VEPR Policy Discussion Note
PD-01

Impacts of the incident of oil rig 981 on the Vietnamese economy in 2014 and beyond

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I. Introduction

The East Sea, the Vietnamese name for the South China Sea, is the marginal waters adjacent to the Pacific Ocean and partially enclosed by eight South East Asian nations and China. It is a strategic maritime linking the Pacific Ocean with the Indian Ocean as well as Europe and the Middle East with Asia. The East Sea is one of the busiest international sea-lanes and is crucial for transiting oil, resources, and tradable goods from the Near East and the Middle East to China, Japan, and South Korea. Its strategic geolocation and oil and natural gas potentials place the East Sea in the center of competing territorial claims by the bordering countries.

China's recent movements on the East Sea clearly show the Chinese leaders' intention to take control of most of the East Sea. China demarcates its claims of the East Sea within the 9-dash line, also known as U-shape line or nine-dotted line, which takes over 90% of the waters. China's exploration, patrol, and policing in the East Sea has encountered disapproval from other countries. On 2nd May 2014, China National Offshore Oil Corporation moved its Haiyang Shiyou 981 oil platform into the Vietnamese continental shelf, which is also Vietnam's exclusive economic zone (EEZ). After this "provocative" and "destabilizing the region" activity (said by the US and Japan), the incident was not resolved and limited within the sea as suggested by previous encounters. Facing determined efforts of Vietnam to prevent the platform from fixing its position, China responded with a series of actions which has been perceived by many Vietnamese experts' as a 'warning' from Chinese leaders. The Vietnamese leaders neither compromise about the territorial issue nor accept the proposal of "setting aside disputes and jointly developing" put forward by Deng Xiaoping and promoted by generations of Chinese leadership. Although the relation between Vietnam and China continued improving over the years, the rise of China in terms of economic power and aggression in the East Sea make a strong case that raises doubts and precautions among Vietnamese.

This paper will discuss the impacts of the tension on the East Sea on the Vietnamese economy and put forward policy recommendations which can help alleviate the issues.

Box 1. Timeline about China's movements

01/05: CNOOC placed the oil platform HD981 at the South of the Paracel Islands
03/05: China Maritime Safety Administration announced the drilling work and radius of HD981
17/05: China evacuated its citizens out of Vietnam, warned tourists not to visit Vietnam
09/06: Chinese Ministry of Commerce requires China-owned SOEs to stop doing business in Vietnam
21/06: China brought Nanhai 09 oil rig and a marine geophysical survey ship to the waters off the Gulf of Tonkin
05/07: China published a map with the 10-dash line
15/07: HD981 is moved towards Hainan Island of China
During the drilling period, more than 140 armed ships, warships, and escort aircrafts were mobilized to patrol the area around the rig, attacking and preventing the Vietnamese marine police boats and Vietnamese fishing vessels.

Box 2. Vietnam and international reaction

01/05: Vietnam confirmed HD981 location in the continental shelf of Vietnam, 119 nautical miles off Ly Son Island and 130 miles off the coast of Vietnam.
04/05: Vietnamese Ministry of Foreign Affairs objected China's operation in Vietnam's waters
06/05: The US State of Department called China's actions provocative and destabilizing the region. After that (23/05) the White House also expressed its support to Vietnam to use legal means against China.
09/05: Japanese Minister for Foreign Affairs criticized China's provocative actions. A number of other countries also expressed their concerns about regional security.
12-14/05: Protests occurred at industrial parks where Chinese plants located. They started at Binh Duong (12/05), then spread to the suburb of Ho Chi Minh City and Dong Nai (13/05) and Ha Tinh (14/05). All protests stopped after the ban.
26/05: a Da Nang fishing vessel was sunk. The rescue effort was hampered by Chinese vessels.
02/06: The Vietnamese government decided to provide 10 trillion dong in loans to fishermen with fixed interest rate of 3% per annum, supported building iron ship.

II. Losses and damages

Though the tension in the East Sea has not been over, the impacts on the Vietnamese economy are becoming clearer. The impacts were seen in investment, EPC contracts, trade and tourism. The interdependence of the two developing countries that maintain high economic growth rates and adjacent to each other in the global supply chain may spread the negative effects across the world.

Fishermen are among the first to suffer from this tension if their traditional fishing sites are in the disputed waters. Most Vietnamese fishing boats are small and made of woods, which means a short period of working time, low storage capacity and vulnerable. In recent years, the number of collisions between Chinese and Vietnamese fishing boats increased rapidly, not only damaging ships but also costing lives of Vietnamese fishermen. Regarding Ly Son Island, the damages have accumulated to 6 billion dong (USD 280,000); the number of collisions increased to 40 compared to 17 cases last year (Nguyen Phuong Linh, 2014). Fishing boats are considerable investment of fishermen, thus, these losses put them into debt and a number of them had to abandon their livelihood. Meanwhile, the Vietnamese marine police cannot act aggressively to protect the fishermen. Conflict can be an excuse for the more aggressive party to impose sanctions, such as Taiwan to the Philippines (Luong Minh, 2014).

The Vietnamese government plans to launch a credit support aimed at fishermen to build iron ships. However, 10 trillion dong (USD 475 million) is a tiny amount compared to 128,000 fishing boats operating, plus loan disbursement may depend on each commercial bank. Furthermore, weak policy design at the central government and weak monitoring at local government raise suspicion about the effectiveness of credit support that saw many failures. Hence, the Vietnamese wooden boats will be overwhelmed by the Chinese fishing vessels which are armed and heavily subsidized by the Chinese government.

Production was canceled in many factories in industrial parks (IPs) where Chinese plants located in Binh Duong, Ho Chi Minh, Dong Nai and Ha Tinh due to protests. Provoked by an unknown party,

the protests burst into violence and vandalism, causing human casualties and fire damages. Many factories were set ablaze, some were burnt to ashes, smashed and vandalized. In factories where there were no damage, production was also postponed due to riots (Sevastopulo, 2014).

The protests occurred in IPs where Taiwanese firms outnumbered Chinese firms and damages to Taiwanese firms seemed more serious. There are about 3000 Taiwanese firms operating in Vietnam, of which 2300 are FDI. According to Lee (2014), "the protests...affected 425 Taiwanese enterprises, 25 of which were seriously damaged. While direct losses ranged between USD150 million to USD500 million, total damages could be as high as USD1 billion." According to Jennings (2014), "1,000 Taiwanese-backed businesses have been affected by protests". Exports were reportedly delayed for 3-4 days; at the end of May, 20 enterprises which were seriously damaged in the protests were not able to restart production, making thousands of worker unemployed (Song Ha, 2014). Enterprises which did not own facilities in Vietnam complained about disruption in production of their suppliers in Vietnam.

The losses to the Vietnamese economy may not limit to the destruction of facilities in a number of IPs. Economic ties with a number of countries may deteriorate if compensation payment was not implemented properly. Although the number of enterprises affected was small and the period of delayed production was rather short (1 week in May), hence the losses were limited, the compensation the Vietnamese government sent a dangerous message to enterprises operating in Vietnam and those who are considering moving into the country. It is said that the Vietnamese government was not sincere enough regarding compensation for the damage. If Taiwan, whose enterprises investing the most in Vietnam, took further actions, including seeking international support and imposing sanction or making "political adjustment" with Vietnam, this would further worsen the opinion of foreign investors about the investment environment in Vietnam. FDI enterprises contribute 18% of GDP; industrial parks across the country are the workplace of more than 2.1 million workers. Realized FDI in the first 7 months of 2014 edged up by 2% compared to the corresponding period last year, while registered FDI showed a 20% drop, implying a change in foreign investors' outlook and risk assessment of Vietnam's investment environment.

As of end of June, Vietnamese Ministry of Finance returned 487 billion dong of taxes, extended the tax payments for the affected enterprises; insurance companies reimbursed an amount of 165 billion dong and the government of Binh Duong paid 287 billion dong (BBC, 2014).

The sudden presence of HD 981 oil rig in Vietnam's waters and the sequential series of incidents proved once again the fragility of investors' confidence in financial markets. Positive factors such as a stable macroeconomy, a gradual recovery, and good results of listed companies in the securities markets could not resist the fall in confidence. Market indices began to fall in March 2014 probably due to a margin call and worries about elevating tensions in the East Sea led to a stronger urge to sell. On the 8th of May, Vnindex of the Ho Chi Minh Stock Exchange dropped by 5.9%, while HNX-index of the Hanoi Stock Exchange fell by 6.4%. The panic lasted until 13th of May when Vnindex

bottomed out at 513.9, losing around 46 points or 8.2% in 5 trading days. The market realized the overreaction at this point and started buying in. The exchange rates and domestic price of gold bullion were also under impact of investors' sentiment, albeit weaker.

III. Economic prospects

1. Investment

Vietnam is considered to be the next China by global manufacturers, including Chinese, due to comparatively low labour cost and relatively stable investment environment. As of June 2014, there were 9000 industrial manufacturing facilities with total registered capital of USD129 billion. The performance of these facilities in recent years have been very high, stark contrast to the struggle of domestic firms. The foreign invested enterprises contributed 18% of GDP in 2013. Their export turnover amounted to USD 81 billion, accounting for around 60% of total exports and achieving net exports of USD14 billion. If foreign investment plummeted (including Chinese), or in a worse case when FDI enterprises moved overseas due to security concerns, the Vietnamese economy would be in much trouble. It is not likely that domestic enterprises' investment could refill the gap of foreign investment or have the similar efficiency. The impact of a fall in output and exports would spread to other sectors of the economy.

The threat is not limited to GDP. Industrial parks across the country are creating jobs for about 2.1 million workers (Nguyen Phuong Linh and Gold, 2014). Take Binh Duong for example, protests and factories shut downs left 60,000 workers temporarily jobless, 40,000 of which may receive unemployment benefits while 20,000 others may receive one-off compensation payment. Unemployed workers coming home may earn less and lead a hard life. The fall of foreign exchange as a result of exports is another threat as domestic enterprises imported heavily from overseas, resulting in a net import of nearly USD 14 billion. The foreign exchange reserves, most of which are US dollars, is only equivalent to 12 weeks of imports, albeit rising.

The unfavourable condition may push back the progress of economic restructure. In the last three decades, the Vietnamese economy restructured and grew in accordance with the classic model: productivity rised thanks to labour moving from agriculture to industrial manufacturing and services. The economic growth was also attributed to the continuous expansion of investment; however, because of rapid depreciation, social investment must be kept at high level to maintain growth. During the period of economic slowdown, the decline of investment resulted in fluctuations in employment and income. This hardship triggered a wave of workers moving back to agricultural sector. Slow growth and bad debts are hindering the "second" economic restructure aiming at renovating technology and climbing up the ladder of added value.

Although FDI from China is increasing, its only accounts for 3% of total FDI in Vietnam. The manufacturing sub-sectors attracting Chinese FDI the most are light industries such as textile and

apparel, leather and footwear, electronics and construction (Ta Loi, 2014). However, should the condition gets worse, not only Chinese FDI but also FDI from Chinese speaking countries will fall. If combining FDI from Hongkong, Macao and Taiwan with those of the mainland China, the proportion would be 20% of total FDI; if including also other ASEAN countries such as Malaysia and Singapore, the figure would be nearly 40%.

According to Ta Loi (2014), Chinese enterprises in Vietnam brought in outdated technologies; most of them extended the value chain in China, with absolutely no technology transfer. These FDI enterprises also attracted and employed Chinese popular labor, which is a violation of Labour Law. Vietnam hardly gets any values of Chinese FDI plants. As Vietnam is likely to join the Trans-Pacific Partnership, China is promoting FDI to Vietnam in the fields of textiles, leather and footwear thanks to its producers' strength in the production of fiber, dye and print. Moreover, a significant part of Chinese investment may be routed via a third country such as Hongkong, Taiwan, Singapore, British Virgin Islands, etc. and registered as FDI from those countries. These shell corporations are operating in the fields of mining and natural resources, renting land for decades in provinces adjacent to China, posing a serious security threat. The actual Chinese FDI in Vietnam may be much larger than the registered figure of 3%, thus the impact of a shutdown of Chinese-owned FDI plants could be more sizeable.

Vietnam is shaping its role in global supply chain with a number of promises about investment incentives. However, as macro conditions deteriorated due to the global financial crisis, Vietnamese environment for doing business has not been very supportive (Nguyen Duc Thanh and Ngo Quoc Thai, 2014). The shortcomings in the laws are hindering businesses; the clean image of a safe and stable environment for investment is no longer intact. The future outlook dampens as other Southeast Asian countries competing with Vietnam in attracting FDI (HSBC, 2013) does not have territorial disputes with China. A number of them also invested heavily in Vietnam. Regardless of their attitude and stance on the territorial tensions between Vietnam and China, the damages and losses to their facilities and production lines are not likely forgiven without reasonable compensation payments. Even when operating enterprises are not moving overseas, it still will be more challenging to attract new businesses to move in. Vietnam may have to make real and outstanding progress in reforms of institutional

Table 1. Foreign direct investment in Vietnam by host country

Valid projects as of 20/06/2014

	Number of projects	Registered capital, million USD (percentage of total)
Singapore	1,284	30,544 (12.7%)
Taiwan	2,320	27,611 (11.5%)
Hongkong	820	13,450 (5.6%)
Malaysia	465	10,569 (4.4%)

China	1,037	7,852 (3.3%)
Macao	8	45 (0.0%)
Total	16,589	239,773 (100.0%)

Source: Ministry of Planning and Investment and author's calculation

It is noticeable that the riots aimed at not only Chinese enterprises but also Taiwan-, South Korea-, Japan- and Singapore-backed factories, who are investing the most in Vietnam. It implies that the protests were to address other issues besides patriotism. According to a survey of FLA project, labour protests resulted from worker's dissatisfaction with managers' ill-treatment, bad working and living conditions (Thuy Linh, 2014). The riots were suppressed, but the workers' stress and discontent may become worse if the workers feel their concerns are not answered. Worker unions had a passive role during the protests.

Realized FDI in the first seven months of 2014 edged up by 2% compared to the corresponding period last year, while committed FDI reduced by 20%, suggesting that foreign investors were changing their risk assessment of Vietnam. It is projected that realized FDI at year end may equal last year's amount or decline slightly. Registered FDI can be considered the indicator reflecting concerns of foreign investors about security and investor protection in Vietnam. Nevertheless, future outlook may be less gloomy. Take TPP for example, the expectation on the likelihood of Vietnam signing TPP agreements has been driving high-end textile firms to set up factories in Vietnam. Taking account of both opposing forces, realized FDI may either (1) increase by 5% year-on-year, (2) unchanged, or (3) fall by 10% year-on-year.

2. Trades

The Vietnam - China economic relationship can clearly be seen in trade. China is Vietnam's fourth largest export market, but more importantly it its Vietnam's greatest import market. Vietnam has increased its export to China over the years but the growth rate of imports overshot that of exports. During the 2000 – 2013 period, exports to China accounted for nearly 10% of Vietnam's total exports, while the proportion of imports from China to total imports increased from 10% to 28%. Vietnamese goods cannot penetrate far into China's mainland and just available at border provinces such as Yunnan, Guangxi and Guangdong. On the other hand, the penetration of Chinese goods in Vietnam's market is much deeper. In other words, Vietnam stands in a weaker position compared to China in terms of trade.

Unlike Malaysia, Thailand, Philippines and Singapore, Vietnam has not received much trade benefits from China. Since joining WTO, trade deficit between Vietnam and China has exceeded other neighboring countries and the figures posted at USD2.7 billion, USD10 billion and USD23.7 billion in 2005, 2008 and 2013, respectively. Apart from the long border, large trade deficit is underpinned

by the structure of Vietnam's exports-imports. Vietnam imports from China mostly materials used in industrial production (70% of imports annually) and exports to China raw materials, agricultural products and minerals. The ease in dealing business with China is another reason.

Apart from China, Vietnam also has trade deficit with South Korea and ASEAN countries and the trade deficit in 2013 was USD14 billion and USD3 billion, respectively. This implies that FDI enterprises in Vietnam imported goods and input materials from other countries apart from China. One hypothesis by Pham Sy Thanh (2014) is that companies in Vietnam, especially those with foreign capital, were heavily importing input materials from China and other countries to produce exports. The remaining machinery, equipment and technology imports became their technologies. The implication is that Vietnamese businesses lack research and development and the Vietnamese-made goods may have lower quality than Chinese or have to compete with goods made by the ones who sold technology.

In case of any disruption in supply of inputs, manufacturing facilities will not necessarily have to cease production because their input stocks could last 3 months and there will be enough time to find other supplier. However, **the cost would probably increase by 7-15%** due to higher cost at-the-border procedures and transport. Sectors bearing higher imports ratio from China might face greater difficulties such as oil and gas (20%), textiles (39%), leather and footwear (32%), chemicals (26%), non-metals (36%), machinery (45%) and other manufacturing sectors (19%). For a number of sub-sectors such as cloth and plastic, the degree of supply dependency on China is much greater, posting at 50% and 80%, respectively.

According to data obtained from the customs offices of the two countries, there has been a big difference between the data from China compared to Vietnam. Some experts believe that this difference is mainly caused by the unofficial trading between two countries. Although the Chinese data is considered to be unreliable, this highlights the fact that there are still unofficial trading that Vietnam has not been able to take into account. In 2013, the difference posted at USD3.6 billion for exports and USD11.6 billion for imports. In the first half of 2014, the difference was USD1.5 billion and USD7.4 billion, respectively. Vietnamese exports are limited to raw material products while imports are more diversified, consisting food and beverages and a range of consumer goods.

It is very unlikely that China will terminate the economic relationship with Vietnam since it is binding to the ASEAN-China Free Trade Agreement (ACFTA). Hence, any attempts from China to make it hard for Vietnam to exports will be more subtle to avoid being sued by Vietnam. The tools might include tightening unofficial trading, increase technical barriers to restrict exports from Vietnam, **leading to a drop of USD500 million to USD1 billion in exports**, or prolonging the

clearance time for imports, which could lead Vietnamese buyers to find another source of materials, resulting to **an increase in logistics cost by 2-5%.**

3. EPC contracts

After evacuating citizens out of Vietnam, many projects run by Chinese contractors have been immediately put in halt. Chinese state-owned enterprises received notice from their Ministry of Commerce not to carry out any projects in Vietnam. Even when the economic relationships between the two countries are not deteriorated, this decision threatens the Vietnamese energy security and the economic developing plan in the long run. These projects were procured by Chinese equipment and technology and thus, it is challenging to be replaced by other contractors. Therefore, these projects might be postponed until the Chinese businesses return. Besides, the delayed projects will lead to the delay in the investment returns, leading to an increase in public debt.

Vietnam currently has 20 energy projects, 15 of which were being implemented by Chinese contractors. In the cement sector, there were 24 projects managed by Chinese contractors. There are two aluminum and bauxite projects and three coal plants in the country; all are being run by Chinese contractors. Four out of 6 high way projects that Chinese contractors were building are now delayed and a number of these just started. The reason why China has won a major number of projects is that they bid low and have the ability to arrange capital from borrowing; however, the persisting problems are the delay and rising costs due to their weak capabilities and lack of experiences.

The number of projects that borrowed money from China, mainly the Export-Import Bank of China, is increasing. The winning bidder can borrow with preferential interest rate from a Chinese bank. Vietnam has to rely on the easy loan from China to implement energy projects because of the weak financial capability of domestic enterprises and the low appealing of energy projects.

Chinese contractors hired Chinese popular labour without permit, which is a violation of Vietnamese labour law. It is said that in a number of projects Chinese contractors offered Vietnamese workers at low wage in order to hire Chinese workers.

As far as the authors are concerned, the energy projects built by Chinese contractors accounted for a small percentage in the Power Master Plan and those are soon or currently operating still provide sufficient electricity in the medium run. The need for solutions to avoid costs of unfinished projects, especially the projects that are soon to be transfered in is necessary. Besides, there should be different approach in selecting contractors rather than the bidding price. According to Nguyen Thanh Son, it is necessary to fill the gaps in regulations about the origin of the equipment and the terms of disbursement. Barriers need to be erected, especially those related to the national securities.

Box 3: EPC contractor

EPC stands for Engineering, Procurement and Construction, a contract in which the contractors provide comprehensive packages before handing in to the investors. EPC is different from turnkey because in EPC, the employer provides the basic engineering to which the contractors perform detailed design based on the basic design. In turnkey project, the employer provides certain technical specifications and the contractors prepare basic and detailed design. Besides, the contractors are also responsible for commissioning, start-up and take-over of the plant to the employer. In EPC project, the commissioning and start-up may be the responsibility of a third party. Therefore, EPC contractors are not held responsible after performing the signed tasks with the employer. If the commissioning fails, EPC contractors do not have to fix or redo the job, contrasting with turnkey project, thus the screening process prior to signing with contractors is considered to be crucial to the success of the project.

One advantage of EPC is the single point of responsibility. This makes it easier to exchange information on the progress of the project, resulting in cost cutting, time saving and more consistent quality and safety compared to the traditional methods.

Since most of the projects are done by a single contractor, so if a foreign contractor wins the bid, Vietnamese companies did not benefit much. Domestic companies only get small contracts for advising and manpower.

4. Tourism

Tourism, which accounted for 6% of GDP in 2013, was immediately affected by this incident. Chinese accounted for 25% of 7.57 million tourists in Vietnam last year. According to the Vietnam National Administration of Tourism, the average expense of a Chinese passenger is USD500, a loss of USD500 million should Chinese passengers stop visiting Vietnam in the second half of 2014 (Toan Toan, 2014). In the first half, the number of Chinese passengers in Vietnam was 1.135 million, increasing by 40% year-on-year; however, the number dropped by 10% and 30% month-on-month in May and June, respectively, amid the riot concerns. That Chinese authority extending the safety warning to its passengers when riots were over might also be a political pressure. In 2012, China cancelled all tours to the Philippines due to the disputes on the Scarborough islands (Thayer, 2014). 1,500 passengers cancelled the trips in May 2012 leading to a loss of nearly USD1 million - a number consistent with the USD18 million loss of Vietnam's tourism sector from May to July.

The numbers of tourists from Chinese speaking countries such as Singapore, Malaysia, Taiwan, Macao and Hong Kong also significantly declined in June leading to significant losses of revenue. The loss might be bigger if China imposes more restrictions on flights to Vietnam from North Asia and Europe. For instance, Japanese and Korean accounted for 1.35 million passengers in 2013 and 0.72 million in the first six months of 2014. Russian passengers, who are Nha Trang frequents, spending 5 times higher than Chinese passengers.

The decline in the numbers of tourists from Chinese speaking countries might be offset by the increase in international tourists in the Philippines' case; however, the loss in tourism might not occur in 2014 if caution prevails. Chinese passengers visiting the Philippines in 2013 dropped by 70% compared to 2009 due to the territorial tensions. This decline was offset by the increase in the numbers of passengers from South Korea, the U.S and Japan. However, Vietnam faces more difficulties as some of the international flights have to fly over Chinese territory. The airlines operators can choose different routes (transiting via Noi Bai airport) or take a direct course to the destinations (avoiding Noi Bai). However, the additional cost may be high. **The direct loss of tourism will be around USD700 million, and might range from USD70-650 million in 2014**.

Table 2. Selected tourism statistics, 2007 to 2013

	Services	**Tourism**	**Ratio**	**GDP**	**Ratio**	**Chinese tourists**	**Growth**	**Percent of total passengers**
	(1)	(2)	(3=2/1)	(4)	(5=2/4)	(6)	(7)	(8)
	USD million	USD million	**%**	USD million	**%**	million	%	%
2007	6.460	3.750	58.0	77.414	4.8	574.6	11.3	13.6
2008	7.096	4.020	56.6	99.130	4.0	650.1	13.1	15.3
2009	5.766	3.050	52.9	106.015	2.9	527.6	-18.0	14.0
2010	7.460	4.450	59.6	115.932	3.8	905.4	74.5	17.9
2011	8.691	5.710	65.7	171.391	3.3	1416.8	56.5	23.6
2012	9.620	6.850	71.2	155.820	4.4	1428.7	0.8%	20.9
2013	10.500	7.530	71.,7	135.539	5.5	1907.8	33.5	25.2

Source: GSO (2013), WB (2013), VEPR calculations

Labour in tourism sectors is 4.35 million, equivalent to 8.3% labour in working age. The decline in Chinese passengers might exert impacts on tourism sectors, albeit in provinces which Chinese passenger visit the most such as Quang Ninh, Hue and Da Nang.

The impacts on GDP can be summarized in the table below. Compared to the fictional scenario in which HD981 event did not occur, in different circumstances, GDP may drop 0.24, 0.5 and 1.1 percentage points.

Table 3. Impact on GDP by case

	Best case	**Normal case**	**Worst case**
From FDI (USD billion)	+0.14	0.00	-0.28
Trading (USD billion)	-0.50	-0.75	-1.00
Tourism (USD billion)	-0.07	-0.21	-0.65
Total (USD billion)	-0.43	-0.96	-1.93
% as of GDP (%)	**-0.24**	**-0.545**	**-1.10**

These results imply that Vietnam's GDP growth in 2014 may not exceed 5% and be lower than last year, with the lowest rate of 4.4% with respect to the worst case scenario of the three. It also means that Vietnam is at risk of annual economic growth falling to its lowest level since the Asian financial crisis. When the global financial crisis broke out in 2009, declined external demand along with macroeconomic imbalances rooted in the economy also caused growth to drop to 5.3% in 2009 and 5.02% in 2012. The Vietnamese economy one more time has to bear the risk of low growth, facing challenges of economic restructure to achieve multiple goals, one of which is to reduce reliance on the Chinese imports.

IV. Impact evaluation

1. Introduction

The above analysis only takes account of the impacts of individual sectors on GDP that excludes inter-industry effects. Output from one industrial sector may become an input to another industrial sector, therefore, should a change take place in an industry it will cause consequences to other industries through the final demand. Growth dynamics can go through different transmission channels prior to production to the extent that the duration may take years. Therefore, it is necessary to apply different methods for simulation and prediction, based on the scientific foundation of statistics and econometrics. Two methods commonly used are Output/Input (I/O) and Computable General Equilibrium (CGE).

The calculations are be based on the three given cases and compared to the base scenario in which the HD981 events did not occur and the Vietnamese economy went on the existing trend.

Table 4. Scenarios

	Low impact	Medium impact	Big impact
Realized FDI	+5% year-on-year	unchanged	-10% year-on-year
Exports	+15% year-on-year	+12.5% year-on-year	+10% year-on-year
Tourism revenue	+10% year-on-year	+5% year-on-year	unchanged
Intermediate cost	+2%	+4%	+5%

1. Methods

The I/O model uses the inter-industry input-output table first developed by Wassily Leontief to compute the structure of an economy through the influence of the final demand on the supply and income of the economy. Using I/O table can help evaluate the direct and indirect impacts of a change of exogenous variable on the output of the economy.

The CGE model was developed based on a standard computable equilibrium model of an open economy by Dervis , Melo and Robinson (1982). Import demand and export supply are simulated with the assumption of product differentiation and incomplete substitution between domestic goods and foreign goods.

2. Data

The I/O model uses input-output table of Vietnamese economy in 2007. Using the non-competitive type I/O table allows the evaluation of the impact of final demand on income and output and drawing comments about the regional or national economy from the demand side.

The CGE model uses the Social Accounting Matrix (SAM) 2011 of Vietnamese economy built by Central Institute of for Economic Management and WIDER. This model is programmed by General Algebraic Modeling Systems, a commonly used program in modeling CGE and large-scale planning systems.

3. Results

3.1. The I/O model

The calculation shows the ineffectiveness and the magnitude of processing of the Vietnamese manufacturing sector. *First*, the ineffectiveness of the Vietnamese economy is displayed in two aspects: the low multiplier effect of consumption to income and output and the decreasing multiplier effect of the final demand on domestic production in the observed period (2007-2012). Spending a dong on consumption leads to a rise of 0.42 dongs in imports and 0.47 dongs in exports. Furthermore, an increase in investment leads to a rise of 0.46 in income. These figures imply that boosting the final demand will not likely result in a sharp rise in output, therefore, a stimulus aimed at rising aggregate demand will probably not very effective on the economy. Second, the multiplier effect of the final demand on the supply changed considerably, rising from 2.59 in 2007 to 3.57 in 2012. However, the multiplier effect on domestic production decreased from 1.73 in 2007 to 1.66 in 2012, making the multiplier effect on imports rised sharply from 1.0 in 2007 to 1.91 in 2012. Hence, keeping increasing the final demand will lead to trade deficit of the Vietnamese domestic sector.

Table 5. Impact of final demand on output and income of the Vietnamese economy

	C	I	E
Impact on output	1.19	1.14	1.8
Impact on income	0.42	0.46	0.47

Table 6. The structure of the Vietnamese economy computed from I/O table

Intermediate cost/total output	Multiplier	Domestic output multiplier	Imports multiplier	Income multiplier	Value-added in output

2007	0.63	2.73	1.73	1.00	0.63	36.4%
2012	0.72	3.57	1.66	1.91	0.46	27.7%

The magnitude of processing in the manufacturing sector is reflected by the ratio of value-added in output. This ratio rose by 20 percentage points during 2000-2012 and by 10 percentage points during the 2007-2012 period. Thus, the ratio of value-added in output was decreasing from 36.4% in 2007 to 27.7% in 2012.

The above I/O analysis showed the vulnerability of the economy due to the weakness in its internal structure. Even if the Chinese oil rig had not occurred, with the current structure, the Vietnamese economy would still have to deal with macro instabilities, which asks for an economic restructure.

Based on scenarios proposed by experts and VEPR research team, using basic equations of non-competitive type I/O table and CIEM's calculation from harmonized system code, the impact on the Vietnamese economy can be summarized in Table 6. An extreme scenario where all trade between Vietnam and China is terminated (which is eliminated in the above analysis but the implication of the results still holds), the loss in GDP could mount to 12%. The VEPR's big impact scenario suggests the same amount of GDP loss when important driving forces of the economy are disturbed greatly, mostly in investment and imports. The low impact case in which the driving forces are slightly affected results in a loss of 3.6% in output, implying that in the next 2-3 years output may lose 1 percentage point per year. In a more troubled case, the loss in GDP could be as high as 5.8%.

The impact can be mitigated by economic structure. Vietnam has a chance to boost output as much as 0.5% thanks to a change in direction of exports away from China (by 5%) and a change from exporting industrial production to exporting services (mainly tourism).

Table 7. Results of the I/O model

Authors/Data	Scenario	Total impact on GDP
Vu Quang Viet and Bui Trinh, I/O 2007	All directions of trade are terminated	-11.7%
Bui Trinh, I/O 2012		-7.4%
Bui Trinh and Nguyen Quang Thai	EPC contracts halts, Chinese FDI falls by 50%, trade decreased by 20%.	-1.68%
	Replace EPC contractors, change direction of exports, replace exports of industrial products to exports of services	+0.22 - 0.5%
VEPR - low impact	Realized FDI rises by 5%, exports rise by 15%, tourism increases by 10%, intermediate cost rises by 2%, imports jumps by 10%	-3,6%

VEPR - medium impact	Realized FDI unchanged, exports rise by 12,5%, tourism increases by 5%, intermediate cost rises by 4%, imports falls by 3%	-5,8%
VEPR - high impact	Realized FDI declined by 10%, exports rise by 10%, tourism increases by 1%, intermediate cost rises by 5%, imports falls by 10%	-12,2%

3.2. CGE Model

The authors change the assumptions in the three case scenarios into external shocks of CGE model, such as a change in FDI (say an increase of 5%) will be converted to a change in fixed investment (1.5%). A number of parameters were adjusted to obtain the growth of exports and tourism according to the scenarios. Regarding input imports, the research team increased the import prices of four groups: textile, chemicals, metallurgy and machinery. Their imports made up 40% of the total imports of Vietnamese firms and therefore can be considered to be a reasonable way to estimate the impact of a supply disruption. The results of the simulation by CGE model are summarized in Table 7.

It can be seen that the Vietnamese economy would be affected significantly if there were a policy change in China. Output loss reaches 2% in the low impact case and the loss increases with the severity of the scenario. It should be noted that this result does not imply that GDP will drop by 2% in 2014 or 2015. Similar to the I/O model, the CGE model implies that the impact of an exogenous shock on the economy accumulates in a long time, may be 18-36 months, due to the feedback loops between macro variables. The effect may fade away when the structure change takes place to adapt to the new condition.

Table 8. Results of CGE simulation

	Percentage change, compared to the "unchanged" scenario		
	Low impact	Medium impact	High impact
GDP growth	-2.17%	-4.06%	-6.23%
Imports	-2.88%	-5.32%	-8.18%
Exports	-2.60%	-4.79%	-6.98%
Exchange rate	0.98%	1.77%	2.35%
Fixed investment	-1.46%	-2.91%	-5.83%
Budget revenue	-2.44%	-4.53%	-6.79%
Households' income	-3.00%	-5.54%	-8.26%

The most serious output loss occurs in manufacturing industries, including garments, textiles, leather and footwear, and electric machinery. Oil and gas, plus petroleum are the two industries suffers the least, while banking and finance, trade, hotel and restaurants endures the lowest loss among service

industries. Regarding exports, the most affected sectors are services, including transportation, trade, hotel and restaurants, and other private services (tourism may present somewhere among these groups), followed by manufacturing industries. That oil and gas, banking and finance still record growth in exports despite across-the-board recession in other economic sectors is also a notable finding.

Government budget revenue and households' income are also reduced, -2.4% and -3% respectively, in the low impact case. The budget revenue may lose up to 7% in the next few years compared to the case where the territorial tension did not erupt. The decline in exports could lead to a depreciation of 1 to 2.4% in the exchange rate.

V. Conclusion and policy recommendations

It has been over two months since the deployment of the Chinese HD981 oil rig in the Vietnam's EEZ in the East Sea. The Vietnamese economy has not suffered the big shocks outlined in various scenarios; nevertheless, losses have been recorded in various facets. Losses not only resulted from damaged factories but also delayed production. Weakened foreign investors' confidence led to a fall in committed investment capital and slowing disbursement. Exporting agricultural products and seasonal fruits also saw some difficulties. Tours were cancelled, causing loss in revenue of hotels and tourism-related services.

The question of whether China would repeat violation of Vietnam's sovereignty in the East Sea in the future may not be as important as the doubt about the resistance of the Vietnamese economy should China impose sanction against Vietnam. Concerns about the vulnerability of the Vietnamese economy have solid ground given the structure of Vietnamese economy and the reliance on the Chinese import materials.

This paper discusses various exposures of the Vietnamese economy to which policy change of China may affect and simulates various scenarios beyond 2014. Different cases and the corresponding simulated results depicts a relatively gloomy prospects in which output loss and fluctuations of macro balances may be unavoidable if the Vietnamese economy could not generate new growth momentum. The weaknesses of the Vietnamese economy deeply rooted in the internal structure and are vulnerable to an adverse change in domestic final demand. The oil rig event once again exposed the weaknesses and caused Vietnam to face new risks.

Policy recommendations

a) Investment and production

- Restoring the confidence of foreign investors about the security of the investment climate in Vietnam. The government also needs to express its willingness to pay compensation for the

affected business owners. It also needs to closely supervise the disbursement of compensation payments at local governments.

- Creating long-term competitive advantage of the quality of the investment climate through increasing the transparency of customs procedures, reduce processing time and logistics costs, reduce implicit costs for businesses.
- Encouraging foreign companies to participate in supporting industries. Planning long-term strategy for technology transfer towards import substitution and technological innovation in enterprises.
- Putting Chinese enterprises under watch, especially in the provinces bordering China. Adjusting the regulations on work permit, land lease to ensure national security.

b) Trade

- Promoting and supporting enterprises in seeking alternative materials suppliers; simplifying imports and exports procedures to offset rising input costs
- Promoting exports to other markets outside of China, but not to abandon this market
- Facilitating the "formalization" of import-export activities by simplifying customs procedures, reducing compliance costs, and taxe charges, thereby, reducing risks and protecting producers in Vietnam.

c) EPC contracts

- Only experienced and reliable contractors that have modern technology are eligible to participate in bidding. It is to avoid a price war between inexperienced contractors. The screening process should eliminate contractors who have weak records about punctuality and costs. The Law on Public Procurement should be amended to aim at quality and safety.
- Outlining proposals to arrange and allocate financial resources to the unfinished projects, completing and earning returns of state investment. It could be done by the private sector with suitable supports of taxes and land rent.

d) Domestic market

- Promoting consumption in the domestic market, adjusting policies aiming at overseas, not only for FDI but also final demand factors (consumption, savings and exports)
- Create a fairer business environment for the domestic enterprises. Support policies should be applied regardless of type of ownership (including land use tax, corporate income tax exemption in the beginning years...)

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Appendix

Appendix 1. Imports from China and the world by product

	Imports from China (million USD)	Imports from the world (million USD)	Percentage (%)
Machinery, electronics, telecommunication	13522	29878	45
Apparel	4344	11029	39
Non-metal	2393	6657	36
Leather and leather products	1210	3779	32
Iron and steel	840	2888	29
Chemicals and chemical products	2815	10484	27
Mining, natural gas and others	1710	8505	20
Tobacco	58	298	20
Other manufacturing	772	3996	19
Paper and paper products	310	1737	18
Rubber and rubber products	1289	9489	14
Wood and wooden products	200	1648	12
Transportation means	417	4005	10
Agriculture products	300	5271	6
Food and beverage	10	202	5
Aquaculture products	23	720	3

Source: General Department of Vietnam Customs

Appendix 2. Impact on output computed by CGE model by economic sector

	Difference from no impact scenario		
	Low scenario	Medium scenario	High scenario
Paddy rice	-2.68	-4.89	-7.00
Other crop	-2.51	-4.57	-6.54
Livestock	-2.35	-4.24	-5.84
Forestry	-2.16	-3.92	-5.51
Aquaculture and fishery	-2.41	-4.36	-6.03
Oil and Gas	0.00	0.01	0.10
Mining	-2.28	-4.18	-6.08
Processed meat	-2.25	-4.05	-5.55
Other processed food	-2.53	-4.60	-6.53
Beverage and Tobacco	-2.55	-4.64	-6.57
Textile	-3.12	-5.76	-8.78
Apparel	-4.02	-7.37	-11.24
Leather and footwear	-3.02	-5.48	-7.87
Wood, paper, furniture	-2.70	-4.85	-6.69
Other manufacturing activities	-2.60	-4.77	-7.05
Petroleum	-1.41	-2.57	-3.53
Chemical	-2.83	-5.18	-7.71
Construction material	-1.85	-3.42	-5.17
Metal	-3.37	-6.20	-9.41
Other machinery and equipment	-3.07	-5.68	-8.74
Electric machinery	-3.39	-6.27	-9.77
Transportation means	-2.62	-4.82	-7.20
Electricity, water and gasoline	0.04	0.03	-0.15
Construction	-6.32	-13.12	-18.13
Trade, hotels and restaurant	-6.62	-13.74	-18.98
Transportation	-0.33	-0.64	-1.11
Telecommunication	0.52	0.95	1.32
Finance and banking	-0.42	-0.82	-1.47
Public services	-6.46	-13.41	-18.60
Other private services	-2.68	-4.89	-7.00

Appendix 3. Impact on exports computed by CGE model by economic sector

	Difference from no impact scenario		
	Low scenario	Medium scenario	High scenario
Paddy rice	-2.63	-4.83	-7.10
Other crop	-2.42	-4.45	-6.59
Livestock	-2.34	-4.25	-6.02
Forestry	-1.88	-3.45	-5.09
Aquaculture and fishery	-2.40	-4.37	-6.20
Oil and Gas	-0.08	-0.15	-0.21
Mining	-2.28	-4.24	-6.54
Processed meat	-2.30	-4.17	-5.89
Other processed food	-2.64	-4.84	-7.10
Beverage and Tobacco	-2.64	-4.83	-7.03
Textile	-2.74	-5.07	-7.69
Apparel	-4.04	-7.43	-11.41
Leather and footwear	-2.99	-5.44	-7.91
Wood, paper, furniture	-2.68	-4.84	-6.76
Other manufacturing activities	-2.29	-4.28	-6.65
Petroleum	-0.90	-1.72	-2.70
Chemical	-2.23	-4.08	-5.96
Construction material	-1.59	-3.08	-5.52
Metal	-2.78	-5.12	-7.78
Other machinery and equipment	-2.57	-4.82	-7.64
Electric machinery	-3.20	-6.00	-9.78
Transportation means	-2.56	-4.72	-7.14
Electricity, water and gasoline	-1.95	-3.62	-5.49
Trade, hotels and restaurant	-1.49	-2.96	-5.82
Transportation	-1.60	-2.95	-4.19
Telecommunication	-2.65	-5.12	-7.33
Finance and banking	-1.68	-3.11	-4.69
Public services	-0.88	-1.64	-2.49
Other private services	-1.61	-3.00	-4.56
Paddy rice	-2.21	-4.20	-6.22

Disclosure appendix

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1. This report is dated as at 07 August 2014.

2. All data included in this report are dated as at close 27 July 2014, unless otherwise indicated in the report.

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