of Natural Resources and Environment.

Appendix 3: Some Analyze Indicators for 138 Sectors of Vietnam Economy

		Backward linkage	Import multiplier	Sensitive of dispersion of electricity	Ratios of Value added per Gross output	Value added induced by Export
1	Paddy (all kinds)	90.1%	88.0%	34.0%	56.9%	5.9%
2	Sugarcane	94.5%	94.6%	42.7%	47.5%	0.3%
3	other crops	98.7%	97.7%	47.9%	41.1%	1.7%
4	Raw rubber	76.9%	92.9%	30.4%	64.8%	0.8%
5	coffee beans	87.2%	108.0%	50.1%	41.9%	1.7%
6	tea, processed (all kinds)	77.9%	94.4%	32.6%	62.2%	0.2%
7	other perennial plants	85.9%	106.1%	47.6%	44.8%	3.2%
8	buffaloes, cows	114.9%	72.4%	32.3%	60.4%	0.1%
9	Pigs	179.4%	75.2%	70.2%	13.7%	1.2%

10	Poultry	161.6%	74.8%	60.2%	26.3%	0.2%
11	Other livestock and poultry, i.e.,	159.1%	74.7%	58.7%	28.1%	0.3%
12	agricultural services and other agricultural products	148.4%	79.6%	116.6%	23.3%	0.3%
13	round timber	93.2%	97.4%	21.4%	42.8%	0.9%
14	other forestry products; forestry service, planting tree	85.3%	85.8%	26.8%	60.3%	0.3%
15	fishery	76.4%	166.5%	54.7%	34.0%	1.9%
16	fish farming	169.4%	77.1%	71.0%	21.6%	2.9%
17	Coke all type	104.2%	105.8%	94.3%	26.7%	1.4%
18	crude oil	66.0%	77.0%	13.7%	89.7%	11.4%
19	natural gas	69.2%	121.8%	20.7%	57.2%	0.0%
20	Stone, sand, gravel, clay	84.9%	106.2%	82.2%	49.4%	0.2%
21	other none-metallic minerals	87.3%	93.0%	134.2%	56.1%	0.4%
22	supporting service for exploiting mine and ore	137.7%	78.9%	75.6%	14.7%	0.0%
23	Processed, preserved meat and by-products	203.4%	74.3%	71.1%	8.3%	0.3%
24	Processed preserved fishery and by-products	171.3%	78.2%	91.6%	7.8%	1.2%
25	Processed preserved fishery Vegetables and fruit	151.6%	84.8%	75.5%	14.4%	0.5%
26	vegetable and animals oils and fats	110.2%	127.6%	29.8%	2.9%	0.2%
27	milk and by-milk	119.1%	88.5%	73.0%	23.6%	0.4%
28	Rice	153.5%	73.3%	55.3%	1.6%	0.3%
29	Flour (all kinds)	148.0%	80.5%	54.5%	1.5%	0.2%
30	Sugar	126.5%	85.4%	82.3%	22.4%	0.1%
31	cocoa, chocolate and candy, cake products from flour	143.0%	91.1%	99.3%	11.0%	0.1%
32	processed coffee	101.3%	80.2%	51.2%	54.1%	0.1%
33	Other remaining food(macaroni, my yarn and same products; processed food: spices, sauce, vinegar, ferment beer)	142.1%	90.4%	97.8%	12.3%	0.5%
34	animal feed	163.6%	82.8%	66.8%	1.1%	0.4%
35	Alcohol	112.9%	95.8%	74.3%	22.9%	0.0%
36	Beer	115.1%	96.9%	77.1%	20.1%	0.7%
37	Non-alcohol water and soft drinks	113.2%	95.9%	74.7%	22.6%	0.2%
38	Cigarettes	122.9%	92.1%	60.2%	9.3%	0.4%
39	Fiber (all kinds)	121.3%	107.6%	119.1%	9.6%	0.6%
40	Textile products (all kinds)	120.3%	107.0%	117.5%	10.8%	0.7%
41	costume (all kinds)	87.5%	112.3%	70.2%	19.2%	2.1%
42	leather, preliminary processed bags,saddle and other same kinds)	94.5%	117.6%	63.7%	21.9%	1.8%
43	shoes, sandal (all kinds)	86.0%	105.5%	82.5%	37.2%	1.3%
44	Processed wood and by-wood products	110.0%	90.1%	72.5%	32.1%	1.8%
45	Paper and by-paper products	113.2%	102.1%	178.0%	17.5%	0.6%
46	Products of printing activities	107.0%	98.2%	93.7%	26.6%	0.1%
47	Coke coal and other by-product cokes	80.9%	103.9%	22.0%	43.7%	0.1%
48	Gasoline, lubricants	76.6%	201.0%	15.2%	8.4%	0.4%
49	Other products extracting from oil gas	79.5%	206.5%	50.0%	4.5%	0.2%
50	Basic organic chemicals	98.2%	143.4%	182.4%	9.1%	0.3%

51	Fertilizer and nitrogen compound	99.3%	145.5%	206.7%	7.1%	0.4%
52	Plastic and primary synthetic rubber	93.4%	133.8%	170.1%	18.5%	0.2%
53	Other chemical products; man-made fibers	103.0%	120.1%	94.7%	12.6%	2.0%
54	medicine, chemical prophylaxis and pharmacy	98.4%	106.5%	67.9%	24.8%	0.1%
55	by-product rubber	73.5%	100.3%	12.8%	51.7%	0.5%
56	by-product plastic	81.1%	116.5%	33.9%	37.7%	0.6%
57	Glass and by-product glass	77.7%	125.5%	93.5%	37.5%	0.3%
58	cements	115.2%	93.9%	89.5%	30.4%	0.4%
59	Other non-metallic mineral products	107.4%	88.0%	59.4%	32.2%	0.6%
60	Iron,steel	92.1%	148.0%	60.3%	9.6%	1.0%
61	Other metal products	87.3%	137.9%	42.1%	16.9%	2.6%
62	electronic device, computer and peripheral	132.7%	102.4%	51.5%	4.2%	0.1%
63	Machinery & equipment used for broadcasting, television and information activities.	105.5%	102.5%	36.3%	33.5%	0.0%
64	electrical household appliance	168.4%	96.7%	52.6%	9.2%	0.1%
65	other electronic products and optical products	75.7%	101.5%	52.5%	54.9%	0.1%
66	motor, electric generator, power transformers	77.0%	89.5%	18.2%	64.3%	0.1%
67	cell and battery	79.0%	90.1%	20.3%	60.0%	0.0%
68	electric conductor	78.7%	86.8%	18.2%	59.6%	0.2%
69	electric light equipment	100.9%	111.7%	65.0%	20.2%	0.1%
70	consumer electronic equipment	137.6%	96.8%	72.8%	8.3%	0.0%
71	Other electric equipment	112.0%	106.5%	111.7%	13.1%	0.1%
72	general-purpose machinery	85.5%	108.7%	99.4%	36.7%	0.1%
73	special-purpose machinery	98.0%	130.2%	78.0%	14.4%	0.1%
74	cars (all kinds)	88.5%	136.2%	54.7%	11.7%	1.0%
75	Car engines with tractor (except automotive)	86.4%	131.1%	51.1%	17.5%	0.4%
76	Ships and boats	95.1%	129.1%	56.2%	18.2%	0.3%
77	motor vehicles, motor bikes	89.8%	121.6%	56.5%	22.6%	0.6%
78	other transport means	91.4%	124.5%	60.0%	17.7%	0.0%
79	Bed, cabinet, tables, chairs	102.3%	86.2%	61.6%	44.4%	1.5%
80	Jewelry, false jewelry and related details; musical instrument; fit tools , sports, toys, games	76.8%	111.8%	48.4%	44.4%	0.1%
81	medical equipment, dental, Orthopedics and rehabilitation	72.3%	101.2%	65.3%	51.8%	0.0%
82	Other processed industrial products, repair service and equipment and machinery maintenance	79.1%	96.9%	32.8%	60.7%	0.7%
83	Electric transmission services	88.5%	79.5%	2785.2%	59.8%	3.4%
84	Gas, fuel distribution by pipeline	84.4%	80.7%	346.5%	64.1%	0.1%
85	steam distribution , hot water, air conditioner and ice producing	91.2%	77.6%	730.9%	59.1%	0.1%
86	Exploitation, processing and water supply	83.5%	82.0%	436.4%	64.3%	0.2%
87	Management and waste water handle, waste	82.3%	88.1%	82.8%	63.5%	0.1%
88	Construction (all kinds)	104.8%	95.7%	36.6%	37.1%	0.1%
89	railway and road construction , useful construction , other technical construction	105.2%	113.1%	50.9%	22.6%	0.1%
90	special-purpose construction	114.0%	99.2%	60.2%	24.2%	0.1%

91	Sell, car repairing and other car engine repairing, sell, maintenance and repairing car, motorbikes, accessories and auxiliary parts of motorbike and car	81.8%	88.9%	73.3%	55.3%	0.7%
92	Wholesale (except automobile, Moto, motorbike and other car engines), retail (except automobile, Moto, motorbike and other car engines)	79.7%	88.7%	36.2%	59.3%	17.7%
93	railway passenger transport	81.7%	121.3%	46.3%	42.2%	0.0%
94	railway good transport	79.9%	116.7%	42.3%	47.2%	0.0%
95	bus transport; other road passenger transport	74.6%	164.6%	18.5%	33.9%	0.6%
96	good transport by road; pipeline transport	74.3%	162.1%	18.0%	35.7%	0.7%
97	passenger waterway transport service	76.0%	154.2%	19.5%	36.4%	0.1%
98	good waterway transport services	76.5%	157.3%	20.2%	34.1%	0.7%
99	passenger airline service	100.4%	137.7%	37.9%	13.6%	0.1%
100	cargo airline services	100.4%	137.7%	37.9%	13.6%	0.0%
101	parking services and supporting services for transportation	79.8%	87.3%	54.9%	61.8%	1.8%
102	Postal and delivery	109.9%	82.1%	185.0%	36.2%	0.5%
103	residential service	87.3%	76.3%	371.1%	58.7%	1.8%
104	Food Service	104.3%	73.7%	53.9%	64.1%	1.1%
105	Publishing services	110.9%	89.0%	74.8%	33.0%	0.1%
106	Film, television, recording and music publishing	106.9%	77.9%	116.9%	40.7%	0.0%
107	Radio, television	93.0%	74.3%	102.0%	53.2%	0.1%
108	Telecommunication services	97.5%	77.2%	35.4%	57.3%	0.0%
109	programming computer service, consulting services and other information services	98.3%	75.7%	159.2%	54.9%	0.1%
110	Financial services (except insurance and social insurance)	76.3%	83.2%	6.6%	51.8%	0.9%
111	non-life insurance and re-insurance	87.5%	83.8%	67.3%	61.6%	0.2%
112	Life insurance, social insurance	113.9%	93.3%	126.3%	28.7%	0.0%
113	Other financial services	92.3%	81.4%	127.2%	59.9%	0.2%
114	real estate business service	81.9%	79.1%	198.9%	69.9%	1.2%
115	Legal services, accounting and audit	82.4%	77.1%	41.8%	64.4%	0.1%
116	headquarters office service; consulting services for management	84.3%	75.3%	38.0%	65.3%	0.1%
117	architectural , testing and analysis technique service	87.1%	81.1%	44.8%	61.8%	0.3%
118	Research and development	76.7%	78.7%	38.1%	76.6%	0.1%
119	advertising and market research service	92.2%	75.9%	35.0%	62.3%	0.1%
120	Other professional ,scientific and technological service	98.0%	97.0%	111.2%	38.5%	0.1%
121	Veterinary services	75.8%	98.6%	12.1%	63.4%	0.0%
122	rent machinery and equipment (no operator), personal household appliance for rent	81.1%	89.2%	52.3%	60.8%	0.1%
123	work and job service	91.7%	80.5%	90.2%	48.0%	0.0%
124	travel agency services, tour business ; supporting services of promoting and organizing tour	84.3%	99.9%	48.6%	52.3%	0.1%
125	Investigation services and security	75.0%	79.1%	76.2%	76.0%	0.0%
126	sanitation services for house and landscape	90.8%	108.2%	124.9%	42.2%	0.1%

127	Administrative services, office support and other business supporting activities	89.6%	83.2%	80.8%	58.5%	0.1%
128	service of communist Party activities, political and social organization, state management,defence and compulsory social security	89.0%	80.2%	70.9%	63.8%	0.0%
129	Education and training(except college, university and postgraduate)	87.4%	78.4%	89.6%	64.7%	0.1%
130	college, university and post-graduate service	82.1%	79.0%	67.9%	67.9%	0.2%
131	healthcare services	88.4%	97.9%	70.5%	44.2%	0.1%
132	Care services, centralized nurse and non-centralized social supporting services	76.2%	74.8%	49.6%	79.9%	0.0%
133	Creation, arts and entertainment, library services, archives, museums and other cultural services	95.8%	82.1%	110.1%	52.0%	0.0%
134	Lottery, Bet and gamble	122.3%	71.1%	52.3%	37.3%	0.0%
135	sports ; entertainment	93.4%	79.9%	198.4%	56.1%	0.1%
136	Other services of organizations and foundations	97.0%	84.9%	82.9%	52.2%	0.0%
137	repair service for computer ,other personal household appliances	89.4%	83.9%	125.8%	59.7%	0.0%
138	household service ;self-consumption products of household, service of organizations and international offices	69.2%	125.3%	16.3%	61.7%	0.2%

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