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U.S. Agricultural Export Growth in ASEAN Member States: Does FDI Stock Matter?

Kayode Ajewole

Selected Paper prepared for presentation at the International Agricultural Trade Research Consortium's (IATRC's) 2019 Annual Meeting: Recent Advances in Applied General Equilibrium Modeling: Relevance and Application to Agricultural Trade Analysis, December 8-10, 2019, Washington, DC.

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United States Department of Agriculture

U.S. Ag-Export Growth in ASEAN States: Does FDI Stock Matter?



Kayode M. Ajewole
USDA Economic Research Service

IATRC Annual Meeting
December 08 -10, 2019
Washington, DC

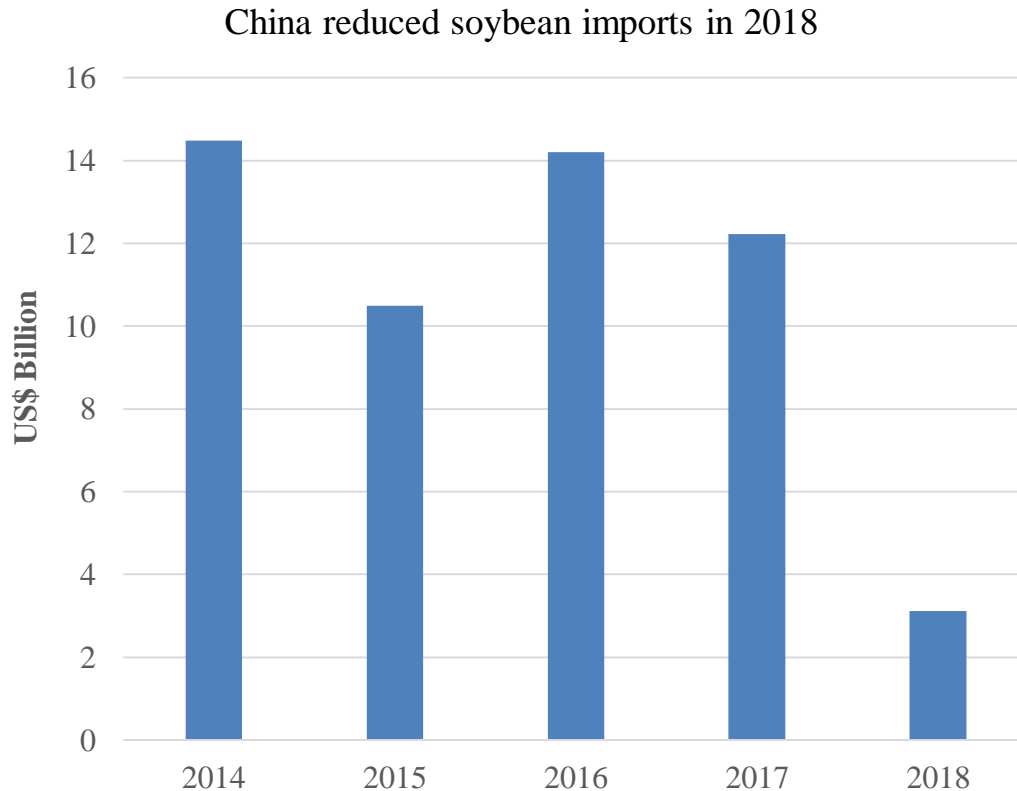


The findings and conclusions in this presentation are those of the author and should not be construed to represent any official USDA or U.S. Government determination or policy

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Background

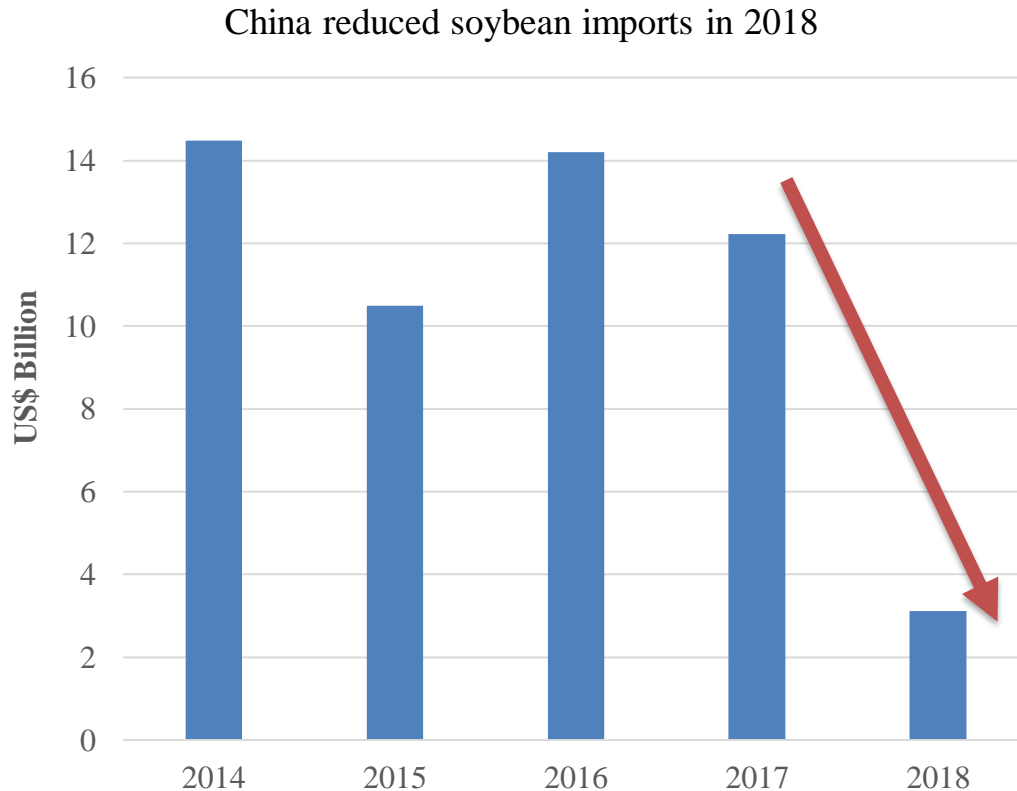


Source: ERS analysis of data accessed through Trade Data Monitor

- ❑ In July 2018, both the U.S. and China imposed tariffs worth about \$34 billion combined
- ❑ High tariff leads to a decrease in U.S. ag exports to China
- ❑ China accounted for about 8% of all U.S. ag exports in 2017
 - About 6% as of September 2019



Background



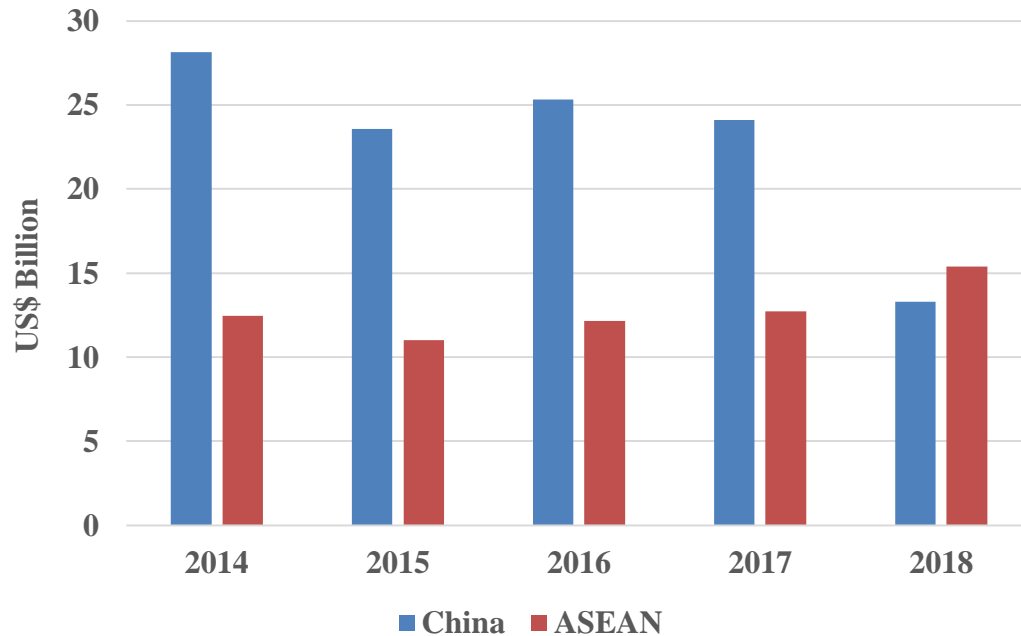
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- ❑ In July 2018, both the U.S. and China imposed tariffs worth about \$34 billion combined
- ❑ High tariff leads to a decrease in U.S. ag exports to China
- ❑ China accounted for about 8% of all U.S. ag exports in 2017
 - About 6% as of September 2019
- ❑ Total soybean exports to China declined **74%** in 2018 relative to the previous year



Background

U.S. agricultural exports to ASEAN grow
while China reduces imports



Source: ERS analysis of data accessed through Trade Data Monitor

- ❑ The current trade has led U.S. farmers to look for alternative export markets
- ❑ Compare with Association of Southeast Asian Nations (ASEAN): ASEAN agricultural imports from U.S. is increasing



Does U.S. Outward FDI improve Ag Exports?

- ❑ This study takes inspiration from earlier work by Furtan and Holzman (2004) on impact that U.S FDI has on U.S exports to Canada
- ❑ Literature reports a strong link between inward FDI and export performance of the host
(*Zhang and Song, 2000; Kneller and Pisu, 2007; Amighini and Sanfilippo, 2014*)
- ❑ Building high FDI stock is believed to create avenues for durable trade relationships between two economies (OECD, 2019)
- ❑ Does the relationship between FDI and trade reflect in U.S. ag exports?
- ❑ Aim is to identify the role of FDI in U.S. agricultural exports to the ASEAN member states

FDI



Source: petrotimes.vn



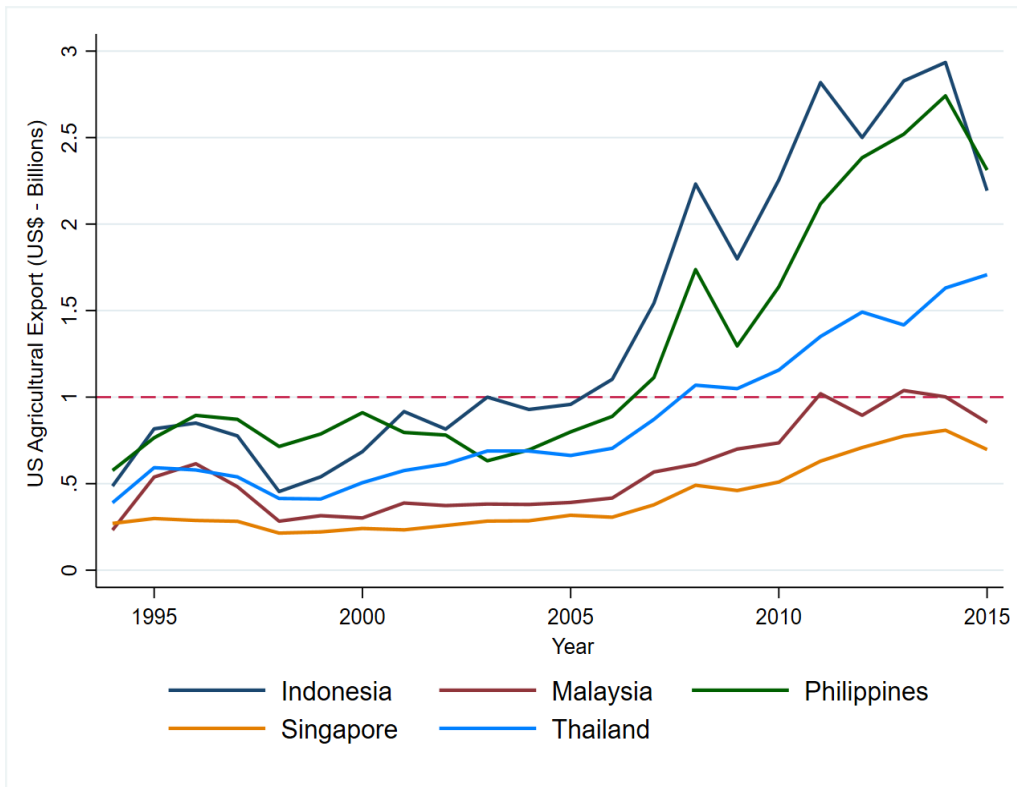
ASEAN

- ❑ ASEAN is comprised of ten member states
- ❑ About 650 million people (3rd-largest entity in the world after China and India)
- ❑ Nominal GDP of about \$2.8 trillion
- ❑ Increasing per-capita income
- ❑ \$3.4 trillion in yearly global trade
- ❑ Imported \$2.4 billion of U.S. soybeans in 2018
- ❑ 4th-largest global importer of U.S. agricultural goods (2nd only to China in the Indo-Pacific region)



ASEAN

U.S. ag export to ASEAN



Source: ERS analysis of data accessed through Trade Data Monitor

- ☐ Avenue for U.S. agricultural export growth
- ☐ Ag exports grow significantly after 2006
- ☐ Highest ag export growth seen in Philippines and Indonesia

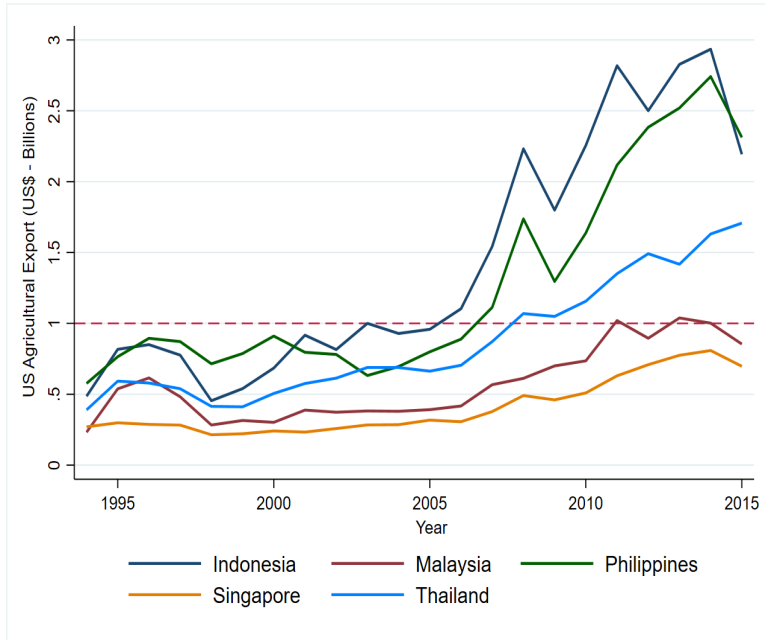


Source: agweek.com

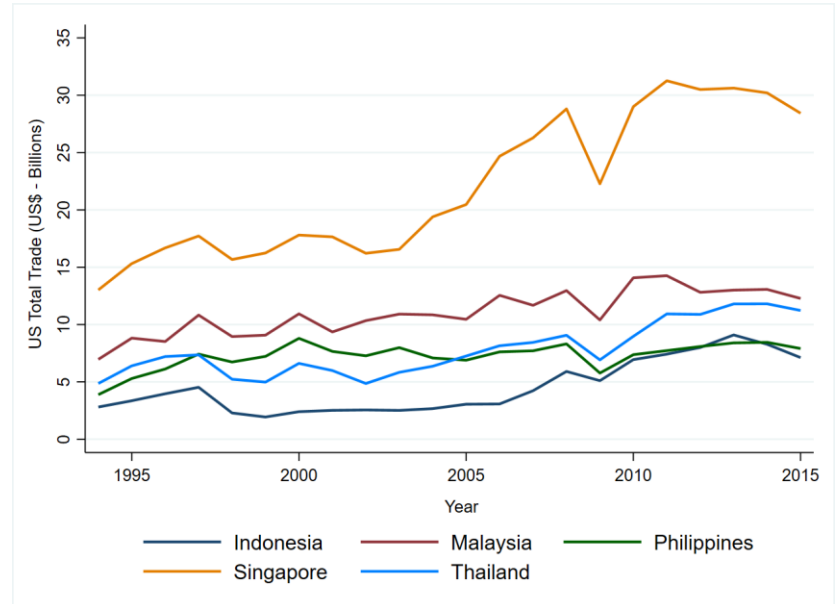


ASEAN

U.S. Agricultural Exports



U.S. Total Exports

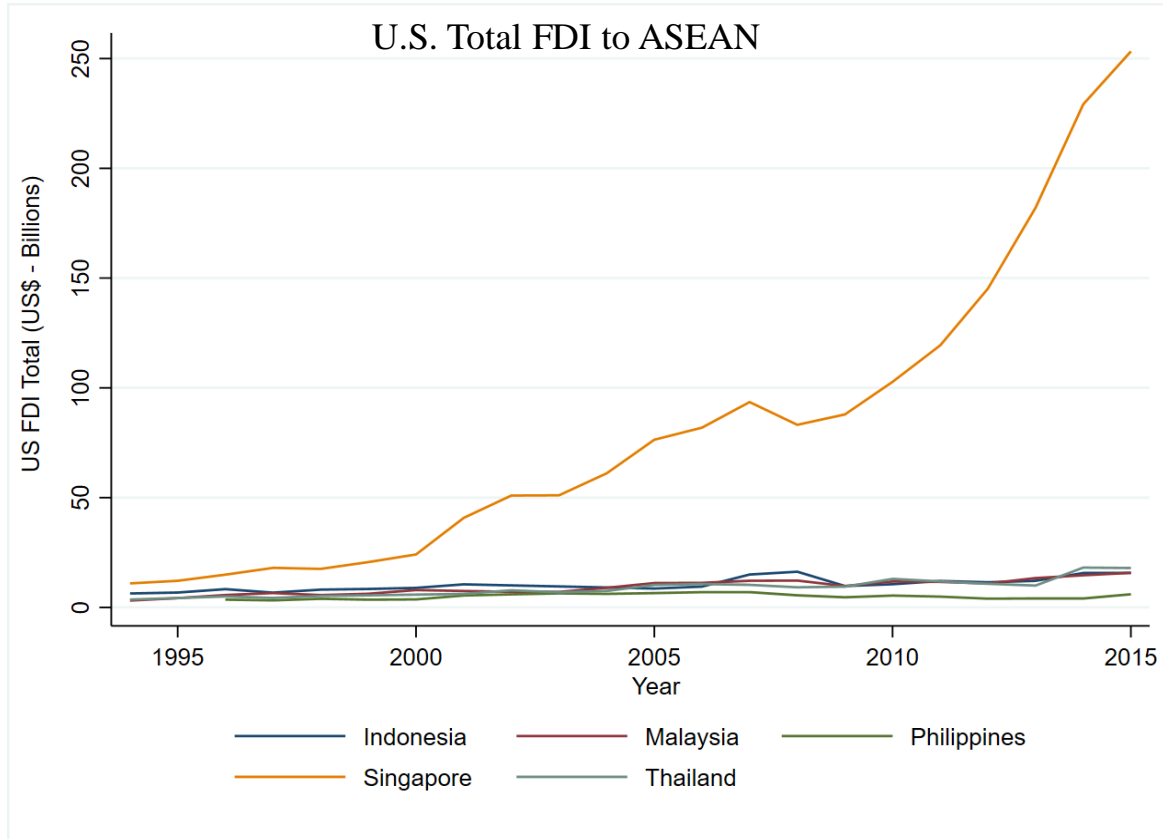


Source: ERS analysis of data accessed through Trade Data Monitor

- ☐ U.S. exports increase, both for total exports and for agricultural products
- ☐ Singapore is the largest non-ag importer and the lowest ag importer



ASEAN



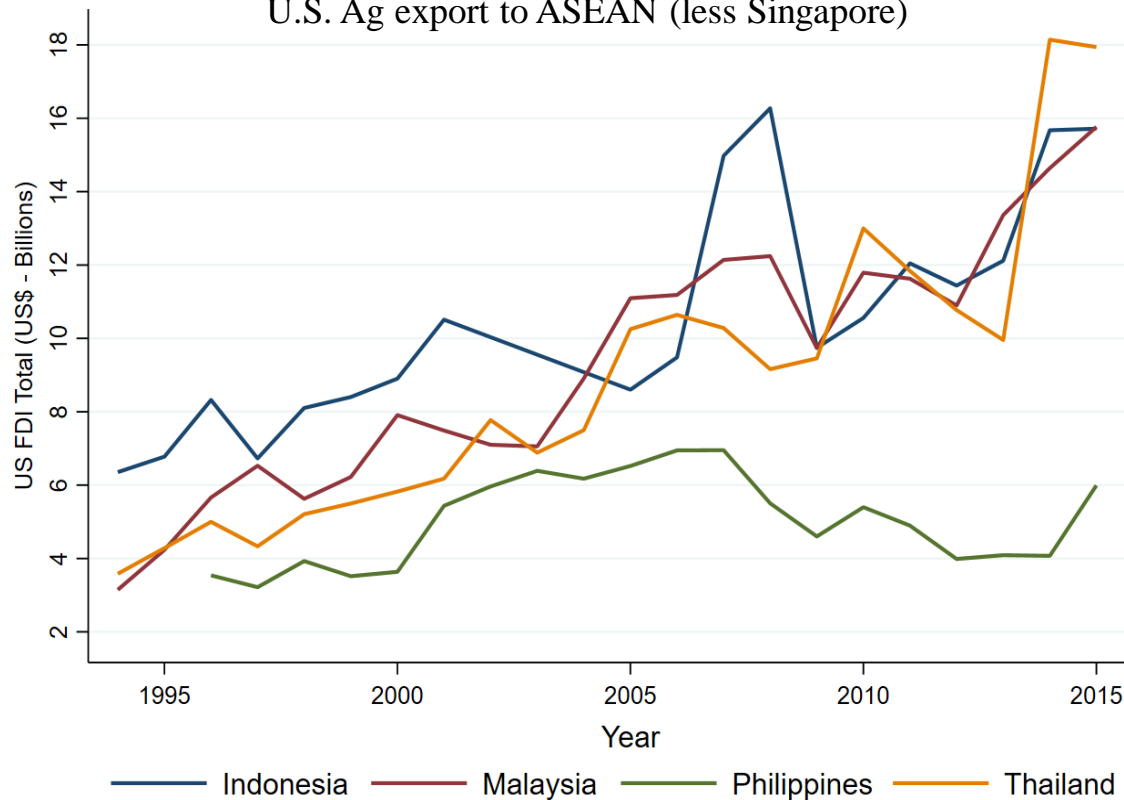
Source: ERS analysis of FDI data accessed through BEA

- ☐ U.S. FDI in ASEAN member states is increasing
- ☐ U.S. heavily invested in Singapore compared with rest of ASEAN members
- ☐ Singapore is the most developed among the ASEAN



ASEAN

U.S. Ag export to ASEAN (less Singapore)



Source: ERS analysis of data accessed through Trade Data Monitor

- ❑ The financial crisis of 2007- 08 slowed down U.S. investment in ASEAN
- ❑ Within 2 decades (1995-2015), U.S. FDI to Indonesia, Malaysia, and Thailand have grown from billions of dollars to tens of billions of dollars
- ❑ U.S. investment in Philippines decline after financial crisis of 2007- 08



Model

To assess the impact of outward FDI stock on ag exports, I construct a dynamic panel model of exports on FDI

$$\ln EXP_{it} = \alpha + \beta_1 \ln EXP_{it-1} + \beta_2 \ln FDI_{it-1} + \beta_3 \ln POP_{it} + \beta_4 \ln GDP_{it} + \beta_5 XR_{it} + v_i + \varepsilon_{it}$$

FDI_i = U.S. outward FDI to host country (food and total FDI)

EXP_i = U.S. exports to country i (ag and total export)

GDP_i = Weighted GDP

POP_i = Population

XR_i = Exchange rate of country i 's currency to the U.S. dollar

Arellano–Bond linear dynamic panel-data estimation is employed



Model

- ❑ Hypothesis: Host country experiences an increase in FDI stock in previous year will lead to an increase in U.S. agricultural exports to the host country; i.e.

$$\beta_2 > 0$$

- ❑ FDI creates a vertical link between the home country operations of a multinational firm and its foreign operations via demand for intermediate goods from the host country (Gopinath et. al., 1999; Helpman 1984; Helpman and Krugman, 1985)
- ❑ This study differs from Gopinath et al. (1999) in that it focuses on U.S. agricultural exports as intermediate goods



Data

☐ Trade Data:

- Ag exports: Trade Data Monitor
- Total U.S. exports: UN Comtrade database
- Exchange rate: Penn World Table (PWT) 9.1 (Feenstra et al., 2015)

☐ FDI data: Bureau of Economic Analysis (BEA)

☐ GDP (current price): International Monetary Fund, World Economic Outlook Database, October 2019

☐ Gravity data: CEPII

Adjusted for disinvestment (Magalhães and Africano, 2017)

$$\ln FDI = \ln \left(1 + \frac{FDI}{(\text{most negative value} + 1)} \right)$$



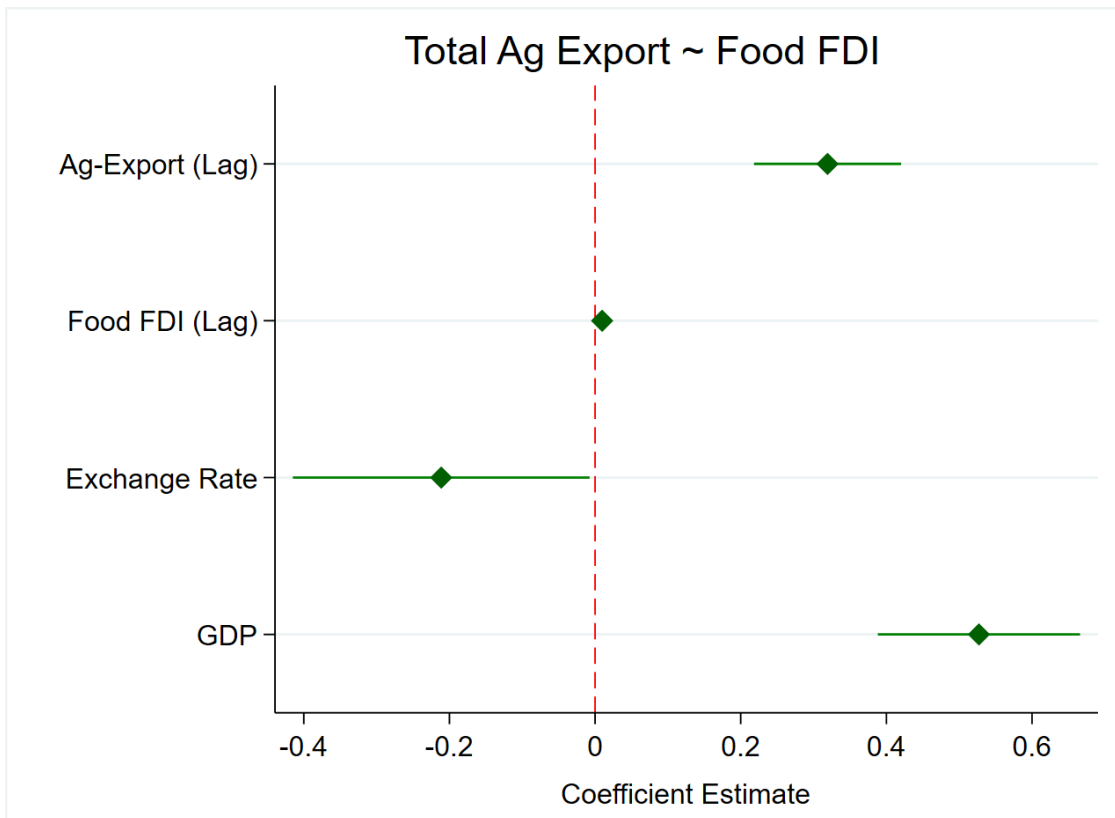
Data

Table: Summary Statistics

Variable	Unit	Obs	Mean	Std. Dev.	Min	Max
Total U.S. Exports	(US\$ - Millions)	108	10,644	6,961	1,939	31,261
Total U.S. Ag Exports	(US\$ - Millions)	108	913	671	214	2,934
Total U.S. FDI	(US\$ - Millions)	105	23,585	43,080	3,148	253,277
U.S. Food FDI	(US\$ - Millions)	85	141	200	-11	958
GDP	(US\$ - Billions)	108	236	190	71	919
Population	(Millions)	108	80.67	78.56	3.42	257.56
GDP per Capita	(US\$ - Thousands)	108	9,919	14,297	572	57,565



Results



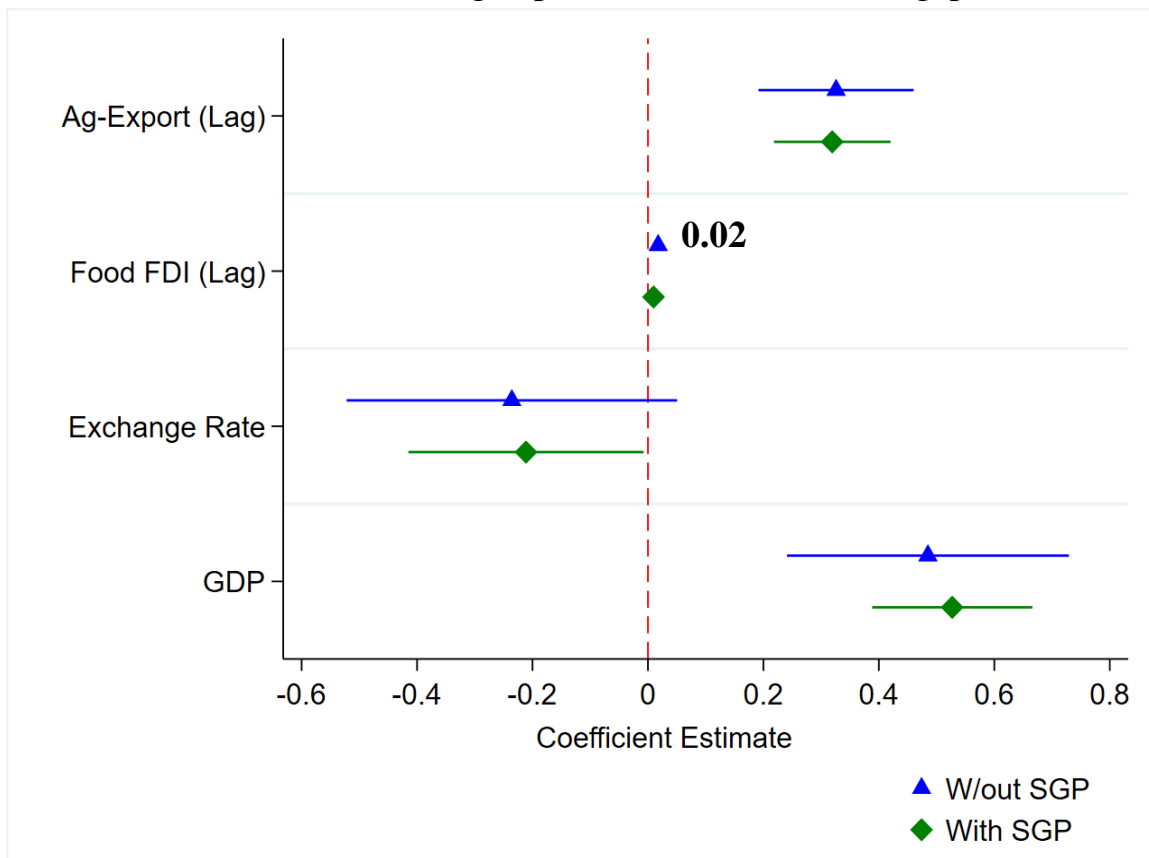
❑ Food FDI does not improve U.S. ag export to ASEAN

❑ Exchange rate plays a role in U.S. ag export to ASEAN



Results

Total Ag export ~ Food FDI (less Singapore)



❑ Without Singapore: Food FDI becomes highly significant, but with a very small coefficient

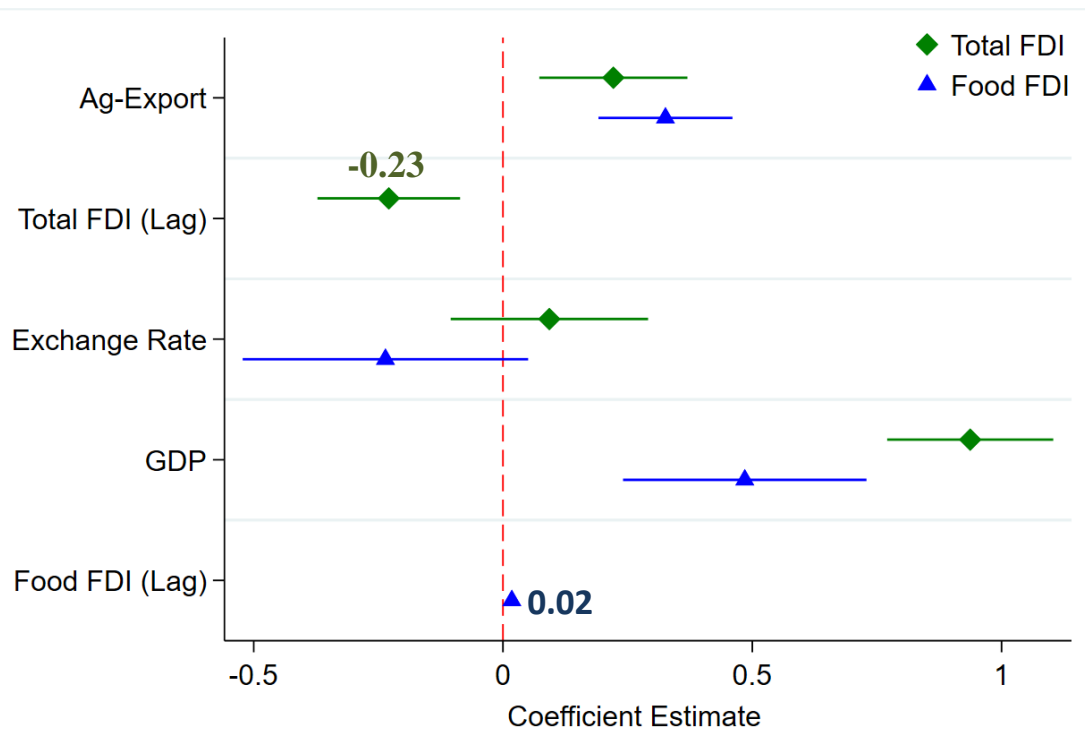
❑ Food FDI has positive coefficient

❑ Exchange rate becomes insignificant



Results

Total Ag export ~ Food and Total FDI (less Singapore)

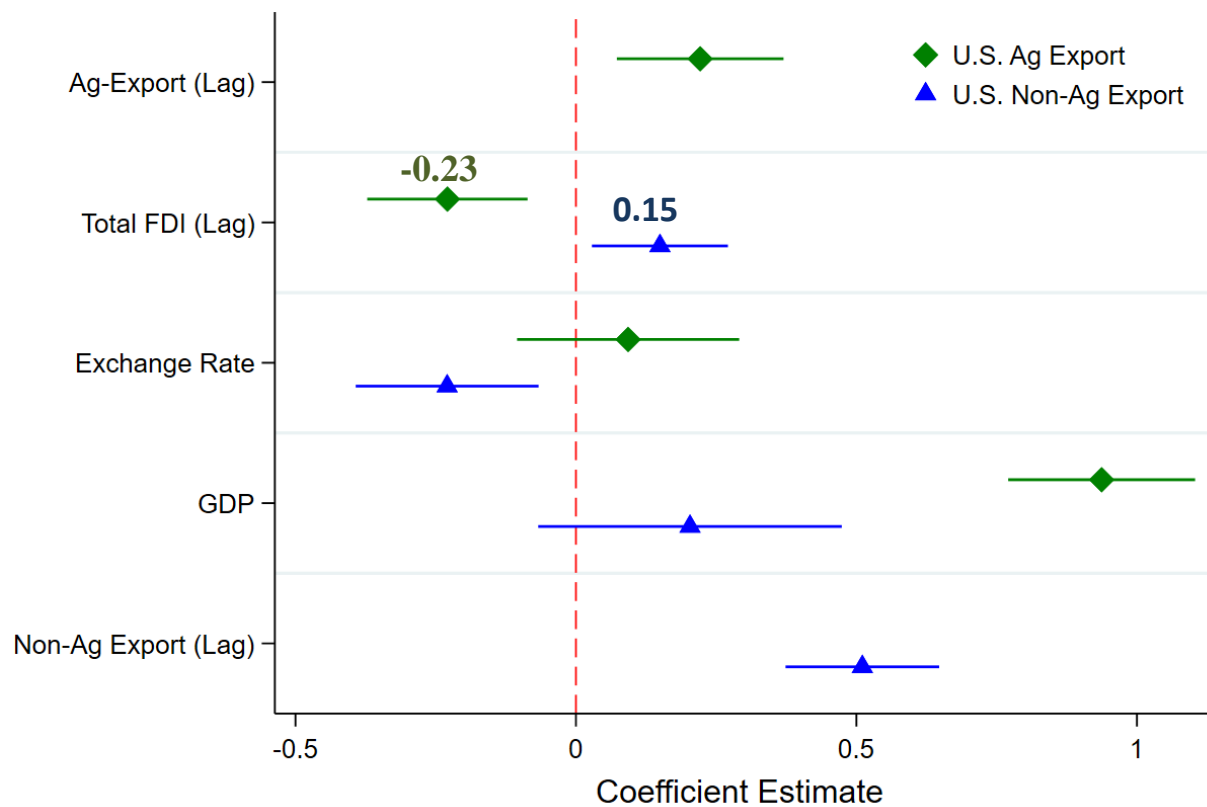


□ Increase in U.S. total FDI to the ASEAN countries reduces U.S. ag export



Results

Total Ag / Non-Ag export ~ Total FDI



□ Non food FDI reduces ag export

□ Total U.S. FDI increases U.S. non ag export



Conclusion

- ❑ Trade data suggests opportunities exist to expand U.S. ag exports to ASEAN members
- ❑ Result shows that total FDI is a substitute to U.S. ag exports
- ❑ U.S. FDI increases non-ag export to host ASEAN members
- ❑ Strong U.S. dollar reduces U.S. exports
- ❑ Although food FDI increases ag exports to ASEAN, the impact is very low



Directions for future research

- ☐ Examine FDI flow
- ☐ Use quarterly data
- ☐ Compare to other countries with high U.S. food FDI



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THANK YOU!

Kayode M. Ajewole

Research Agricultural Economist

International Trade and Development Branch

Market and Trade Economics Division

USDA - Economic Research Service

(816) 926-1998 | Kayode.Ajewole@usda.gov

Visit the [ERS Website](http://www.ers.usda.gov)



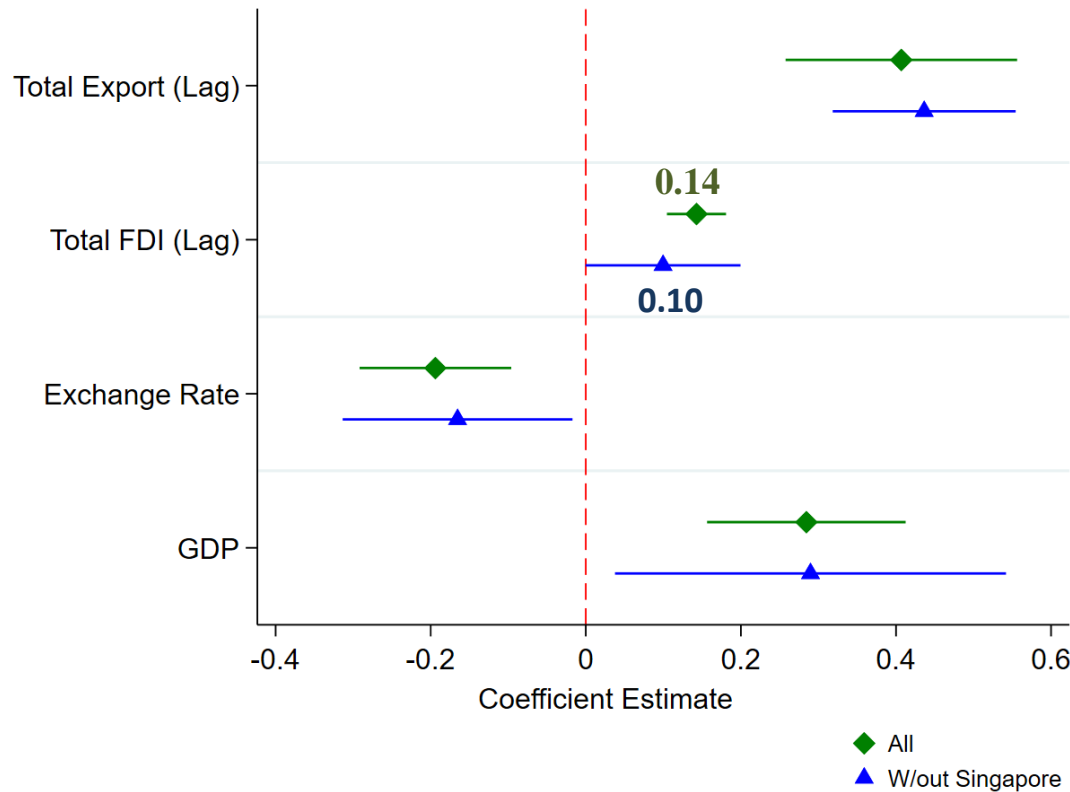
Economic Research Service

www.ers.usda.gov



Appendix

Total export ~ Total FDI



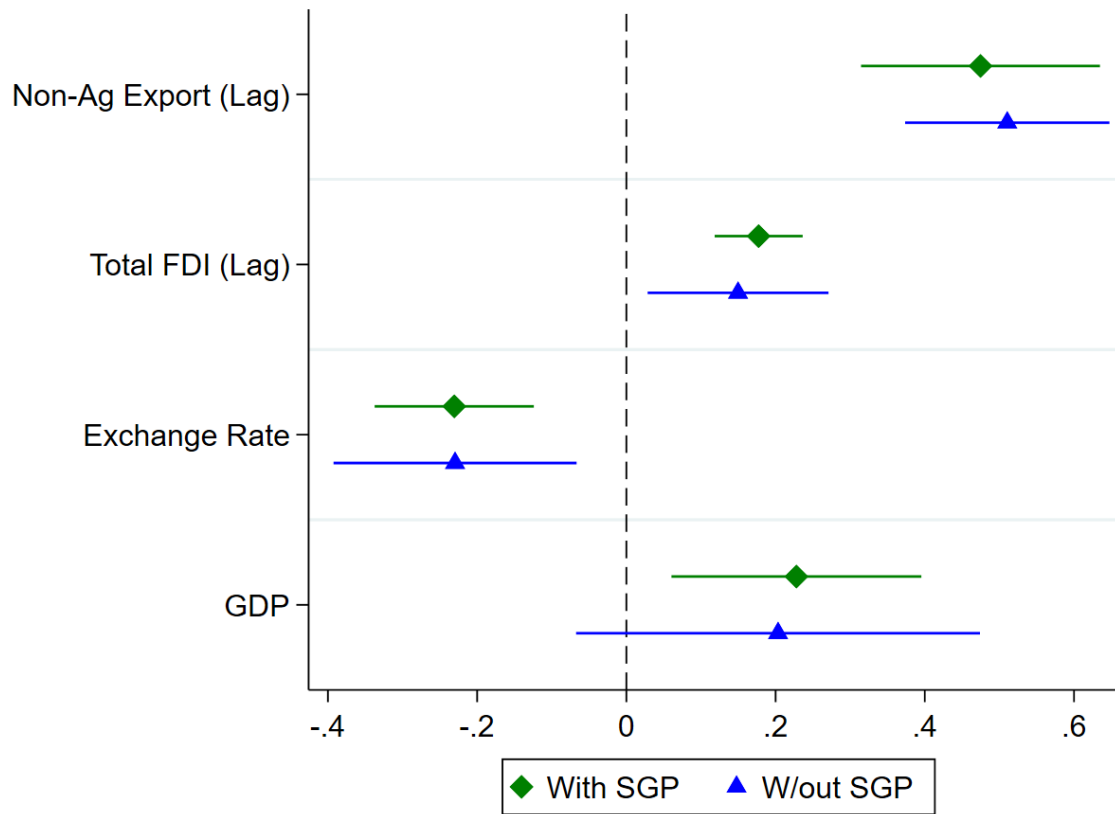
❑ Singapore makes a huge difference on impact of total FDI on U.S. total exports to ASEAN

❑ Strong U.S. dollar reduces U.S. exports



Appendix

Total export ~ Total FDI



❑ Singapore makes a huge difference on impact of total FDI on U.S. total exports to ASEAN

❑ Strong U.S. dollar reduces U.S. exports

