



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

## **Some Short-Run Effects of an Import Duty on the U.S. Economy**

**Paul Gallagher**

*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.*

*Copyright 2019 by Paul Gallagher. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.*

## Some Short-Run Effects of an Import Duty on the US Economy

By  
Paul Gallagher  
Economics Department  
Iowa State University  
paulg@iastate.edu  
12/9/19

Presented at:  
IATRC annual Meeting  
Washington, DC  
December 9, 2019

(I) Intro-my project: a modeling exercise and a policy impact study



## B.Exchange rates

1.current account effects from X demand, M demand and prices

2.Capital account

a.direct investment in and out

b. Stocks: foreign international investment positions, into the US and out of the US

c. Debt: foreign internal investment positions, into the US and ut of the US.

Stock ( not flow) variables

### Financial Wealth of the United States in 2016

asset characteristic:

location in:

ownership by:

type:

Money

Debt

Stock

Direct

G-debt

other(real estate)

total US wealth

Average loss of international position over 40 yrs (1975-2015)

Sources: US FRB and IMF

US Net  
International  
Position

US  
foreigners  
(in \$ trillion)

ROW  
US

13.096

0.094

29.660

14.672

6.588

-8.084

32.025

6.563

6.997

0.434

7.419

7.375

-0.044

1.066

-1.066

16.081

90.862

29.814

21.067

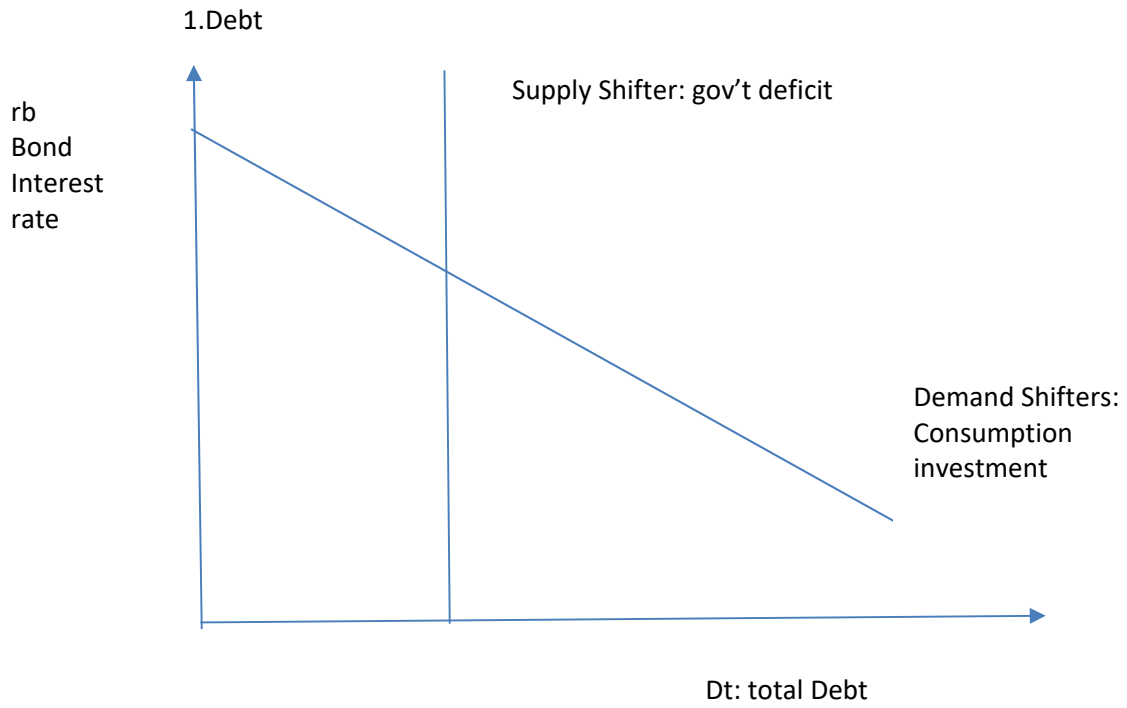
-8.747

-0.21868

C.US macro-economy. The structural model you might expect after

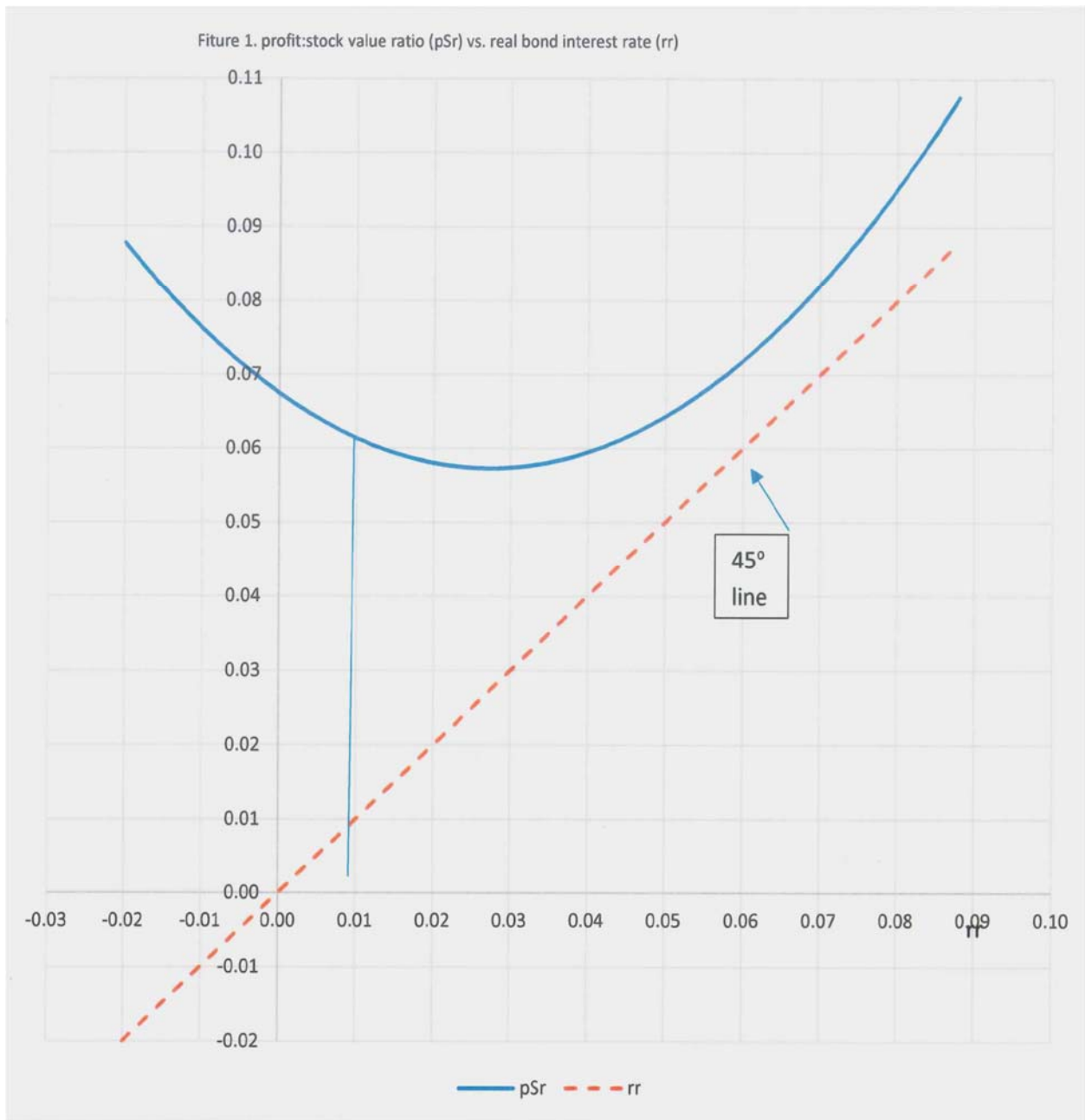
1. Teaching a macro course using Baumol/Blinder
2. Taking A macro course based on Sargent, Ch.2
3. Reading Dornbush, on open economy

D. Along the way, I figured out That I'd need main financial markets to put A,B,and C together.





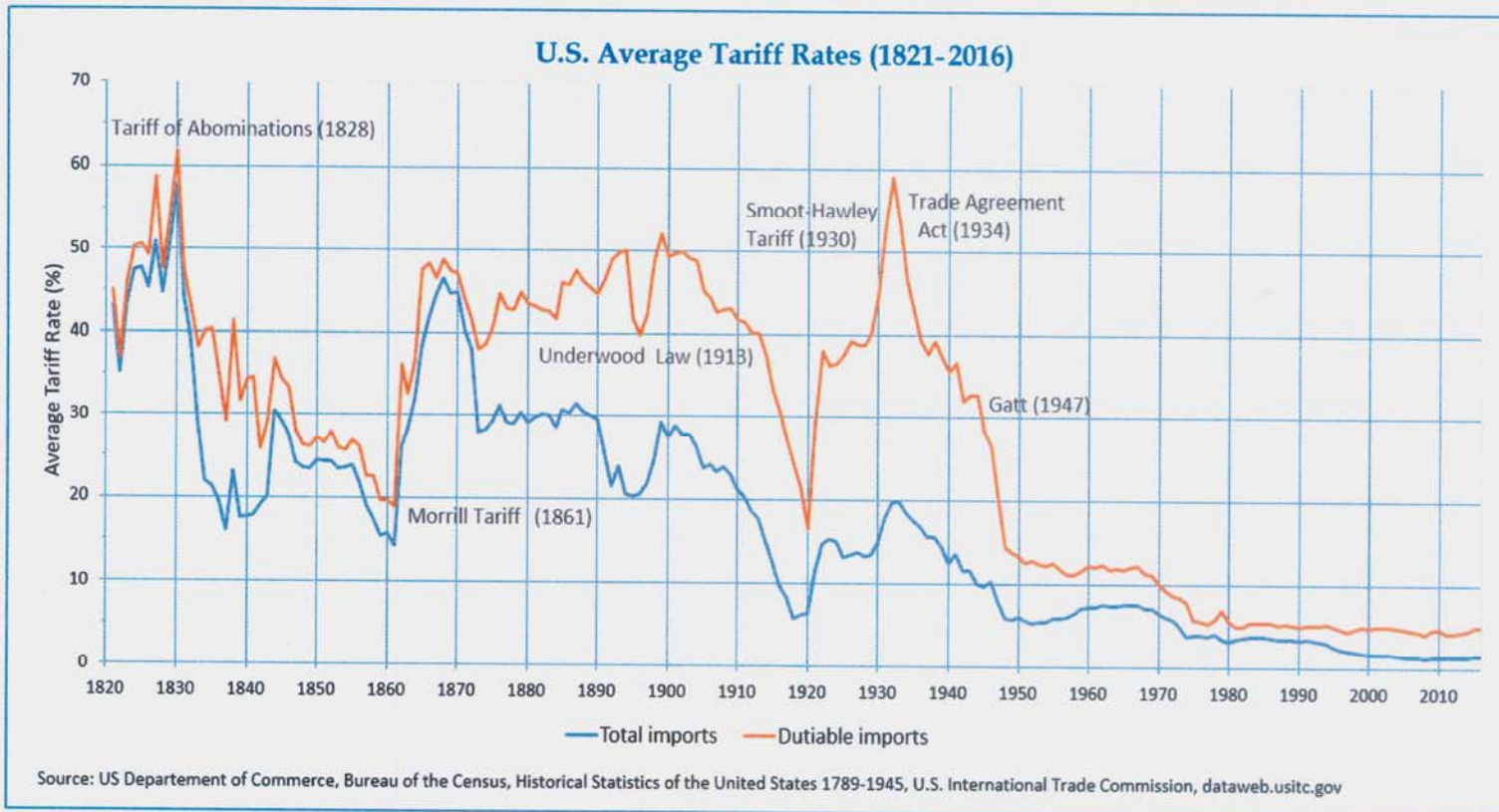
## 2. Stock Prices;



### (III) Analyze Tariff Impact

I look at a 25% tariff on all imports. Looking at the chart below, the magnitude roughly corresponds to the Smoot-Hawley tariff of the 1930's.

Figure 2.



I analyzed the tariff impact two ways;

-Scenario A:

Emphasizing the direct effect on import prices, current account balance, and a shift in direct export demand

-Scenario B:

including the macroeconomic effect tax effect on disposable income, consumption, output, labor, etc.

-t=25% implies tax revenue collections of \$0.63 trillion, calculated at baseline values of imports

-Baumol and Blinder's calculation of the fiscal stimulus used to shock the economy out of the 2008 financial crisis is \$0.787 trillion.

## (IV) Results

Scenario A : Scenario A focuses on the direct impact of the tariff on the trade sector.

1. In the trade sector, the tariff directly
  - a. reduces import volume slightly (by about one half of one percent),
  - b. raises export expenditures because domestic prices increase (by 5 percent) and export prices follow closely.
  - c. improves the trade balance, or reduces the trade deficit,
  - d. increases the exchange rate (dollar stronger), at least partly due to the trade balance effect.
2. In the domestic economy
  - a. net exports increase, pushing an increase in output and income.
  - a. consumption of domestic goods increases, despite relatively more expensive domestic goods, and due to higher output and income.
  - c. In turn, the consumption expansion is consistent with expanding domestic output. But profits and investment still decline slightly.
3. In the debt market
  - a. the expansion in consumer spending contributes to an expansion in debt demand
  - b. so the nominal 10-year bond rate increases.
4. In the stock market
  - a. there is a reasonably stable statistical relationship between the real interest rate and the corporate profit: stock value ratio for the entire US economy, which is analogous to the earnings:price ratio for individual stocks. In figure 1, the difference between the profit:value ratio and the riskless real interest rate possibly indicates a risk premium. It widens at both the high end and the low end of the historical range. Premiums may reflect scant chances of sustained growth at the high end and deflation risk at the low end of the real interest rate range.
  - b. the baseline real interest rate is at the low end of the historical range. Then the real interest rate increases for the scenario A model solution.
  - c. So the estimated decline in the profit:value ratio from figure 1, combined with relatively constant levels of real profits, implies a moderate increase in stock market prices.
5. Real Wealth
  - a. increases because stock values and the size of the debt portfolio increase more than the price level.
  - b. this causes a further increase in consumption of domestic goods.

## 6. Capital account of the trade balance:

a. There are conflicting economic forces influencing the trade balance. On one hand, the current account deficit decline and the associated tendency for a strengthening dollar, discussed earlier, means that the capital inflow requirements would decline ( $K_b \downarrow$ ). On the other hand, improving financial incentives in the US, like the increase in stock market prices and interest rates would encourage foreigners to park more of their assets in the US (variables ending in "fa" in table 1). Similarly, domestic asset-holders would park fewer of their assets in foreign countries (variables ending in "af"  $\downarrow$ ). So, financial incentives may work towards an increase in the capital inflow.

b. The pattern of direct investment follows the direction of financial incentive. That is, outward direct investment increases because foreign processing margins (expressed in real dollars) relative to domestic margins increase. Inward direct investment by foreigners declines due to lower profit margins in the US.

c. But portfolio assets adjust in the opposite direction of the direct financial incentive, for some less obvious but sensible reasons. Specifically, outflows of US Stock and Debt assets increase ( $S_{iaf} \uparrow$  and  $D_{iaf} \uparrow$ ), because higher American wealth means more stock and debt assets of all types, and the corresponding foreign assets increase in a roughly fixed proportion. Also, Stock inflows from foreign countries, expressed in real dollars, decline ( $S_{ifa} \downarrow$ ), even though stock price appreciation increased the overall value of the foreign stock portfolio when expressed in foreign currency units--the dollar value of the foreign stock inflow declined because of the stronger dollar. The inflow of foreign owned debt assets in the US does increase ( $D_{ifa} \uparrow$ ) with rising interest rates, as the direct financial effect would suggest--but the main reason appears to be the decline in the present value of existing debt assets that accompany the increase in interest rates.

d. Overall, the size of the capital balance does decline; total inflows and outflows both increase, but the outflow increase is larger than the inflow increase. So, overall financial account effects seem to work towards a strengthening \$. Indeed, both nominal and real exchange rates are above the baseline level.

Scenario B: Scenario B includes (a) the direct impact of the tariff on the trade sector, as before, and (b) the effect of tax collections associated with the import duty.

1. In the trade sector, the tariff's direct and indirect effects
  - a. reduce import volume substantially (by nearly 11%),
  - b. raise export volume slightly (1.2%) but reduces export expenditures because domestic and export prices move closely together and domestic prices fall substantially (by 10%),
  - c. improve the trade balance, or reduce the trade deficit by more than Scenario A,
  - d. increase the nominal exchange rate (dollar stronger), at least partly due to the trade balance effect.
2. In the domestic economy
  - a. net exports decrease, pushing a decrease in output and income.
  - b. the import tax collections contribute to declining disposable income.
  - c. consumption of domestic goods declines, because declining incomes offset relatively more favorable prices of domestic goods.
  - d. In turn, the consumption decline pushes a reduction in domestic output. Profits and investment decline substantially.
- 2a. In the debt market
  - a. declines in investment and consumer spending contribute to a reduction in debt demand
  - b. so the nominal 10-year bond rate decreases.
3. In the stock market

The real interest rate still increases over a very low baseline real interest rate, which favors an increase in stock prices. But profits have declined substantially, and this effect dominates. So stock prices fall.
4. Real Wealth
  - a. declines because stock values and the size of the debt portfolio both decline more than the price level.
  - b. this causes further decrease in consumption of domestic goods.

## 5. Capital account of the trade balance:

a. There are reinforcing economic forces influencing the trade balance. In particular, the current account deficit decline and the associated tendency for a strengthening dollar, discussed earlier, means that the capital inflow requirements would decline ( $K_b \downarrow$ ). Furthermore deteriorating financial incentives in the US, like the decrease in stock market prices and interest rates would encourage foreigners to park less of their assets in the US (variables ending in "fa"). Similarly, domestic asset-holders would park more of their assets in foreign countries ( variables ending in "af"  $\uparrow$ ). So, financial incentives may also work towards a decline in the capital inflow.

b. Direct investment flows are offsetting, but contribute to a small increase in net outflows. That is, outward direct investment increases because the margin for US processing deteriorates. Similarly, inward direct investment by foreigners decreases because US investment conditions are less attractive. The net effect for direct investment is a decrease in  $K_b$ .

c. But portfolio assets adjust in the opposite direction of the direct financial incentive, for some less obvious but sensible reasons. Specifically, outflows of US Stock and Debt assets decrease ( $S_{iaf} \downarrow$  and  $D_{iaf} \downarrow$ ), mainly because lower American wealth means less stock and debt assets of all types, and the corresponding foreign assets decline in a roughly fixed proportion. Also, Stock inflows from foreign countries, expressed in real dollars, increase ( $S_{ifa} \uparrow$ ), even though stock price depreciation decreased the overall value of the foreign stock portfolio when expressed in foreign currency units--The dollar value of the foreign stock inflow declined because of the lower real exchange rate. The inflow of foreign owned debt assets in the US does decrease ( $D_{ifa} \downarrow$ ) with declining interest rates, as the direct financial effect would suggest-but the main reason appears to be the increase in the present value of existing debt assets that accompany the decrease in interest rates.

d. Overall, the size of the capital balance does decline; total inflows and outflows both decrease , but the inflow decrease is larger than the outflow decrease. So, overall capital balance declines. But after accounting for changing price levels, real exchange rate is below the baseline level.



## Conclusions

(1) Simulation models based on structural supply and demand relationships and interactions across sectors; they are policy impact models, not forecasting models. They provide useful measures of adjustment tendencies when one isolated policy change, such as a tariff, occurs.

(2) The tax-disposable income multiplier in the macro economy should probably be included. It offsets the direct demand effect caused by expanding net exports. Usually, discussions of adverse consequences of a tariff in the US focus on contracting overseas economies (Kenwood and Lougheed).

(3) Extending the standard (small) macro model to include financial markets and wealth, also allows analysis of portfolio choice of international investors. The response of these asset holders would yield a weaker \$ and very low inflation or even deflation when the income effects of the tariff are included.

(4) The size of the simulated tax increase is large, in the neighborhood of the Smoot-Hawley Tariff in the late 1920's (Wikipedi). In figure 2, the tariff was around 20% then. It was less than 5% coming into the baseline year of 2016. Clearly, it has not gone that far yet.<sup>2</sup>

(5) Finally, the adjustment of real exchange rates over the course of the business cycle deserves mention.

- Scenario A expands output, raises prices, and improves US financial markets. Then the real exchange rate (inflation-adjusted value of the dollar) increases.

- Scenario B contracts output, pushes prices down and makes financial markets less attractive.

- an expected asset demand adjustment: foreigners' demand for US stocks and Debt expands in A and declines in B.

- an unexpected result: the wealth-driven expansion in US foreign holdings of stocks and debt in A and the wealth driven decline in US foreign holdings in B. These adjustments are counter cyclical, and magnify real exchange rate changes over the business cycle.