Economic Consequences of Trade

Robert Feenstra
UC Davis and NBER

NBER
July 10, 2018
Economic Consequences of Trade and Trade Policy

Robert Feenstra
UC Davis and NBER

NBER
July 10, 2018
All recent U.S. Presidents have used tariffs
President Obama – tariffs on tires (safeguard) and solar panels (antidumping) from China
President Bush – tariff on steel imports. He exempted Canada, Mexico, Jordan & Israel, and 100 developing countries. But not the EU, which won a complaint in the WTO and targeted U.S. goods (e.g. oranges) for tariffs
President Bush withdrew tariff in 19 months
What is different now?

• President Trump – applied tariffs on solar panels and washing machines (safeguard)
• President Trump – also applied tariffs to steel & aluminum (national defense)
• Neither Canada, Mexico or the EU were exempted from the steel/aluminum tariffs, and they have retaliated (on whiskey, Harley-Davidson, orange juice etc.)
• No sign that the U.S. tariffs will be removed
What is different now?

- President Trump – applied 25% tariff on $34 billion in Chinese imports ($16 billion to come)
- China has retaliated with tariffs on the U.S.
- President Trump – also investigating a tariff on automobile imports (national security)
- That would especially hit Canada and Europe, who plan to retaliate
- So there is a difference in the magnitude of tariff actions, and in the retaliation
What are the costs of a tariff war?
Compare Canada and China
Canada

• Prime example of the gains from intra-industry trade!
  – Canada-US Auto pact of 1965
  – Canada-US Free Trade Agreement of 1989
  – North American Free Trade Agreement of 1994

• Several alternative sources of gains from trade
  – Product variety gains
  – Pro-competitive gains
  – Gains from ‘creative destruction’
Alternative Sources of Gains

• Arkolakis, Costinot, Donaldson and Rodriguez-Clare
  “The Elusive Pro-competitive Effects of Trade”
  – With *homothetic preferences*, the gains from trade are identical to those in Arkolakis, Costinot, Rodriguez-Clare, and are due entirely to ‘creative destruction’, i.e. there are no variety gains or pro-competitive gains

• WHY? This is an aggregation effect due to using a Pareto distribution with unbounded support
  – Such an aggregation effect is also referred to in Amiti, Itskhoki and Konings, “International shocks, Variable Markups and Domestic Prices” (NBER, 2016)
Alternative Sources of Gains

• Once we abandon unbounded Pareto, then all three sources of gains can operate
• For example: *Truncated Pareto* (Feenstra, JIE, 2018)
• For the United States, the sources of gains are:
  – Creative destruction – 25%
  – Product variety and Pro-competitive – 75%
    (Feenstra and Weinstein, JPE, 2017)
• But the *upper-bound* to the total gains from trade is still the formula in ACR/ACDR!
Alternative Sources of Gains

• Can any of the sources of gains be *negative*?
  – Hsieh, Li, Ossa, Yang, “Accounting for the New Gains from Trade Liberalization” (NBER, 2016)
  – They find *negative* gains from product variety for Canada (due to domestic exit) in the Canada-US Free Trade Agreement, as can occur for non-Pareto distributions
  – The total gains from trade are still positive, and Trefler finds strong evidence of creative destruction gains

• *QUESTION:* Is Canada particularly vulnerable to losses from U.S. tariffs due to intra-industry trade?
What are the costs of a U.S. (uniform) optimal tariff?

Speculate that this might hurt Canada especially Caliendo, Feenstra, Taylor and Romalis (2017)
Uniform U.S. optimal tariff = 7.15%. Results with no retaliation from rest of the world.
China

• Gains from trade are more in accordance with conventional comparative advantage
  – Though that theory has been extended to allow for the supply chains that are widespread in China

• The Trump administration is targeting *industrial goods imported from China* for tariffs
  – That may have particularly high costs on U.S. firms

• *Do supply chains make countries more vulnerable?*
China's Total Export Effects

China's Export Effects From U.S. Tariffs

% change
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0

Agriculture
Mining
Food
Textiles &...
Wood and...
Petroleum,...
Metal Products
Elec. and Mach.
Trans. Equip.

U.S. optimal tariff
Chinas Total Export Effects

Chinas Export Effects From U.S. Tariffs

% change

Agriculture  Mining  Food  Textiles &...  Wood and...  Petroleum,...  Metal Products  Elec. and Mach.  Trans. Equip.

U.S. 20% tariff  U.S. optimal tariff
What are the costs of China’s (uniform) optimal tariff?

Speculate that this might hurt all countries that rely on China’s exports of intermediate inputs (from Lerner symmetry)
Effects from China’s optimal tariff

Uniform China’s optimal tariff = 6.61%. Results with no retaliation from rest of the world
What are the costs of a global trade war?
Trade War

Uniform 5% import tariff imposed by all countries

- World trade “collapses” by 20% (same as in 2008/9)
Conclusion

• Tariffs used by the Trump administration are more widespread than other administrations.
• And they have led to actual retaliation.
• Theory allows for alternative sources of gains from trade than comparative advantage, but can this make countries more vulnerable?
• Global trade war with 5% tariffs leads to the same fall in trade as the Great Recession.
Globalization and Labor Market Adjustment

Gordon Hanson

UC San Diego and NBER

NBER International Trade & Investment Summer Institute

July 2018
While we’ve long known that trade creates losers along with aggregate gains, conventional wisdom circa 2005 was that:

1. Trade *had not been a major contributor* to declining manufacturing employment or rising wage inequality in high-income countries

2. Workers employed in regions specializing in import-competing sectors *could readily reallocate* to other regions if displaced by trade

3. Any labor market impacts of trade would be *felt by low-skil workers generally*, not by trade-exposed workers specifically
The China Trade Shock to Global Manufacturing

Share of World Manufacturing Exports

- China
- USA
Labor-Market Consequences of Greater Import Competition

Economic Impacts of Import Competition from China

• Closure of manufacturing plants (Bernard Jensen & Schott), declines in employment (Acemoglu Autor Dorn Hanson & Price; Handley & Limão; Pierce & Schott) in trade-exposed industries

• Lower employment, higher labor-force exit, higher long-run unemployment, greater benefits uptake in more trade-exposed local labor markets (Autor Dorn & Hanson)

• Lower lifetime incomes, greater job churning for more trade-exposed workers (Autor Dorn Hanson & Song)
Adjustment to Trade in Local Labor Markets

Active margins of adjustment to greater import competition

- Reductions in manufacturing employment
- Increases in non-participation in the labor force
- Increases in long-run unemployment

Inactive margins of adjustment to greater import competition

- Weak average response of interregional migration to trade shocks
  - Movement of labor across areas due to labor-demand shocks is slow and incomplete (Blanchard Katz, Glaeser Gyourko, Yagan), though commuting $\Delta$es are heterogeneous (Monte Redding Rossi-Hansberg)
Impacts of Trade Exposure on Long-Run Earnings
Bottom vs. top tercile workers, 1991-2007

Impact of Trade Exposure on Cumulative Earnings by Sector:
Workers Initially in Lowest and Highest Earnings Tercile

- Bottom Tercile
- Top Tercile

Cumulative Earnings Relative to Baseline

- Total Effect
- Initial Firm
- Different Firm, Same Sector
- Other Sector
Scars from Job Displacement: Much Worse in Recessions (in impacted areas, trade shocks are like a local recession)

Average Earnings Losses of Displaced Workers as a Percent of Pre-Displacement Earnings

Figure 4. Earnings of Displaced Male Workers before and after Displacement

Davis & von Wachter (2011)
Effect of an $1000 Per Worker Increase in Imports from China during 1990-2007 on Dollar Change of Annual Transfer Receipts per Capita
Adjustment Versus Steady State

The Short and Medium Run: Job Displacement

- Manufacturing pays less-educated males relatively high wages
  - Job loss lowers marriage rates, raises fraction of kids in poverty, increases drug-related mortality (Autor Dorn Hanson, Pierce Schott)

The Long Run: Gradual Adjustment

- In GE, gains from China Shock for US are positive but uneven
  - Hsieh & Ossa, Caliendo Dvorkin & Parro, Galle Rodriguez-Clare Yi
  - Possibly large reductions in goods price indexes (Jaravel & Sager)
- Unknown LR impacts on housing values, benefits uptake, social K
Learning how to use Bartik shocks responsibly

- Validate orthogonality conditions, cluster SEs appropriately
  - Borusyak Hull & Jaravel, Adão Kolesár & Morales, Goldsmith-Pinkham Sorkin Swift

- Use RF and GE approaches iteratively
  - (a) use RF model to identify adjustment margins; (b) build & validate GE model, run counterfactuals; (c) re-evaluate RF results
  - Are “relative” impacts of RF Bartik $\propto$ “absolute” GE impacts?
    - Similar RF and GE employment impacts of trade shocks (Caliendo Dvorkin Parro, Galle Rodriguez-Clare Yi, Adão Arkolakis Esposito)
    - Updated prior: CZs are SOEs with limited labor mobility
Economic Consequences of Trade Policy

Douglas Irwin
Dartmouth College and NBER
US trade to GDP ratio, 1790-2017
US trade to GDP ratio, 1790-2017
Donald J. Trump  
@realDonaldTrump

When a country (USA) is losing many billions of dollars on trade with virtually every country it does business with, trade wars are good, and easy to win. Example, when we are down $100 billion with a certain country and they get cute, don’t trade anymore-we win big. It’s easy!

5:50 AM - 2 Mar 2018

18,997 Retweets  79,444 Likes
When a country (USA) is losing many billions of dollars on trade with virtually every country it does business with, trade wars are good, and easy to win. Example, when we are down $100 billion with a certain country and they get cute, don’t trade anymore—we win big. It’s easy!
Mr. Jefferson

Boston
2 Feb. 3, 1803

Sir,

You are a friend to the disturbance of the peace, the greatest enemy of the whole world. Your Secretary Madison is with you. When Britain has been generous & corresponding as to send an Envoy extraordinary to settle the case of the ship-money if you will go to war with Britain, you will be denounced as the greatest traitor that history has exhibited. We who gave in the support shall be ruined. Some or 3 ships will destroy our whole coast, left defenseless by Mr. Jefferson - 

Wash., around France, Philadelphia will not do for us. We Republicans. We are for liberty; but we will not be destroyed. We are volunteering to take care of the Republic. Take care of yourself. You are in a critical state. Treason abroad in our country. You defend one class, but offend another. A friend to his country, would oppose all traitors. Be not the traitor yourself. We are the philosophic foot. You are on the edge of ruin. Oh that our country may soon experience the sad day when it is ruined! When will Jefferson come into compliment? I am sorry now to be Mr. Jefferson may sink into the West. His conduct is too extravagant. May all Jefferson live, and having her country. To yours,

[Signature]
Average US tariff on imports, 1790-2017
Average US tariff on imports, 1790-2017
Average US tariff on imports, 1790-2017

80% due to inflation
Exclusive: Trump vents in Oval Office, "I want tariffs. Bring me some tariffs!"

The following is a rare account of President Trump in a small Oval Office meeting, venting at senior staff for
**Muscle cars**

United States, value of imports subject to trade tariffs, 2017, $bn

- **Washing machines**
- **Solar panels**
- **Aluminium***
- **Steel***
- **Aluminium†**
- **Steel†**
- **China (various)**
- **Cars**

**Tariff rate, %**

- **IMPOSED**
  - Washing machines: 0
  - Solar panels: 0
  - Aluminium*: 30
  - Steel*: 25
- **THREATENED**
  - Aluminium†: 25
  - Steel†: 10
  - China (various): 25
  - Cars: 25

**Sources:**
- International Trade Centre;
- Peterson Institute for International Economics

*Including imports from Japan, China and Russia
†Including imports from Mexico, Canada and EU

Economist.com
Commerce Secretary Wilbur Ross

“In a can of Campbell Soup, there are about 2.6 pennies worth of steel. So if that goes up by 25 percent, that’s about six-tenths of one cent on the price on a can of Campbell Soup,” Ross argued. “I just bought this can today at a 7-Eleven ... and it priced at a $1.99. Who in the world is going to be too bothered?”
The Trump Tariff Layoffs Begin

A keg manufacturer lays off workers as domestic steel prices rise.

One week after the Commerce Department recommended heavy tariffs on steel and aluminum imports, a Pennsylvania-based American Keg Company is the only remaining U.S. manufacturer of stainless steel kegs. Despite competition from Mexican and Chinese manufacturers, American Keg has only one competitor: itself.

But now that Donald Trump has imposed tariffs on steel, the company is forced to lay off workers.

When the company was founded in 1991, American Keg was the only keg manufacturer in the United States. Today, it produces around 90,000 kegs per year, with annual sales of $25 million.

“A keg manufacturer lays off workers as domestic steel prices rise,” said Mark Foster, CEO of American Keg. “We’re very concerned that this will put us out of business.”

One week after the Commerce Department recommended heavy tariffs on steel and aluminum imports, a Pennsylvania-based American Keg Company is the only remaining U.S. manufacturer of stainless steel kegs. Despite competition from Mexican and Chinese manufacturers, American Keg has only one competitor: itself.

But now that Donald Trump has imposed tariffs on steel, the company is forced to lay off workers.

When the company was founded in 1991, American Keg was the only keg manufacturer in the United States. Today, it produces around 90,000 kegs per year, with annual sales of $25 million.

“A keg manufacturer lays off workers as domestic steel prices rise,” said Mark Foster, CEO of American Keg. “We’re very concerned that this will put us out of business.”
Research implications

• Global supply chains & downstream user effects

• Trade policy uncertainty

• When does retaliation work?

• Political economy models
US trade “shocks”
Number of antidumping cases filed

Japan Shock

China Shock
SEC. 1. SHORT TITLE.
This Act may be cited as the "United States Fair and Reciprocal Tariff Act".

SEC. 2. FINDINGS.
Congress finds the following:

(1) The United States maintains an open market for goods, with relatively low tariffs, and has long encouraged trading partners, both bilaterally and in multilateral fora, to liberalize their markets;

(2) The United States is the world’s largest importer of goods;

(3) Trading partners of the United States in many instances impose significantly higher tariffs on U.S. goods than the United States imposes on the same or similar goods imported from those same countries;

(4) Trading partners of the United States in many instances impose significant nontariff barriers that greatly undermine the value of negotiated tariff concessions;

(5) The lack of reciprocity in tariff levels and disproportionate use of nontariff barriers by U.S. trading partners facilitates foreign imports, discourages U.S. exports, and puts U.S. producers, farmers, and workers at a competitive disadvantage;

(6) The lack of reciprocity in tariff levels and nontariff barriers contributes to the large and growing U.S. trade deficit in goods, which is a drag on economic growth and undermines economic prosperity;

(7) To date a number of U.S. trading partners have been unwilling, including in multilateral negotiations, to reduce tariff and eliminate nontariff barriers applied to U.S. exports; and

(8) The President of the United States should have a wide array of tools to open the markets of U.S. trading partners and encourage participation in negotiations to liberalize trade in goods on a fair and reciprocal basis, including the authority to adjust tariff rates to reciprocal levels.
US Fair and Reciprocal Tariff Act

SEC. 1. SHORT TITLE.
This Act may be cited as the "United States Fair and Reciprocal Tariff Act".

SEC. 2. FINDINGS.

Congress finds the following:

(1) The United States maintains an open market for goods, with relatively low tariffs, and has long encouraged trading partners, both bilaterally and in multilateral fora, to liberalize their markets;

(2) The United States is the world’s largest importer of goods;

(3) Trading partners of the United States in many instances impose significantly higher tariffs on U.S. goods than the United States imposes on the same or similar goods imported from those same countries;

(4) Trading partners of the United States in many instances impose significant nontariff barriers that greatly undermine the value of negotiated tariff concessions;

(5) The lack of reciprocity in tariff levels and disproportionate use of nontariff barriers by U.S. trading partners facilitates foreign imports, discourages U.S. exports, and puts U.S. producers, farmers, and workers at a competitive disadvantage;

(6) The lack of reciprocity in tariff levels and nontariff barriers contributes to the large and growing U.S. trade deficit in goods, which is a drag on economic growth and undermines economic prosperity.

(7) To date a number of U.S. trading partners have been unwilling, including in multilateral negotiations, to reduce tariff and eliminate nontariff barriers applied to U.S. exports, and

(8) The President of the United States should have a wide array of tools to open the markets of U.S. trading partners and encourage participation in negotiations to liberalize trade in goods on a fair and reciprocal basis, including the authority to adjust tariff rates to reciprocal levels.
CLASHING OVER COMMERCE

A History of US Trade Policy

DOUGLAS A. IRWIN