

The Role of Global Production Networks (GPN) in Understanding the Impacts of the Fiscal Stimulus in the United States and China on ASEAN Economies

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Introduction

- ① **Fast economic growth of the ASEAN region due to increase in exports**
- ② **Increase in exports can be traced from the utilization of Global Production Networks (GPNs)**
 - nexus of interconnected functions and operations in which goods and services are produced, distributed, and consumed
 - liberalization, deregulation, and impact of information and communication technology (ICT)
- ③ **2008 Global Crisis**
 - declining exports volume
 - tight liquidity squeezed by foreign capital outflow
 - ASEAN's most open economies such as Malaysia and Singapore were hit harder
 - Stimulus package in China has been customized to cushion the domestic economy

Research Question

- ① What are the implications of the global financial crisis on the economies of US, China, and ASEAN as well as its global production network?
- ② Will a drop in US's Gross Domestic Product (GDP) adversely affect China's exports to US and China's imports from the ASEAN?

Economic Stimulus: Current Account Imbalance

- ① ASEAN has been experiencing expansion in merchandise trade over the past thirty years
- ② Economic expansion due to:
 - rapid expansion of developing economies
 - liberalization measures in trade such as reduction of trade barriers
 - investment policies

Trade Flows between East Asia and US

**Share of East Asian Exports/Imports to/from the United States
Selected Countries for 2006**

Country	Exports		Imports	
	Percent of Exports	Amount of Exports (in Billion USD)	Percent of Imports	Amount of Imports (in Billion USD)
Japan	24.2	151.86	26.8	59.60
South Korea	7.6	47.69	14.6	32.47
China	48.5	304.34	24.8	55.16
Singapore	2.9	18.20	11.1	24.69
Total East Asian Exports	627.5 Billion		USD 222.4 Billion	

Source: United Nations Comtrade Database

Adjustments in Current Account Imbalances

① Accomodating Transactions in the Current Account

- deficit or net outflow of monetary assets in the current account, which is offset by a surplus or a net inflow of monetary and financial assets in the capital account
- surplus or net inflow of monetary assets in the current account, which is offset by a defiict or net outflow of in the capital account

② Changes in the Exchange Rate

- current account deficit may also be addressed by devaluing the domestic currency

Adjustments in Current Account Imbalances

① Changes in Domestic Expenditures

- **Current Account Deficit** - there is a need to curb domestic demand including consumption via higher taxes, investments through higher interest rates, and government expenditure through reduced fiscal deficit and through a budget surplus
- **Current Account Surplus** - there is a need to expand domestic consumption through lower taxes, investments through lower interest rate, and government expenditure through deficit spending

Concept of Decoupling

- ① Interrelatedness of economies with each other in terms of trade
- ② Asia cannot decouple itself and cannot experience higher economic growth compared to the economic slowdown in the global market (Park, 2009)
- ③ Importance of China in the East Asia and ASEAN region
 - in terms of global production networks
 - hub of massive production for its domestic market and the rest of the world

Global Production Networks

① Concept

- Multinational corporations (MNCs) create production networks in various countries comprising of factories that manufacture products and research centres, and other aspects of a business
- Replaced trans-national corporations (TNCs) as the most effective form of industrial organization

② Drivers of Global Production Networks

- liberalization or institutional changes such as trade liberalization, liberalization in capital inflows, liberalization in FDI policies, and privatization
- demand and supply impacts of information and communication technology
- competition in the global arena

Global Production Networks

① Global Production Networks in ASEAN

- served as a channel by which knowledge and technology was transferred from the home country to the rest of the ASEAN region
- channels include: educated labor force and enhanced infrastructure in the areas of telecommunication and transportation

Methodology

① Vector Autoregression

- Variance Decomposition
- Impulse Response Function

② Data Requirements

- Quarterly Data (4th Quarter of 1991 to 1st Quarter of 2008)
- GDP of US (USGDP), EU (EUGDP), China (PRCGDP), Japan (JAPGDP), and ASEAN (ASEANGDP)
- China's import from the ASEAN (PRCM), ASEAN's exports to China (ASEANX), and Imports of US (USM), European Union (EUM), and Japan (JAPM)
- Inflation (ASEANINF) and nominal exchange rate (ASEANNEER) for ASEAN
- Source: International Financial Statistics (IFS) and ASEAN Secretariat database

Methodology

① Preliminary Tests

- Phillips-Perron Unit Root Test
- Johansen Cointegration Test

② Vector Autoregression Model Specification

- $PRCX = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANGDP, USM, EUM, JAPM, ASEANX, ASEANINF, ASEANNEER)$
- $ASEANX = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANGDP, PRCX, ASEANINF, ASEANNEER)$
- $ASEANGDP = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANX, ASEANINF, ASEANNEER)$

Findings

- ① $PRCX = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANGDP, USM, EUM, JAPM, ASEANX, ASEANINF, ASEANNEER)$
- China's exports and the GDPs of China and US cause significant variations in China's exports
 - Disturbances from the GDPs of Japan and ASEAN as well as the imports of US, EU, and Japan are relatively the same
 - Domestic variations from inflation and nominal exchange rate in ASEAN have a relatively small impact on China's exports
 - Influences of the economic performance of US cause variations in China's exports over the period studied. It shows that China's trade performance is not decoupled with US
 - Shocks in China's exports are mainly generated by itself and the GDPs of US, EU, Japan, and ASEAN
 - The economic performance of China's major trading partners seem to be the major source of innovations in China's exports

Findings

- ① $ASEANX = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANGDP, PRCX, ASEANINF, ASEANNEER)$
- ASEAN's exports and US's GDP cause significant variations in ASEAN's exports
 - Disturbances from the GDPs of China, Japan, ASEAN, US, and EU and from the imports of US, EU, and Japan are relatively same
 - Domestic innovations from the nominal exchange rate and inflation of ASEAN have a minimal contribution to variations in ASEAN's exports
 - The demand for ASEAN's products by China and then by US is significant. US stimulate China's demand for ASEAN's raw materials due to their increased demand for final goods. Hence, the economies of ASEAN, China, and US are highly coupled.

Findings

① $ASEANGDP = f(USGDP, EUGDP, PRCGDP, JAPGDP, ASEANX, ASEANINF, ASEANNEER)$

- The GDPs of ASEAN, China, and Japan cause significant variations in ASEAN's GDP
- Disturbances from the other variables are relatively same
- Domestic innovations from ASEAN's nominal exchange rate and inflation have minimal variations to ASEAN's GDP.
- The demand for ASEAN's products by China and Japan is significant in stimulating the ASEAN economy. Hence, the economies of ASEAN, China, and Japan are highly coupled.

General Findings

- ① The economic performance of US affects China's trading activities and the economic growth in the ASEAN region
- ② China's trade performance affects the ASEAN economy.
- ③ China has a vital role in intra-regional trade that is destined to external markets aside from Asian markets
- ④ China's exports to US, Japan, and Europe are correlated with China's imports from the ASEAN
- ⑤ The ASEAN region is coupled with the economic performance of its trading partners such as the US

Conclusion

- ① ASEAN has a vital role in global trade
 - due to its increasing trade volume in and out of the region specifically on manufactured goods such as electronics
 - raw materials and work-in-progress goods are sourced from ASEAN's developing economies
 - developing economies will export the semi-finished goods to China for the production of the final goods for domestic consumption and for export to the rest of the world
- ② Use of Global Production Networks
- ③ Economic Interdependence
- ④ Economic Coupling
 - a drop in China's exports to the rest of the world will have negative consequences on the ASEAN economies that supply the necessary raw materials that China will require for exports to the rest of the world

Conclusion

① Empirical Findings

- Economic growth experienced by ASEAN brings about positive effects to China's exports sector
- Shocks coming from China to ASEAN comes through ASEAN exports which will eventually affect ASEAN's GDP.
- The impact of China's GDP on ASEAN exports occurs at several lags implying that the shocks have delayed effects distributed across time.
- Internal variation exists because ASEAN is a large economy.
- The share of international trade to GDP in China is so much higher than other large economies in the world indicative of the remarkable role that international trade has played in China's growth process.

Policy Recommendation

- ① ASEAN needs to promote trade further
- ② ASEAN needs intensive efforts in maintaining economic stability
- ③ Strong economic linkages within the region must not be weakened by the rise in tariffs or non-tariff barriers by individual countries
- ④ Deepen regional cooperation efforts for:
 - promotion of macroeconomic coordination
 - deepening of cooperation initiatives in capacity building, human resource development, research and development, information and communication technology, investment generation, and trade facilitation