

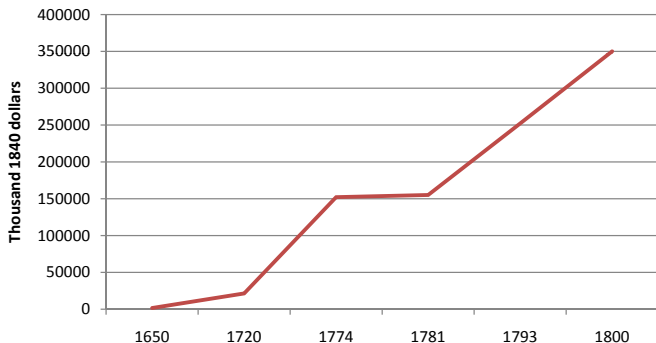
- Get started on your first referee report, due September 28th (on “The Market Evaluation of Human Capital” by Galenson)
- Thanks to Florence, we’re a little behind
- We’ll get to Sawers (1992) “The Navigation Acts Revisited” on Thursday
- We’ll get to the Federalist Papers maybe at the end of Thursday’s class, more likely on Tuesday

# Putting American Economic Growth in Perspective

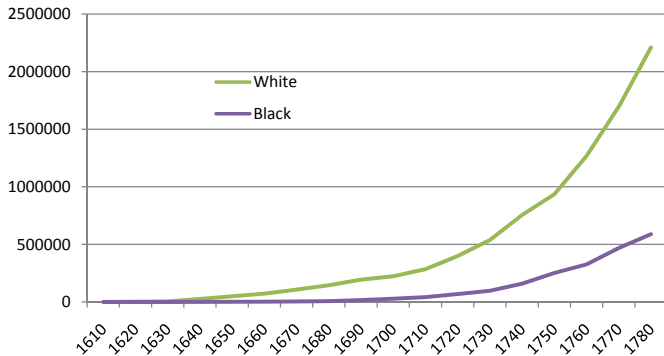
Rank	Country	GDP per capita (2010 US dollars)
180	Democratic Republic of Congo	171
179	Liberia	239
178	Sierra Leone	311
145	Kenya	912
	<b>United States, 1710</b>	<b>952</b>
144	Nicaragua	972
118	Indonesia	2,329
	<b>United States, 1840</b>	<b>2,336</b>
117	Paraguay	2,337
84	Namibia	4,543
	<b>United States, 1880</b>	<b>4,585</b>
83	Azerbaijan	4,807
52	St. Kitts and Nevis	10,315
	<b>United States, 1929</b>	<b>10,640</b>
51	Lithuania	11,172
37	Oman	18,013
	<b>United States, 1945</b>	<b>18,079</b>
36	Czech Republic	18,557
10	Austria	45,989
<b>9</b>	<b>United States</b>	<b>46,381</b>
8	United Arab Emirates	46,857
7	Netherlands	48,223
6	Ireland	51,356
5	Denmark	56,115
4	Switzerland	67,560
3	Qatar	68,872
2	Norway	79,085
1	Luxembourg	104,512

International Monetary Fund, World Economic Outlook Database, April 2010

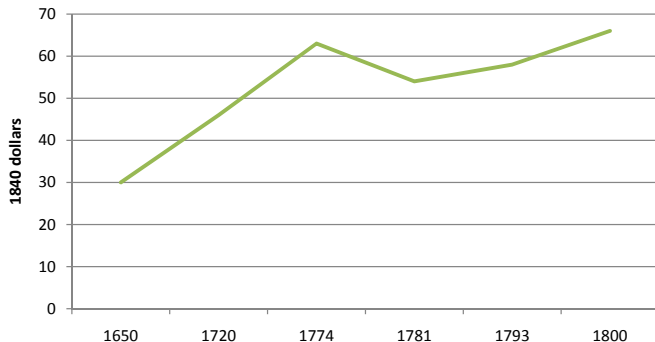
# Growth of the Colonial Economy - GDP



# Growth of the Colonial Economy - Population



# Growth of the Colonial Economy - GDP per capita



# Why Settle America?

- Early exploration of the Americas had a lot to do with *mercantilism*
- An oversimplification: countries assumed greater military and political power came from greater stocks of gold and silver
- The Spanish had success in finding places with gold and silver that could be mined
- Other countries had to rely on trade to build up stocks of silver and gold
- This led countries to seek out colonies that had different resources from the mother country and to set up extractive institutions

# Mercantilism and Role of Colonies

Philipp Wilhelm von Hornick, *Austria Over All, If She Only Will*, 1684 (quoted in Robert Ekelund Jr. and Robert Hebert, *A History of Economic Theory and Method*, Waveland Press, 1997):

- That every inch of a country's soil be utilized for agriculture, mining or manufacturing
- That all raw materials found in a country be used in domestic manufacture, since finished goods have a higher value than raw materials
- That a large, working population be encouraged
- That all export of gold and silver be prohibited and all domestic money be kept in circulation
- That all imports of foreign goods be discouraged as much as possible

Philipp Wilhelm von Hornick, *Austria Over All, If She Only Will*, 1684 (quoted in Robert Ekelund Jr. and Robert Hebert, *A History of Economic Theory and Method*, Waveland Press, 1997):

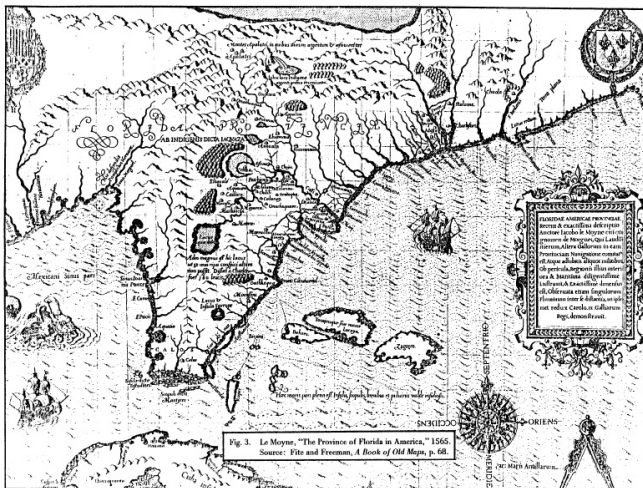
- That where certain imports are indispensable they be obtained at first hand, in exchange for other domestic goods instead of gold and silver
- That as much as possible, imports be confined to raw materials that can be finished [in the home country]
- That opportunities be constantly sought for selling a country's surplus manufactures to foreigners, so far as necessary, for gold and silver
- That no importation be allowed if such goods are sufficiently and suitably supplied at home



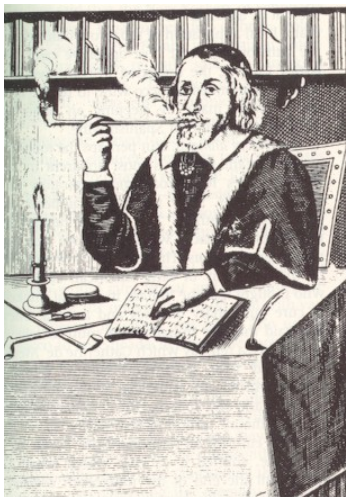
# Why Settle America if You're British?

- The colonies in the mid-Atlantic didn't yield gold or silver
- Initially, British businessmen thought the southern colonies might be good for silk and winemaking
- That didn't really pan out, but tobacco did
- The northern colonies were about subsistence agriculture and port services

# Why Settle America if You're British?



# Why Settle America if You're British?



*PANACEA;*  
OR  
The Universal Medicine,  
*BEING*  
A DISCOVERY  
of the  
Wonderfull Vertues  
OF  
**Tobacco**  
Taken in a Pipe,  
*WITH*  
Its Operation and Use both in  
*Physick* and *Chyrurgery*.

---

By D<sup>r</sup> EVERARD, &c.

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LONDON,  
Printed for *Simon Miller* at the Star in *S<sup>t</sup> Pauls*  
Church-yard, near the West-end, 1659.

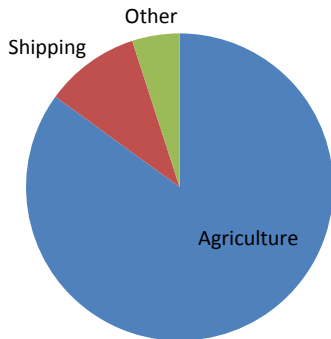
# Mercantilist Policy and the Colonial Economy

- Although the colonies didn't have gold and silver, the colonial economy was very much shaped by mercantilist policy
- Colonies were supposed to provide England with commodities unavailable in England and to serve as a captive market for English finished products
- Colonies weren't supposed to compete with the mother country: you sell your resources to England, not to other countries, and you buy your finished goods from England, not from other countries

# Mercantilist Policy and the Colonial Economy

- These mercantilist policies had very different effects on the southern and northern colonies
- Southern colonies had land that could be used for tobacco
- Britain provided a growing market for tobacco, supply of tobacco rose dramatically during the entire colonial period
- Northern farmland wasn't all that good so as population grew, the marginal product of labor dropped
- Mercantilist policy didn't leave many manufacturing jobs for these farmers to switch to
- The one big industry the north did have was shipping (they had timber and lots of things needed to be shipped)

## Colonial Workforce by Sector



# The Colonial Economy

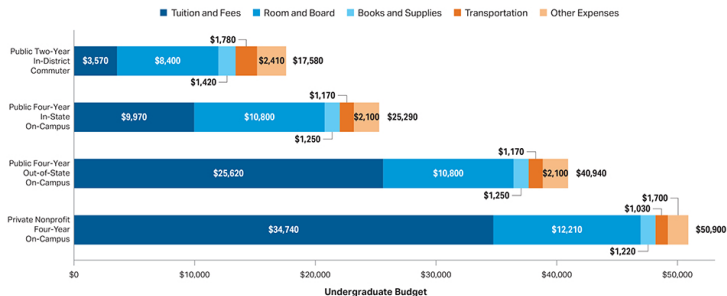
- So the colonial economy was dominated by agriculture
- The good news: there was plenty of land to farm
- The bad news: to farm all that new land, the colonies needed more people
- More good news: wages were good in the colonies relative to Britain so people wanted to work in the colonies
- More bad news: travel from England to the colonies was extremely costly (almost equal to a German migrant's annual salary)
- Solution: indentured servitude

# Credit Constraints and Indentured Servitude

- The cost of passage to America was £5 to £10, an amount greater than average annual income at the time
- To put that in perspective, think about college tuition
- If there were no student loans, how would people pay for college?
- Maybe you work first and save up for college
- Median income for a high school graduate age 25 to 34 in 2016 was \$32,143 (CPS data)

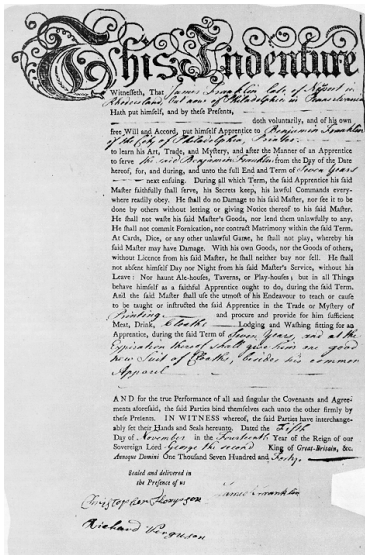


# Credit Constraints and Indentured Servitude



Sources: College Board, Annual Survey of Colleges; NCES, IPEDS Fall 2015 Enrollment data.

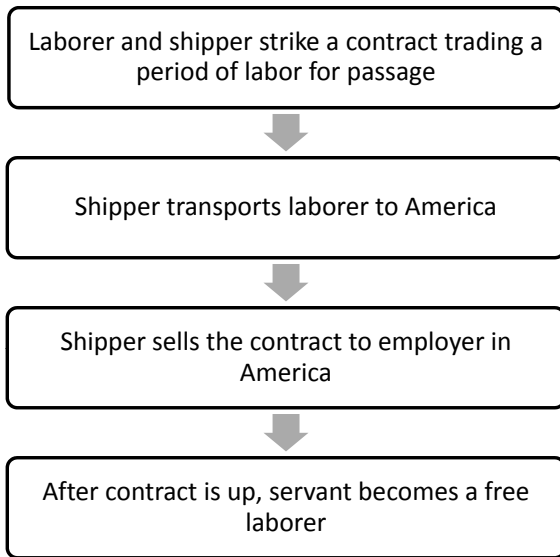
# How Indentured Servitude Works



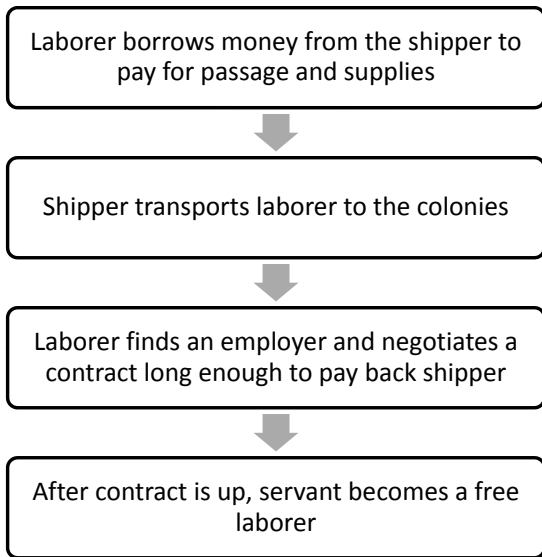
## How Indentured Servitude Works

This indentured...between [Alexander Beard]...of the one part, and [John Dickey]...of the other part, witnesseth, that the said [Alexander Beard] doth hereby covenant, promise and grant, to ...[John Dickey]...and his assigns, from the day of the date hereof until the first and next arrival at [Philadelphia] in America...and during the term of [three] years to serve in such service and employment as the said [John Dickey] or [his] assigns shall there employ [him]...In consideration whereof the said [John Dickey] doth grant...to pay for [his] passage, and to find allow [him] meat, drink, apparel and lodging, with other necessaries, during the said term; and at the end of the said term to pay unto him the usual allowance, according to the custom of the country in the like kind...

# How Indentured Servitude Works - Standard



# How Indentured Servitude Works - Redemptioners



## Other Things in Short Supply

- A lack of workers wasn't the only complaint, the supply of money was also an issue
- People complained of shortages of specie and other forms of currency (complaints often came when taxes were due)
- Paper currency had issues with depreciation (partly due to the lack of specie)
- In general, colonial money was a mixture of several types of money, each with its own set of problems

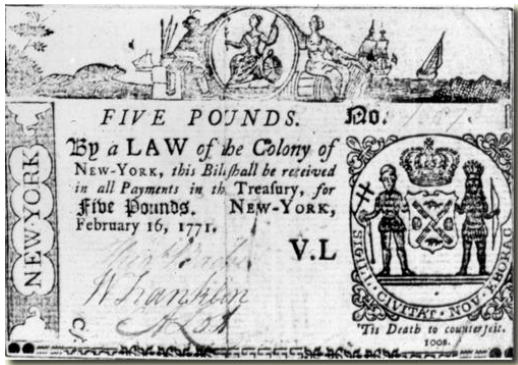
# Colonial Money Supply



*Spanish silver dollar*

[http://en.wikipedia.org/wiki/File:Philip\\_V\\_Coin.jpg](http://en.wikipedia.org/wiki/File:Philip_V_Coin.jpg)

# Colonial Money Supply



Colonial currency, New York Colony, 1771

<http://iaarchives.nysed.gov/PubImageWeb/viewImageData.jsp?id=137>



# Colonial Money Supply

## Wheat Prices in Massachusetts: 1720-49

Year	Massachusetts Shillings	Silver- Equivalence Units
1720	7.00	3.98
1725	8.73	3.93
1730	10.75	3.76
1735	13.25	3.38
1740	13.00	
1745	17.92	3.49
1749	50.25	5.85

# Colonial Money Supply

## Massachusetts Exchange Rates: 1720-49

Year	Mass. £ per £100 British	
	Sterling	% Depreciation
1720	£ 219.43	--
1725	289.11	31.8%
1730	337.71	16.8
1735	360.00	6.6
1740	525.00	45.8
1744	588.61	12.1
1745	644.79	9.5
1746	642.50	-0.4
1747	925.00	44
1748	912.00	-1.4
1749	1033.33	13.2

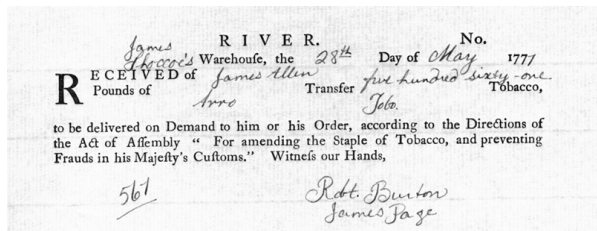
# Colonial Money Supply



Colonial currency, Virginia, 1776

<http://www.history.org/history/teaching/eneuletter/volume3/images/fiveDollarsLg.jpg>

# Colonial Money Supply



Virginia tobacco note, 1777

<http://www.history.org/history/teaching/newsletter/volume3/images/cropLg.jpg>

# Colonial Money Supply



*Patrick Henry arguing the Parson's Cause case at the Hanover County courthouse*

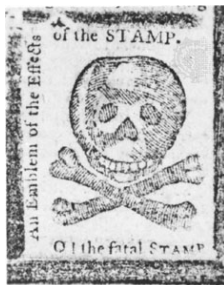


“We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness....”

“For cutting off our Trade with all parts of the world”

“For imposing Taxes on us without our Consent”

# Economics and Independence





# The Costs and Benefits of Empire Membership

- Being of part of the British Empire had its advantages and disadvantages
- Many of the economic benefits and costs of membership arose from British mercantilist policies
- Most of these policies were contained in the Acts of Trade and Navigation
- The passage of these acts began in 1651 and continued to be modified and expanded until the 1840s
- The acts severely restricted the ways in which the colonies could trade with Britain and other countries

# The Costs and Benefits of Empire Membership

The main provisions of the Navigation Acts:

- All trade of the colonies was to be carried in vessels built, owned and commanded by English or colonialists
- All foreign trade with the colonies had to be conducted through England
- Specific enumerated goods could be exported only to England (these included tobacco, sugar, cotton and other goods)

# The Costs and Benefits of Empire Membership

First, the benefits of being part of the British Empire:

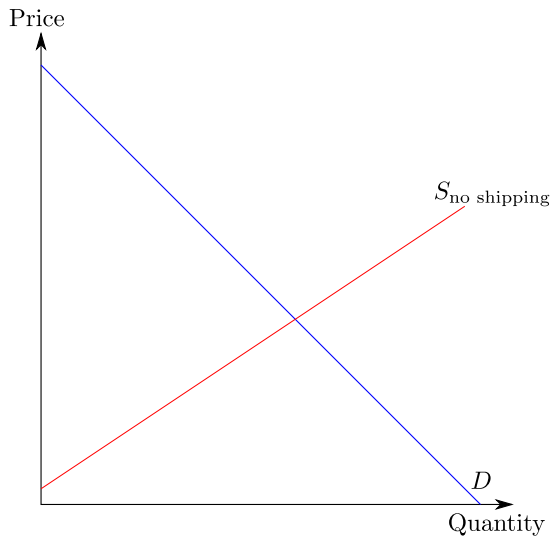
- Military protection (important to protect naval trade and important because of the threat of the French in North America)
- Protection of growing industries from foreign competition
- Subsidies for particular colonial products (indigo, lumber)
- Protection in the British domestic market

# The Costs and Benefits of Empire Membership

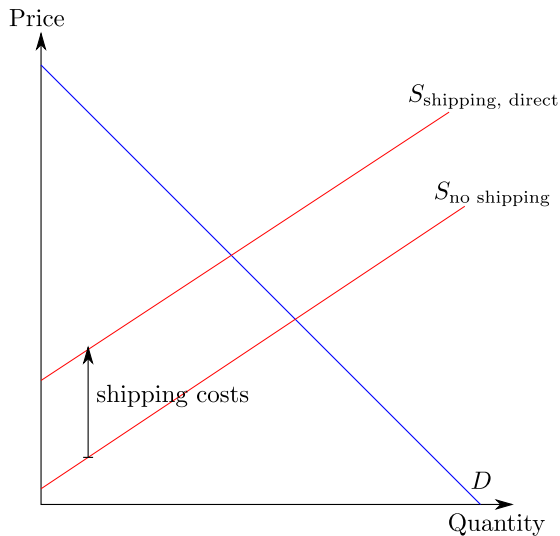
Now for the costs of being part of the British Empire:

- Having to transport enumerated goods through England before selling them to the rest of Europe increased shipping costs, leading to lower prices received for exports and lower quantities of exports
- Imports having to pass through England before reaching the colonies increased the price of imports and decreased the quantities of imports
- The need for Britain to generate revenue to pay off public debt led to additional tax burdens on the colonies

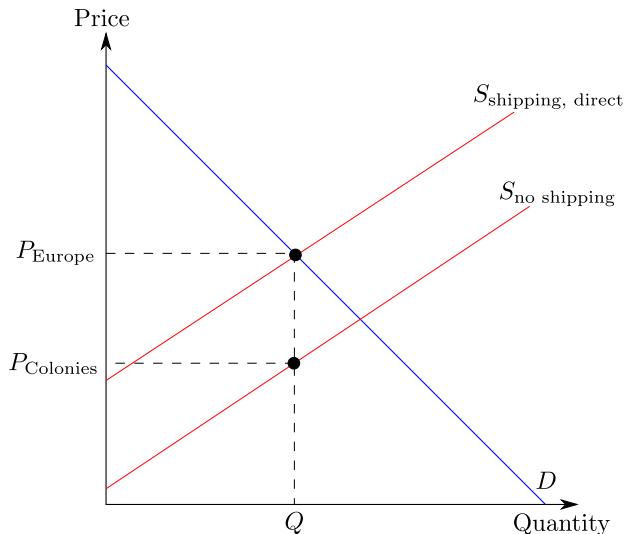
# The Burden of the Navigation Acts on Exports



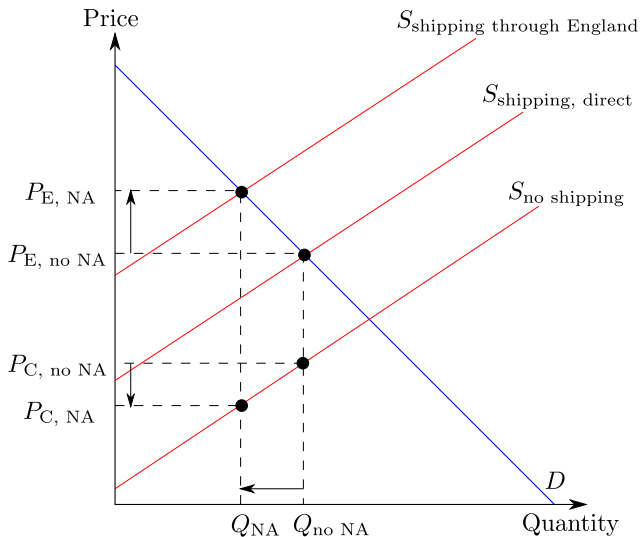
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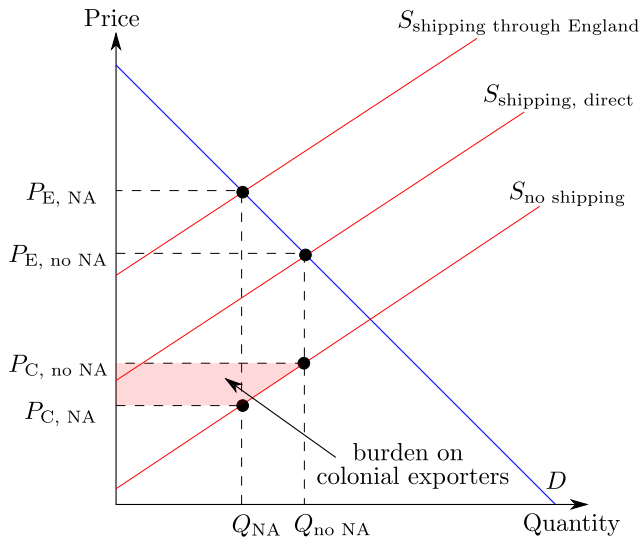


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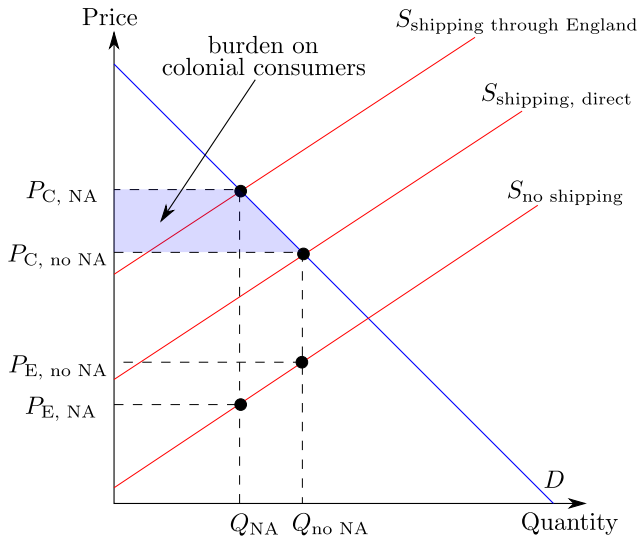




# The Burden of the Navigation Acts on Exports



# The Burden of the Navigation Acts on Imports



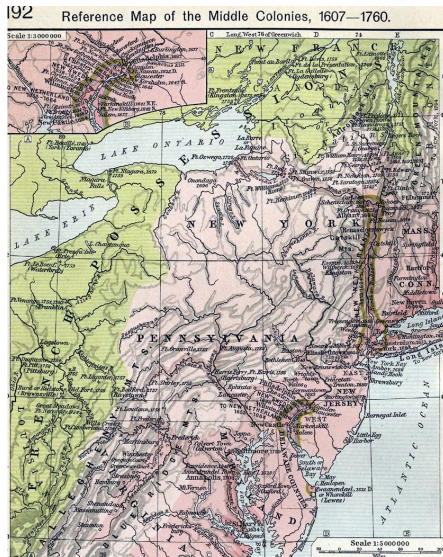
# Quantifying the Benefits and Costs of Empire Membership

- It's clear that the Navigation Acts affected the colonial economy, but how big was the impact?
- If the burdens of empire membership were small, economics probably had little to do with revolution
- However, if the burdens were large they may have driven revolution
- Robert Paul Thomas set out to quantify just how much being under British rule cost the colonies

# Quantifying the Costs of the Navigation Acts

- Thomas focuses on the effects of the Navigation Acts for 1763-1772
- He argues that in earlier periods, the benefits greatly outweighed the costs because of the need for protection
- He also argues that the Navigation Acts imposed a much larger economic burden than other restrictions (the Revenue Acts, land regulations, interference with colonial issues of paper money, regulations discouraging manufactures)

# The Threat of the French

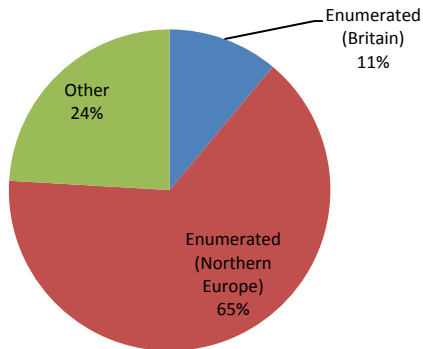


# Quantifying the Costs of the Navigation Acts

Thomas splits up the problem into several pieces:

- ① the effects of regulations on exports of colonial products
- ② the effects of regulations on imports into the colonies
- ③ colonial foreign commerce
- ④ colonial shipping earnings
- ⑤ the compensating benefits of being in the British Empire

## Colonial Exports, 1770

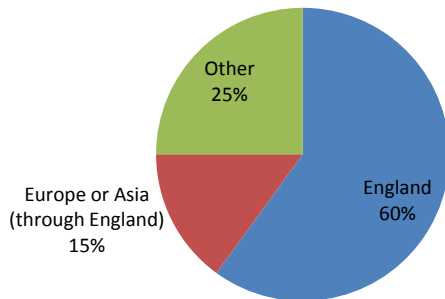


# The Effects on Exports of Colonial Products

- The added transportation costs on enumerated goods lowered the price received by the colonies and the quantities sold
- How large these effects were depended on the supply and demand elasticities
- Tobacco as an example:
  - Thomas estimates that the colonial price would have been 34 percent higher under independence
  - He assumes that supply would have increased by one percent for every percent increase in price
  - These estimates put the lost surplus of tobacco growers around 64,000 pounds for 1770
- Thomas also calculates the benefits from bounties and preferential duties



## Sources of Colonial Goods



# The Effects on Imports

- Same approach as exports, you need to estimate supply and demand elasticities
- Tea and pepper were the two main imports in determining the size of the burden
- Thomas finds that the prices for these goods would have been 16 percent lower under independence

# Estimating the Value of Military Protection

- One of the biggest benefits of the British Empire was military protection
- Thomas figured that the colonies would have needed to maintain a standing army of 5,000 men
- To estimate the value of naval protection, Thomas looks at the rise in shipping insurance rates
- Insurance rates were around 3.5 to 7 percent when protected by the British navy and rose as high as 28 percent without those protections

# The Costs and Benefits of Empire Membership

## Summary of Costs and Burdens (Thomas, 1965)

	1763-1772	1770
Burden on foreign commerce	\$2,255,000	\$2,660,000
Burden per capita	\$1.20	\$1.24
Benefit of British protection	\$1,775,000	\$1,755,000
Benefit per capita	\$0.94	\$0.82
Balance	(\$0.26)	(\$0.42)

Colonial per capita income at the time was roughly \$100.

# A Critique of Thomas's Results

- By Thomas's numbers, economics didn't spark the revolution, maybe it was all about life, liberty and the pursuit of happiness
- This countered the belief for decades that economics was an important part of the reasons for revolution and became generally accepted
- Decades later, another economist came along to question Thomas's results
- Larry Sawers published a paper in 1992 challenging Thomas's methodology and results

- Sawers finds several problems with the approach that Thomas took and the interpretations he made
- He believes Thomas was using the wrong counterfactual
- He also believes Thomas was focusing on the wrong numbers
- Sawers conclusions are that the economic burden was an important motivation for independence

# What is the Right Counterfactual?

- Thomas was estimating things right around the time of the revolution
- But if you're thinking revolution, you're thinking about the long run
- Manufacturing was becoming more important, protection from the French less important
- The empire was designed to protect against foreign competition but promote competition within the empire, as the colonies grew this became less and less beneficial

# What is the Right Way to Measure the Burden?

- Thomas calculates the economic burden per person
- In these terms, the burden was indeed quite small
- But the benefits and costs were not equally shared
- The leaders of the revolution had more to gain economically than other groups of colonial society

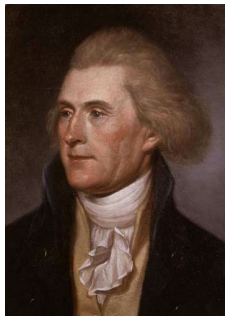
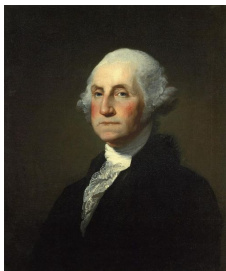


# The Distribution of the Burden



John Hancock – merchant involved in Atlantic trade

# The Distribution of the Burden



George Washington, Thomas Jefferson – tobacco planters

# The Distribution of the Burden

## The Founding Fathers by Occupation and Region

Occupation	New England	Middle	South
Merchant	37%	18%	5%
Lawyer	42	55	38
Politician	11	3	14
Minister	0	3	5
Physician	10	3	8
Farmer-Planter	0	12	30
Landowner	0	6	0

*From "The Founding Fathers of 1776 and 1787: A Collective View" by Richard Brown, William and Mary Quarterly, Vol. 33, No. 3, 1976*

# The Distribution of the Burden

Distribution of prior occupations for senators in the  
111th Congress


Occupation	% reporting occupation
Law	54
Public service / politics	32
Business	26
Education	16
Real estate	6
Journalism	5
Agriculture	5
Medicine / doctor	3
Labor / blue collar	2
Artistic / creative	2
Military	1
Professional sports	1
Homemaker / domestic	1
Actor / entertainment	1
Miscellaneous	1

# Economics and Independence

- Being part of the British Empire had a variety of economic advantages and disadvantages
- As the colonies grew, many of the benefits declined while the costs grew
- Thomas's analysis suggests that at the time of independence, the costs of empire membership were very small, concluding economics weren't a major factor
- Sawers disagrees, arguing that the costs were getting more and more significant and that the planters and merchants stood to gain a great deal from independence
- Sawers does not claim that economics was the only force driving revolution, but maintains that it was important

- There is one more point of contention in this debate
- Regardless of the costs and benefits, did people care?
- Where are all of the fiery speeches about economic burden?
- Why are there just a couple of economic grievances buried in the middle of the Declaration of Independence?

Attention Taxpayers,  
**PROTECT YOUR RIGHT TO VOTE.**



Right now local governments in California can spend public money or incur public debt to take over private electric businesses without letting local voters have the final say. That's why California needs Prop. 16. In tough economic times like these, voters deserve the right to have the final say about how our money is spent. **Learn more about Prop 16 and join us to stand up for the Taxpayers Right to Vote - Yes on Prop 16.**

Do you think voters deserve the right to have the final say on how our money is spent?

YES, I AGREE  NO, I DISAGREE

Your Email Address

**SUBMIT**

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Image from <http://www.postcarbon.org/article/102372-an-even-bigger-spill-looming/13916-government>

# Timeline of Independence

- 1774 - First Continental Congress
- 1775 - Second Continental Congress
- 1776 - Articles of Confederation are drafted, Declaration of Independence
- 1778 - 8 of 13 states ratify the Articles of Confederation
- 1781 - Surrender at Yorktown, final states ratify Articles of Confederation
- 1783 - Treaty of Paris
- 1787 - Constitutional Convention



# The Revolutionary War

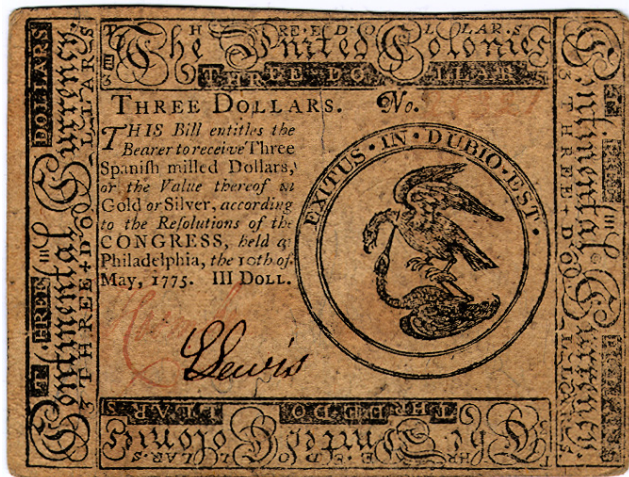
- Eventually revolution happened
- Declaring independence raised issues of how the new national economy would be structured
- These were fairly pressing issues considering that there was a war to fight
- The Continental Congress had limited options: it could (and had to) spend money on the military but couldn't easily raise revenue

# How Can a Country Raise Money?

## Ways to Raise National Revenue

Revenue Source	Problems
Taxation	Difficult to set up quickly, need consent of individual colonies
Borrowing	Hard to borrow without something to borrow against (future tax revenue)
Printing Money	Not really a long run solution

# Congress's Solution: The Continental Dollar



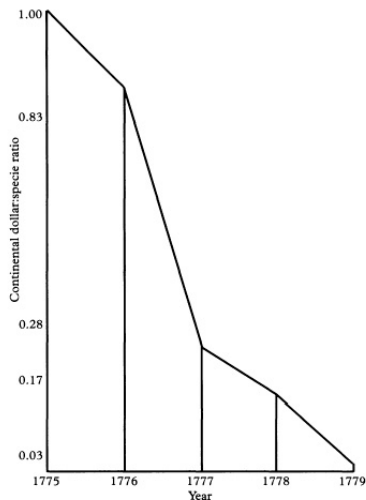
## Continental Dollar Emissions (1775-1779)

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Year of Emission	Nominal Dollars Emitted
1775	\$6,000,000
1776	19,000,000
1777	13,000,000
1778	63,000,000
1779	140,500,000

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# What Happened When Congress Printed Money



**Figure 1. Average annual specie value of continental dollar, 1775-1779**

*Note:* The period covered is from the initial issue of currency to the year in which the Continental Congress first resolved to end issues as a source of revenue. Ratio on 22 June 1775 = 1.00

*Source:* Bullock, 'Finances', p. 135

# Financing the War

- Printing money worked at first to fund the military
- However, the currency quickly began to depreciate for a couple of reasons:
  - The individual colonies were issuing their own money that competed for the same resources
  - The British were actively attempting to devalue the Continental dollar
  - People lost faith that the government could back up the Continental dollar
- Ultimately, this was a fairly poor approach to a national monetary policy