Mercantilism

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Primary source material

- Clashing Over Commerce by Douglas Irwin.
- International Economics Theory & Policy by P. Krugman, M. Obstfeld, and M. Melitz (Chapters 4 and 9).
- The Economy of British America (M&M).
Overview of mercantilism

• A central element of American Colonial Economics is trade and the mercantilist framework that governed it. The mercantilist philosophy is best viewed through the various Navigation Acts that governed much of colonial trade and commerce.

  • Describe the Acts.
  • Provide a 30,000 foot overview of the colonial economy.
  • Develop a simple model that helps us understand the economics. It will not do everything, but it will do a lot.

  • Through the lens of The model, look at important features of Colonial trade and the effects of Mercantilism, especially those that contributed to Revolutionary sentiment.
  • Time permitting look at the interaction of Atlantic Trade and conflict.
Overview of mercantilism

- Later in the course we will look at how exogenous growth externalities can contribute to the desire to leave English economic influence.
- Look at the costs of separation as well. We will see that the American Revolution and Independence turns out to be a very costly undertaking.
Why look at trade?

- Colonial America was heavily dependent on trade.
  - Many goods could not be produced in the colonies.
  - “Overseas commerce did not merely make colonial life comfortable, it made it possible” (McCusker and Menard).
  - The price of exports relative to imports, the terms of trade, played a key role in Colonial welfare, especially fluctuations in some of the key export prices such as tobacco.

- So to get a sense of how economic factors affected the drive toward independence, we must understand trade and the mercantilist system that governed it.
Overview of mercantilism

Mercantilism and the Acts

• Mercantilists thought that the gains from trade arose solely from exporting and that international trade was largely a zero-sum game. I win you lose (sounds familiar).
  
  • It reflected a desire to have specie (gold) flow into the royal treasury and for gold to flow into England more generally.
  
  • Finance Wars and colonialization.
  
  • English efforts at colonialization were not generally financed directly by the government. Rather the government licensed monopolies to colonize – their reward was monopoly rents, some of which flowed back to the crown.
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The navigation acts in part were a way of rewarding English commercial enterprises for colonization, and increasing English commerce at the expense of the Dutch, who in the 17th century were the dominant world traders.

The series of Acts passed in the 17th and 18th centuries began in 1651.

1. They regulated English ships, trade, and commerce between England, her colonies, and other countries.

2. Broadened in 1660, 1663, 1673, 1696, 1733, and most importantly in the 1760s when direct taxation of colonial revenue was imposed.

3. Those latter taxes violated colonial understanding of the acts, which were more or less begrudgingly followed.

4. Plays a major role in the desire for independence.
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- **Navigation Act of 1651.**
  - Banned foreign ships from transporting goods from Asia, Africa, or America to England.
  - Foreign ships could only carry goods from their own country to England — no third party shipping.
  - Prohibited foreign shipping of salted fish to England and shipping from one English port to another.
  - Directed at expanding English shipping at the expense of the Dutch.

- **Extension of 1660.**
  - Colonial imports and exports solely on English or Colonial owned ships with 75% English crews.
• 7 enumerated goods that must go on an English ship (sugar, tobacco, cotton, wool, indigo, fustic or other dyeing woods – with cocoa beans added in 1672).

• Stipulates the collection of custom duties.

• Prohibit growing tobacco in England or Ireland – aids colonial plantations. Why?

• Extended in 1673.
  • Establishes customs offices in the colonies to more effectively collect duties.
  • Initially colonists disregard many aspects of the acts by trading with the Dutch.
  • Over time more adherence, and by early 1700s pretty much in conformity.
• Extended in 1683.

• All European goods bound to America must first pass through England where duties are levied before the cargo can be reloaded and shipped to the colonies.

• Exceptions are made for salt bound for New England and Newfoundland fisheries, wine from Madeira and the Azores, and provisions, servants, and horses from Scotland and Ireland.
Mercantilism

• **Tobacco planting and Plantation Act of 1696.**
  - Imposes forfeiture if any enumerated good is shipped without a customs certificate.
  - Trials take place in admiralty courts.
  - Represents a stiffening in enforcement.

• **Extended in 1696.**
  - No goods, whatsoever, can be shipped between English possessions or to England except in ships built in England or the colonies and owned by residents in those respective places.
  - Requires ship registrations.
  - Gives colonial custom officers same authority as those in England.
  - Establish more admiralty courts to aid in enforcement.
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- **Molasses Act of 1733.**
  - Heavy duties on sugar from French West Indies (more efficient sugar plantations) to colonies forcing colonists to buy more expensive sugar from British West Indies.
  - Law is flouted and British anti-smuggling attempts create hostility.
  - Renewed as Sugar Act of 1764.
  - Sets precedent for later Acts such as Stamp Act, etc. that we will discuss a bit later in the course.

- **Major effects on Britain.**
  - Greatly aided the development of British shipping and shipping industry.
  - Pays off in building a Navy.
Mercantilism

- **Major effects on Britain.**
  - Reduces dependence on foreign European markets.
    - For example, England goes from a net importer of tobacco and sugar to an exporter in just a few decades in the mid 17th century through re-export of colonial goods.
    - Re-exports grow by 1.5% a year from 1700-1770, and exports and imports to and from colonies grow around 1.0% a year.
  - Shipping technology transferable to Royal Navy.
  - Large profits for British Merchants.
  - Spurs financial development to finance trade.
Mercantilism

- Major effects on Colonies.
  - Increases shipping costs: shipping is more roundabout much of it having to pass through England, gives some monopoly power to British merchants, and places some restrictions on colonial enterprises.
  - Thus, raises prices of colonial goods and reduces colonial revenues.
  - NA act generally like a tax on colonial exports and imports with the distinction that revenue goes to English government, manufacturers, or merchants.
  - We will model it as such, but will abstract from intertemporal considerations that could affect trade surpluses.
    - Contrary to most historical accounts payment imbalances for the colonies as a whole do not appear to have been large, although a lot of regional variation.
• **Cost to colonies.**
  
  • Many estimates are that the overall costs of the Acts were small, because there were offsetting benefits.
    
    • Irwin estimates around 2% of colonial income.

• **Benefits to colonies.**
  
  • Lower insurance rates on shipping — the Royal Navy effect.
  
  • Irwin estimates offset about 1/3 of the costs.
  
  • Access to a large market that had a high demand for many colonial products.
  
  • Access to credit and relatively cheap British manufactures.

• Regionally the effects differ, and we will return to that point after modeling trade and mercantilism.
Mercantilism

- Summing up.
  - Channeled trade through Britain.
  - Raised revenue through taxes and customs duties.
  - Used North America to promote Britain’s commercial interests.
  - Regulating shipping and nationality of crews.
  - Restricted destinations of where colonial goods could be shipped.
  - Favored selected British industries with subsidies and preferential tariffs as well as chartering monopolies (East India Company for example).
  - Prohibited certain industries in the colonies. Which ones specifically I am uncertain.
Colonial economies and trade

- Trade is central to the colonies.
- Imported goods are largely paid for by exporting cash crops such as tobacco, rice, indigo, and fish.
- Changes in the price of imports/exports is a key driver of colonial prosperity. When tobacco prices are high, the upper south generally does well.
- By the early 1770s colonial America was fairly prosperous.
  - And between 1770-1774 they had a 50% higher per capita income than their British counterparts, although rich colonials could not compare with the affluence of rich British.
  - Enticed immigration and by 1770 the population was around 2.1 million, compared to 7 million Brits.
Colonial economies and trade

- That made the colonial economy about 1/3 the size of the British economy.
  - About 85% were employed in agriculture.
  - Self-sufficiency, however, is uncommon, so trade with Britain and between the various colonial regions is very important.

- An economic map in 1770 would show America is a fringe between the Atlantic and the Appalachians with lines connecting the Colonies to Britain, the West Indies, Africa, and the Mediterranean.
  - The economies of the various trading partners were more important that what occurred 100 miles inland.
  - Newspapers were filled with information on crop and weather conditions overseas, because what happened there affected the price of colonial crops.
Colonial economies and trade

• Colonial Regions.
  
  • New England – plentiful forests, abundant fishing, with an economy dominated by shipbuilding, shipping services, including arranging trade, finance, and insurance, fishing and whaling.
    
      • Top earner was the carry trade (the importing and exporting of goods) and insurance.
      
      • With relatively poor agricultural lands, NE was a net importer of food.
  
  • Mid-Atlantic – NYC and Philadelphia were centers of commercial services and Philadelphia had many small manufactures largely involving flour mills and iron works.
    
      • Produced grain and flour from wheat, barley, corn, and rye some of which was exported to England.
Colonial economies and trade

- Colonial Regions.
  - Upper South (MD, VA, and norhtern NCA – tobacco is king and there are slave plantations.
  - Lower South (southern NCA, SCA, GA) – plantation economy producing rice and indigo using slave labor imported from Africa.
    - Highest per-capita exports and most dependent region on foreign markets.
  - Tobacco comprised 27% of exports, wheat 19% and rice 11% (around 1770).
  - The main ports were Philadelphia, NYC, Boston, and Charleston.
    - 80% of imports were manufactured goods from Britain.
    - Tea and alcohol were also major imports.
    - Imports/Exports accounted for 8-9% of gdp.
Colonial economies and trade

- The need to export drives much of growth and promotes linkages between the regions eventually making the Colonies an independent economic force.

- Colonies are land and natural resource rich, labor and capital poor, with a relatively small domestic market for much of their history.
  - Sets up a comparative advantage in agricultural goods and commodities.
Colonial economies and trade

- On the other hand, Britain is rich in capital with a market large enough to get gains from economies of scale.
  - Comparative advantage in mfg.

- Speed of early colonial development depends on the number of immigrants attracted to America.
  - Initially high costs of migrating and a lot of uncertainty over outcomes.
  - As Britain develops, and the demand for agricultural goods rises, the profitability of colonial agriculture increases and migration flows increase as well.
  - Immigrants often bring some capital and skills to the colonies.
Colonial economies and trade

- Over time the colonists become increasingly entrepreneurial and start to diversify.
- Growth becomes driven by technological and organizational improvements.
  - That process at times creates tensions within the mercantilist system.
  - Some of this has to do with shipping services that compete with British merchants (think NE).
- Regional agriculture varies a great deal, from less L intensive crops conducive to production on small family farms to low skill highly L intensive crops found on plantations.
  - Income distribution more unequal in the plantation economies.
  - Non-farm activity also provides a competitive means of livelihood and small farming areas become more economically diverse.
  - Just the opposite in areas dominated by plantations, which are highly profitable.
Colonial economies and trade

- In summary, Colonies export resource intense goods such as furs, fish, forest products, wheat, corn, rice, indigo, and tobacco.

- The colonies are mostly rural with the percent of the population in cities declining from 1700 on even though cities are growing.

- Per-capita income increases, but at a fairly slow rate.

- Nevertheless, the colonies were prosperous by the eve of the Revolution. They had the highest standard of living for the bulk of the population of any country at the time.
• A description of mercantilism and colonial economies.

• Next: Model of trade.

• Finally: The costs of mercantilist policies through the lens of the model.
A Specific Factors Model (see Krugman, Obstfeldt, and Melitz Chapter 4).

- First write down the basic equations – initially without duties and increased shipping costs.
- Graphically depict The Model.
- Then add mercantilist induced costs.
- In another set of lectures we will extend the analysis and look at the effects of externalities.
• Production in England

  • Two goods — cloth and food are produced in both countries.
  
  • Stand in for agricultural commodities and manufacturing.

  • Production functions are the same in Britain and the Colonies — easy to make Britain more productive, especially in cloth.
  
  • Key distinction is relative factor endowments.

  • Food uses a fixed supply of land along with labor.
  • Cloth uses a fixed supply of capital and labor.
  
  • Labor is allocated across the two industries — a mobile factor.

• Food: \( Q_F = T^\alpha L_F^{1-\alpha} \).

• Cloth: \( Q_C = AK^b L_C^{1-b} \).
The model

• Graphical Analysis: PPF
• **Why food and cloth?**

  • Agricultural goods and raw materials were at least 2/3 of colonial exports and manufactured goods were 2/3 of imports.
    
    • Even today the U.S. is a net exporter of agricultural goods and an importer of clothing.

  • 85% of colonial labor force employed in agriculture.

  • Top 3 exports — tobacco (27%), wheat and flour (19%), and rice (11%).

  • Also, they are commodities used in Krugman’s et.al. textbook. X and M around 8-9% of gdp and 80% of mfg goods come from Great Britain.
The model

- Labor market clearing

\[ L = L_F + L_C \]

- Demand (utility maximization)

\[ \max \left[ \ln(D_F) + \mu \ln(D_C) \right] \]

subject to

\[ D_F + pD_C \leq w(L_F + L_C) + r_T T + r_K K_C^* \]

- where \( p \) is the relative price of cloth \( p_C / p_F \), England’s terms of trade — the relative price of exports to the price of imports.

- The number of units of food to buy a unit of cloth.
The model

• With this utility function relative demands are

\[ \frac{D_C}{D_F} = \frac{\mu}{p} \]

• Relative demand for cloth is downward sloping.

• Relative supplies come from analyzing the production possibility frontier.
  • As the relative price of cloth becomes more expensive (slope of price line steeper) more cloth relative to food is produced. RS of cloth is upward.
The model

- Relative price of cloth, $\frac{P_C}{P_F}$
- Relative quantity of cloth, $\frac{Q_C}{Q_F}$

Graph showing the relationship between the relative price and relative quantity of cloth.
The model

- Production in the Colonies
  - Food: $Q_F^* = T^*\alpha L_F^{1-\alpha}$
  - Cloth: $Q_C^* = K^*b L_C^{1-b}$

- Labor market clearing in the Colonies
  - $L^* = L_F^* + L_C^*$

- Demand in the Colonies

\[
\max [\ln(D_F^*) + \mu \ln(D_C^*)]
\]

- subject to

\[
pD_F^* + D_C^* \leq w^*(L_F^* + L_C^*) + r^*_T T + r^*_K K_C^*
\]
The model
The model

- **Goods market clearing**

\[ Q_F + Q_F^* = D_F + D_F^* \]
\[ Q_C + Q_C^* = D_C + D_C^* \]

- **Budget conditions:** abstracting from taxes on cloth (each country consumes the same amount as it produces adjusted for import duties)

\[ pQ_F + Q_C = pD_F + D_C \]
\[ pQ_F^* + Q_C^* = pD_F^* + D_C \]

- **Major caveat:** There will be no trade balance, which is motivating feature of mercantilism. We would need to discuss intertemporal aspects to get borrowing and lending into the analysis.
The model

- **Notice**: from goods market clearing that

\[ Q_F^* - D_F^* = D_F - Q_F \]

- Colonial exports of food equal English imports of food.
The model

- Which factor wins and which loses from a relative price shift.
  - In England an increase in the price of cloth is depicted in the following figure.
The model

- Wages rise by less than the price of cloth and labor moves into the production of cloth. Thus the MPK increases and MPT declines. Capital owners are made better off at the expense of land owners. The opposite happens in the colonies.

- As more labor flows into cloth production we see that the relative supply of cloth $Q_C/Q_F$ rises with the increase in $P_C/P_F$.

- Wages rise relative to the price of food, but decline relative to the price of cloth, so we don’t yet know if workers will be better or worse off.
The model

Output of food, $Q_F$

slope $= -(P_C/P_F)^1$

$Q_F^1$

$Q_F^2$

Output of cloth, $Q_C$

slope $= -(P_C/P_F)^2$

$Q_C^1$

$Q_C^2$
The model

• In autarchy, the relatively land plentiful colonies produce relatively more food compared to Britain and at a lower relative price. In Britain cloth is relatively cheap, as depicted by the flatter tangent.

• Now let’s open the empire to free trade.

• The equilibrium relative price will lie somewhere in between the two autarchic prices. As the relative price of food increases, the colonies produce more food (move from a point like 2 to a point like 1) along the PPF and Britain produces more cloth (a move from 1 to 2). [return to PPF figure].
The model
The next figure shows the free trade equilibrium effect of trade, the relative supply curve moves to the left (recall this is a relative supply curve for the world and for any given relative price the colonies produce a lower relative supply of cloth than does England). Thus the world relative supply lies to the left of England’s relative supply.

- So far we now know that trade between England and the Colonies raise the relative price of cloth and lowers the relative quantity of cloth.

- English capitalists do better and Colonial farmers do better.
The model

- Trade without tariffs. At higher price England exports cloth:
Let’s analyze the gains from trade. This looks at the gains from the England’s point of view. Trade has increased the relative price of food and reduced the relative price of cloth. So production goes from point 1 to point 2.
The model
Prior to trade both England and the Colonies consumed what they produced, but now they can consume anywhere along their budget line. The shaded area between the budget line and the PPF represents all the bundles England can now afford that represent an increase in the consumption of both goods relative to what was produced in the absence of trade.

- Potentially everyone is better off due to the trading relationship with England. The same is true for the Colonies.

But for that to happen there needs to be transfers between winners and losers.
The model

- A description of mercantilism and colonial economies
- Model of trade
- The costs of mercantilist policies
Mercantilism

From our description of the Navigation Acts, what might be a straightforward way to look at mercantilism.

- England has granted some of her producers monopoly rights to sell to the colonies and most colonial exports and imports must go through British ports before being shipped to their final destinations.

- The result is similar to taxing Colonial exports and imports. The Colonists get less value for the goods they sell than they would with free trade and must pay more for the goods they import.

- The system could potentially make the Colonies or at least some colonists worse off than under autarchy. And as the colonial economy becomes more sophisticated and able to produce goods similar to those produced in England, the degree of damage only increases.
Let’s amend the two countries budget constraints to

\[ pD_F + D_C \leq w(L_F + L_C) + r_T T + r_K K + t_F p(Q_F^* - D_F^*) + t_C (D_C^* - Q_C^*) \]

for England

\[ pD_F^* + D_C^* \leq w(L_F^* + L_C^*) + r_T^* T + r_K^* K - t_F p(Q_F^* - D_F^*) - t_C (D_C^* - Q_C^*) \]

for the Colonies.

And let’s analyze the effects that are akin to a tariff and those that act like a tax on Colonial imports separately, or the graphs will get too messy.
Now let’s analyze the effect of the tariff on the price of food.

England is the home country and the colonies are the foreign country. Analyze England’s import demand for Colonial food.

- England is relatively less good at producing food and in autarchy the price of food would be relatively expensive when compared with the Colonies.
- As prices fall below the autarchic price, the demand for food exceeds its supply and imports are desired.
- Thus the import demand curve intersects the vertical axis at $P_A$. 
Mercantilism

- England is relatively less efficient at producing food so let’s derive their import demand. Intersects at autarchy price $P_A$. 

![Graph showing supply and demand curves for mercantilism](image-url)
Colonial Export Supply

- The Colonies are relatively efficient at producing food and the price of food would be relatively inexpensive when compared with England.
- As prices rise above the autarchic price, the supply of food exceeds its demand and more exports are desired.
- Thus the export supply curve intersects the vertical axis at $P^*_A$. 
Mercantilism

[Diagram showing price, quantity, demand, and supply relationships with labels for $P^*$, $S^*$, $D^*$, $P_1$, $P_2$, $S_1$, $S_2$, $Q$, $D_1$, and $D_2$.]

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Due to the tariff, the price of food goes up in England and England imports less food.

The price of food declines in the colonies, because there is less English demand for food. Exports and Imports decline until the difference in prices paid is equal to the tariff wedge.

Assuming there is only mild spillover to the cloth industry, food is now relatively more expensive in England and relatively cheaper in the colonies.
Mercantilism
Mercantilism

• What happens to the allocation of labor in England.

• With the price of food rising in England shifts up to the right. The value of the marginal product of cloth curve is unchanged, assuming not a big effect on cloth prices.

  - More workers shift into agriculture and less are utilized in cloth until the two marginal products are equated. Note the wage does not go up proportionally with the increased price induced by the tariff.

  - In England land is now more productive and owners of land are better off at the expense of owners of capital. The effect on workers is ambiguous and the wage rises relative to the cost of clothing, which is relatively unchanged (goes up a bit), while it falls relative to the price of food.
Mercantilism

• What happens to the allocation of labor in the Colonies.

• Now food growers only get part of the revenue and the price of food is falling as well. The value of the marginal product of cloth curve is unchanged, assuming not a big effect on cloth prices.

  • More workers shift into cloth production and less are utilized in farming until the two marginal products are equated. Note the wage does not fall proportionally with the increased price induced by the tariff.

  • In the Colonies capital is now more productive and owners of land are worse off. The effect on workers is ambiguous and the wage rises relative to the cost of food, which has declined and falls relative to the price of cloth which is relatively unchanged.
Mercantilism

- What happens to the allocation of labor the Colonies.
Mercantilism

- A bit more on the winners and losers in the Colonies – recall your knowledge of consumer and producer surplus. Also, it is important that the Colonies are net importers of cloth and they do not receive any revenue from the tariff.

- With the price of cloth rising colonial producers gain by the $a$, while consumer surplus decreases by the area labeled $a + b + c + d$.

  - On net the Colonies lose wrt to the cloth market.

  - Also, the price of food declines and land owners lose out, and the loss grows bigger in size the more food the Colonies export. Recall agricultural goods were a big export and the tax falls most heavily on enumerated goods of which tobacco is the largest export.

    - Rice less affected, because England is a small importer and the South was able to directly export to other European countries — especially southern Europe.

    - Virginia planters grow increasingly disaffected.
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Consumer and Producer Surplus in Clothing.

- PS: gain $a$
- CS: lose $a + b + c + d$

![Diagram showing consumer and producer surplus in clothing](image)
• What about manufacturing, which we have designated as cloth.

  • Very different stories depending on the good.

    • Some goods prohibited from being manufactured.

    • Some manufacturers import intermediate products (tools, machines) from England at costs that would exceed those if there were no monopoly rents or there was free world trade.

    • For example, rum producers must import more expensive sugar cane from the British West Indies.

    • But some goods are in heavy demand by England, such as just about anything that involves ship building.

  • So paying somewhat higher prices for some goods used in manufacturing, and in some cases for raw materials can be regarded as an appropriation of manufacturing profits.

    • It seems reasonable to model this as a direct tax on the output of colonial manufacturers.
Mercantilism

- What happens to the allocation of labor the Colonies.
- Just the opposite in terms of labor, but also puts downward pressure on wages.
• Although some industries like lumber benefit a lot, others are hurt.

• Could it be the two policies together, end up with the same allocation of labor as with free trade, although with a lower wage.

• Less production distortions that under either policy alone.
• **Summing Up**

• Mercantilist policies are designed to enrich England and extract some of what is produced in the colonies.
  
  • Some resources go to the crown, while others go to British merchants and manufacturers.

• They do so by restricting the way commerce can be carried out, with many goods having to first be shipped to England before transiting to their final destination or directly via export duties.

• There is some offset in gains from trading with a large market.

• Different goods affected differentially. Tobacco one of the most affected. As well U.S. merchants face restrictions that prevent them from increasing their market share. Those merchants are concentrated in Boston, NY, and Philadelphia.
• **Summing Up**

• Mercantilism reduces the supply of food from its free trade equilibrium amount and land owners are hurt. Capital owners benefit, but much of the benefit may essentially be taxed away.

• It is no accident that individuals who are merchants in Boston and those that are planters in Virginia lead the quest for independence.

• We will see in a succeeding lecture how regional economic differences differentially contribute to the desire to separate.
• From 15th Century to 19th death due to conflict declines dramatically.
  • While 1 in 5 Europeans died in War in the 15th century only 1 in 100 did so in the 19th.
  • Some of this is due to imperial pursuits replacing conflict as the best way to achieve power and wealth.
• Paper proposes that rising trade with the New World made a significant contribution to the decline.
• Uses pass through of wheat prices between 1640-1896 as a measure of market integration.
• In terms of our trade model, they are measuring where you are between autarchy and free trade.
Trade and conflict

- In theory the impact of trade is ambiguous.
  - War could raise trade costs deterring conflict. More so if trade is important.
  - Increased wages in manufacturing could raise the cost of fielding an army and deter conflict.
  - But Atlantic trade could substitute for trade among Europeans increasing the likelihood of war.
  - Mercantilist doctrine could also increase conflict as Europeans strive for Atlantic dominance (Spanish Armada and Seven Years War)
Econometric problem is pass could be correlated with exogenous factors that lead to war.

Need an instrument that affects trade costs but unlikely has any bearing on what is going on in Europe.

- Use exogenous cyclone activity in the Atlantic Ocean and interact it with wind-based sailing time between New World and each European country.
- Shipping times are predicted from weather alone and are not affected by navigation expertise, shipping technology or other factors that could also affect conflict.

So, identifying assumption is that Atlantic weather shocks only affect European conflict through trade.

- A problem could arise if these shocks affect European agricultural income, which in turn could affect conflict
- Anotherr problem is that weather could affect the likelihood of naval engagements.

Additional instruments are European rainfall and the omission of naval wars.

Find that trade reduced conflict by about 15% from a probability of around 2%.
Trade and conflict

- Additionally, they find that trade led to higher wages.
- And the pacifying affects are strongest in those countries with most extensive trade (Britain, France, Netherlands, Portugal, and Spain).
- Rule out the trade affects are spuriously coming from income shocks, institutional change, and alliance formations via intermarriage.
Trade and conflict

- The intuition of the exercise
- War involves the raising of an army, which is costly. It also produces returns to the winner.
  - One of those costs is the disruption of trade and in particular trade with the New World
  - A country with no New World links is not constrained by the prospect of a trade interruption with the New World
- We saw that what happens to wages when trade opens up is ambiguous. But empirically, at least over much of the period it appears to have raised wages in countries with New World connections
  - This raises the cost of conflict for the 5 European countries mentioned. Although, how much relative to the potential gains is probably small. (France and England are in a perpetual state of conflict in the 17th and early 18th century - 64yrs out of 126 between 1689 and 1815)
  - A counterbalancing force could be that NW goods are substitutes for the goods that say J ships to I
  - In that case, there is less cost to foregone bilateral trade between I and J in the event of a war.
Figure 1: Number of Conflicts per Year.
So the number of conflicts declined especially as we get to the second half of the 18th century.

Surprisingly wars also became less violent.

All but one of the countries in the sample, Florence, engaged in hostilities at one time or another.

So the data provides variation in the onset of conflicts, the price of wheat and the pass-through of prices from the NW, as well as independent variation in the cost of Atlantic shipping.
Trade and conflict

- Estimating Pass through.

\[ \Delta \ln P_{it} = \beta_{ij,t} \Delta \ln P_{jt} + \Delta e_{it} \]

- So they regress the price of wheat in i at t on price of wheat in j at t and regression coefficient measures pass-through.

- Note: pass-through is time varying.

- We saw that what happens to wages when trade opens up is ambiguous. But empirically, at least over much of the period it appears to have raised wages in countries with New World connections.

- Common weather conditions between countries could explain similar movements in price even if not integrated. Not a concern when one country is from the NW.

- Integration could be due to other factors than trade. However, over a period where they have both trade volumes and pass-through the two are highly correlated.
Trade and conflict

- Estimating the relationship between trade integration with the NW and the onset of conflict.

\[ O_{ijt} = b_0 + b_1 C_{ij,t-2} + b_2 \beta_{ij,t-1} + b_3 \beta_{NW}^{ij,t-1} + b_4 X_{ijt} + \text{country and date fixed effects} \]

- where \( \beta_{NW}^{ij,t-1} = 0.5(\beta_{NW}^{i,t-1} + \beta_{j,t-1}) \);

- \( O \) is an indicator variable for the onset of hostilities, \( C \) is an indicator for past conflict, and \( X \) is a bunch of controls including the logarithm of the distance between countries, language similarity measures, whether a border is shared, number of other wars the countries are involved in, and a five-year lag of population.

- To control for the potential endogeneity of \( \beta_{NW} \) they need an instrument correlated with New World trade and pass-through. They use Atlantic weather information: both Atlantic cyclones and wind patterns.

- It turns out that shipping costs and weather are positively correlated. And these may act somewhat like the tariffs we analyzed in reducing trade as they increase costs.
Trade and conflict

- **Results.**
  - The coefficient on bilateral trade is insignificant indicating that greater bilateral trade does not promote greater peace.
  - The coefficient on Atlantic trade is negative and significant. The increase in Atlantic trade between 1655 and 1830 lowered the probability of conflict between 2 European countries by 0.30 ppt from a baseline probability of around 2 percent.
    - They divide the sample into 50 year intervals and find that the results are stable across subperiods.
    - Perform an extensive amount of robustness checks.
Trade and conflict

- **Mechanisms**
- War could increase trade costs with NW and hence opportunity costs.
- Atlantic trade appears to have raised European wages and hence the cost of war.

\[ M_{it} = a_0 + a_1 \beta_{i,t-1}^{NW} + \theta_i + t + \nu_{it} \]

- where M is either the average real wage, number of soldiers per capta, or the log of naval ships.
- Find that Atlantic trade raises wages, and lowers both the size of the army and the navy.
  - Common weather conditions between countries could explain similar movements in price even if not integrated. Not a concern when one country is from the NW.
  - Integration could be due to other factors than trade. However, over a period where they have trade volumes and pass-through the two are highly correlated.
In summary it appears that Atlantic trade led to higher wages.

And the pacifying affects are strongest in those countries with most extensive trade (Britain, France, Netherlands, Portugal, and Spain).

Rule out the trade affects are spuriously coming from income shocks, institutional change, alliance formations via intermarriage.
Extra slides
Mercantilism

Equilibrium with Specific Factors
Mercantilism
Mercantilism

Output of food, $Q_F$

Output of cloth, $Q_C$

slope = $-(P_C/P_F)^1$

$Q_{F1}$

$Q_{C1}$

1

PP
Mercantilism
Mercantilism
The model

\[ pD_F + D_C \leq w(L_F + L_C) + r_T T + r_K K + t_F p(Q_F^* - D_F^*) + t_C (D_C^* - Q_C^*) \]
The model

\[ pD_F^* + DC^* \leq w^*(L_F^* + L_C^*) + r^*_T T + r^*_K K + t_F p(Q_F^* - D_F^*) + t_C (D_C^* - Q_C^*) \]
\[ pQ_F + Q_C + pt_F(Q_F^* - D_F^*) = pD_F + D_C \]
\[ pQ_F^* + Q_C^* + pt_F(Q_F^* - D_F^*) = pD_F^* + D_C^* \]
The model

\[ p(1 + t_F)Q_F + Q_C + pt_F(Q^*_F - D^*_F) = p(1 + t_F)D_F + D_C \]

\[ p(1 - t_F)Q^*_F + Q^*_C + pt_F(Q^*_F - D^*_F) = p(1 - t_F)D^*_F + D^*_C \]