Sea Empires

Jesús Fernández-Villaverde

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1University of Pennsylvania
The end of an era

- Death of Timur in 1405 (same year than the first Treasure fleet) represents the end of the big Nomads invasions (Manchu invasion will be very different).

- Traditional empires:
  1. Control of land routes in Euroasia.
  2. Tribute system.

- New empires:
  2. Land empires: Russia, Ottoman empire, Safavid Persia, Mughal India, China, Japan.


- Basic reorganization of the world: growing integration of economies, environments, and peoples.
Timurid empire
Timur feasts in Samarkand
Sea empires

- Radically new type of empire.

- Instead of controlling large amounts of land, priority is controlling strategic ports, straits, sea-lanes.

- Limited control of land (in Africa and Asia) or total conquest (America).

- Relatively limited military commitment.

- Until the 19th century, small migration of Europeans.

- Production and shipment of high-value commodities.
Technological improvements

Carlo Cipolla, Guns, Sails, and Empires.

- Change driven by technological improvements:
  1. Sea charts.
  2. Square-rig and three-masted ships.
  5. Shipboard firepower and its placement.

- Why?
  1. Interaction between navigation in the Mediterranean and the Atlantic area.
  2. Shortage of labor after black death to hire oarsmen.
  4. Communication across different regions (hard to assess).

- Battle in 1575, 1 Portuguese caravel defeats 8 to 10 Japanese junks and 50 smaller ships.
Proto-cannon from the Ming dynasty
<table>
<thead>
<tr>
<th>martius</th>
<th>aprilis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>7 8 9 10 11 12</td>
<td>7 8 9 10 11 12</td>
</tr>
<tr>
<td>13 14 15 16 17 18</td>
<td>19 20 21 22 23 24</td>
</tr>
<tr>
<td>25 26 27 28 29 30</td>
<td>31</td>
</tr>
</tbody>
</table>

*Table of the eclipses and twelve days.*
Spanish galleon
Mary Rose in the Anthony Roll
A reproduction of a Portuguese caravel
Iberian Empires I: Portugal

- Background in the middle ages.
- Treaty of Tordesillas, 1494.
- 1498: Vasco de Gama reaches India.
- Within 15 years of arrival to India, they control the seas. Plunder and extortion, trade on spices, horses, silk,....
- Not a particularly well-run empire: sale of offices.
- Brazil, Africa, and Asia. Preference for small settlements and the role of sugar.
- Trade between Macao-Melaka-Nagasaki.
Mansa Musa holding a gold nugget
Portuguese settlements in Africa

MAP 2. Atlantic Africa and the Portuguese voyages of the fifteenth century.
Table 3.5 Collapse of the Venice–Levant trade, 1496–1506 (annual averages, figures in tonnes)

<table>
<thead>
<tr>
<th>Route commodity</th>
<th>Alexandria 1496–8</th>
<th>Alexandria 1501–6</th>
<th>Beirut 1496–8</th>
<th>Beirut 1501–6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pepper</td>
<td>480–630</td>
<td>135</td>
<td>90–240</td>
<td>10</td>
</tr>
<tr>
<td>Other spices</td>
<td>580–730</td>
<td>200</td>
<td>150–180</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>1060–1200</td>
<td>335</td>
<td>270–420</td>
<td>45</td>
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</table>

(Source: Wake 1986: 633)
Japanese painting of a Portuguese carrack at Nagasaki
Killing of Sultan Bahadur
Cantino planisphere
Iberian Empires II: Spain

- Late comer with respect to Portugal.
- End of Reconquista.
- Attempt a very different route $\Rightarrow$ bump into America.
- Fast conquest of most America:
  1. First real world empire.
  2. Tremendous amounts of plunder.
- Relatively intense migration (close to 1 million out of an 8-10 million country).
- Inherently city-centered colonization.
The surrendering of Granada, 1492
Ransom room
Cathedal of Morelia
Las castas mexicanas
Union of the Imperial Inca descendants with the Houses of Loyola and Borgia
Treasure fleets

- Gold and silver (Cerro Rico in Potosí, Perú, México).
- Organized in treasure fleets (Carrera de Indias).
- From 17 ships in 1550 to around 100 in 1660, to about 25 in 1750.
- Highly successful system with only a few losses: between 1520 and 1776.
  1. four lost to Dutch or British (1628 by Piet Hein, 1656, 1657, and 1702).
  2. three to storms (1622, 1715, and 1733).
- Commerce directed from Seville (Pierre Chaunu, Séville et l’Atlantique (1504-1650)):
  1. Casa de Contratación.
  2. Quinto del Rey.
  3. Asiento de Negros.
Spanish treasure fleet route
Seville in the 16th century
Consequences

  1. Quantitative theory (David Hume, Milton Friedman).
  2. First example of Dutch Disease: exchange rates, political-economic equilibrium.

- Consequences for prices in Europe.

- Consequences for world trade with Asia (Annual Manila Galleon from Acapulco to Manila, **W. Schurz**, *The Manila Galleon*).
Spanish piece of eight silver coin
London wheat prices in silver, $1500=100$
• Portuguese were inefficient traders and could not keep up with rising demand.

• Moreover, Dutch learned about trade routes and were enemies of the Portuguese.

• Dutch East India Company (Vereenigde Oost-Indische Compagnie) created in 1602:
  1. Monopoly for trade with Asia for 21 years.
  2. First multinational corporation.
  3. First company to issue stock.
  4. Hire a small army (10,000 soldiers) and navy (40 warships).
  5. Immensely profitable for decades (27% annual return on initial investment).
  6. Employed 30,000 persons in a 2 million persons country.

• Quickly copied: Danish East India Company (EIC), 1615, and Swedish EIC, 1731.
Provinces of the Dutch Republic and the Generality Lands
ITINERARIO.

Voyage osthe Schipvaert / van Jan
Huygen van Einckhotten naar Oost osthe portugaels In-
den. Insluypende een eerste beschrijvinghe der nieuwe landsen ende. Deen
oprijgende na alle de boven genoempte zeeharten hoogerheden ingenisse ende zicht
oor boven deze gelyck gedaen ende laten, ookere. Kinder
het ghevoerde gene, met allen de Curios-
Zelfs, na alle haarden, waaren deere soe gedaen, de boven ghezeghten allerzels en siez en alle de
dinghen gelegen, ende ghebeuroghste, haer gheplaatste.

Alles beheven ende by een vergaderd, door den zelfsten, ser maaer, waarheer,
en de roo deem nu te maken voor alle conveynde. Lief-
hebbers van vreemdheden.

AMSTELREDAM.

By Cornelis Clasen, op't V Water, in't Schrijf-bock, by de oude Bruug ol.
Anno 160. IX. XCVI.
Dutch fluyt, 1677
Establish settlements in today’s Indonesia and later Ceylon (Sri Lanka). Trading posts all over Asia.

Headquarters in Batavia (today Jakarta).

Spices where it was easier to control the market: clove, nutmeg, cinnamon.

Trades:

1. Netherlands to Batavia: supplies for VOC settlements in Asia.
2. Japan to India and China: silver and copper to trade for silk, cotton, porcelain, and textiles.
3. Change these products within Asia for spices or exported to Europe.
4. Elephants from Ceylon to India, clothes to Europe (eventually, even more important than spices).

For a while, only merchants allowed in Japan.

Price wars: monopolist, contestable market.
The return to Amsterdam of the second expedition to the East Indies
Boardroom of the Dutch East India Company
Residence of the VOC Governor General in Batavia
The trading post of the Dutch East India Company in Hooghly, Bengal
Willem Berg’s Tavern in Dorp Street, Cape Town
Nutmeg
Dejima island
The first modern economy

- Part of a much richer and sophisticated economy: Jan de Vries and Ad van der Woude, The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500-1815.

- Import wheat from Baltic sea (Baltic trade was the “mother trade”).

- Herring fisheries, whaling.

- Entrepôt for Europe.

- High level of urbanization.

- High level of manufacturing and services.

- Role of Dutch financial markets in European wars.

- Golden Age of the Dutch Republic.

- Political and social success.
Figure 1 presents an important result of the reconstruction: the development of the volume of shipping (in 1000 tonkm) between 1503 and 1793. It demonstrates the enormous growth of the shipping industry in the Netherlands; total volume increased by a factor of 17 between the first estimate of 1503 and the absolute peak in 1790. The average annual growth rate between those dates was slightly less than 1% (0.9958%), which is quite high for such a long period.

Growth was initially rather slow (less than 0.5% per annum between 1503 and 1550) – only during the 1550s and 1560s did a phase of rapid expansion begin, which is consistent with other data (De Vries and Van der Woude 1997: 373). The conflicts of the late 1560s and early 1570s were disastrous for shipping, but after 1576 rapid recovery followed. From the 1590s onwards long distance shipping began to contribute to growth, and a period of extreme fluctuations of shipping ensued, with a remarkable boom during the period of the Truce with Spain (1609-1621), during which the volume more than doubled. This was followed by a very serious downturn in the late 1620s.

In the early 1630s another boom began, peaking in the years before and directly after the Peace of Westphalia (the highest level is reached in 1649). In the next hundred years wars still had a strong impact on the industry; the three Anglo-Dutch wars, for example, led to serious declines in activity. In the long term the level remained more or less stagnant at 3 to 4 billion tonkm, however. Whereas during the previous century growth rates of total output had been 2.6% (1550-1600) and 2% (1600-1650), between 1650 and 1750 they were on balance barely positive. Shipping through the Sound declined in these years, as did the trade with the Mediterranean, but this decline was to some extent compensated by the ongoing growth of shipping on long-distance routes – to Asia and the Americas. In the second half of the 18th century growth resumed, to a rate of 1.2% per annum between 1750 and 1790, although it was much less spectacular than during the 1550-1650 period. The Atlantic economy became the

NB for the period before 1537 only two point estimates are available (1503 and 1528).
• State loans negotiated in Venice at a very early date, in Florence before 1328, and in Genoa.

• By early 16th century, fluid and sophisticated stock market in Amsterdam.

• In 1585, 339 commodities quoted, 550 in 1686.

• By 1630s, Christoffel and Jan Raphoen behave as market-makers with VOC shares.

• Amsterdam becomes the first world financial center.
The courtyard of the Old Exchange in Amsterdam
Dutch foreign investment

![Graph showing Dutch foreign investment from 1710 to 1800.](image-url)

- **Y-axis:** Dutch guilders (millions)
- **X-axis:** Years (1710 to 1800)

The graph illustrates the steady increase in Dutch foreign investment over the 90-year period, with a notable spike in the late 18th century.
Dutch investment in England and Denmark-Norway

Dutch guilders/1990 Geary-Khamis dollars

Denmark-Norway: Red line
England: Blue line
The Syndics of the Amsterdam Drapers’ Guild, 1662
Late comers: England and France

- England:
  1. Ireland.
  2. First British Empire: (1583–1783):
     2.1 North America (13 colonies, Newfoundland, Nova Scotia).
     2.2 Bermuda, Bahamas, British Honduras, Jamaica, Lesser Antilles.
     2.3 Settlements in Asia.

- France: Québec and India.

- Big rivalry between England and France between 1688-1815: Seven Years War (1756-1763) is the First Global War.
- The U.S. is, to a large extent, the consequence of that rivalry.
- John Brewer, *Sinews of Power*. 
First British Empire, 1700
Debt and government expenditure in the U.K., 1692-1860

Figure 2.1. Debt and Expenditure in the UK, 1692-1860

of the government's debts. In addition, government bonds were combined with a national lottery (Million Adventure). Life annuities were issued, as well as tontines. Short-term borrowing in case of war by the armed forces produced so-called army and navy bills, effectively short-dated promises to pay. The biggest experiment of all involved the South Sea Company, which offered to exchange all public debt in 1720 for shares. A similar exercise in 1719 had been attractive to both the government and the public, by improving the liquidity of outstanding debt. While the South Sea scheme ultimately failed, it demonstrated the attractions of liquid paper assets. The UK finally introduced consolidated annuities ("consols"), perpetual bonds with a relatively low interest rate (Dickson 1967). These were first issued in 1751. Originally carrying a yield of 3.5%, they were eventually converted to 3% in 1757 (and to 2.75% in 1888). Consols were liquidly traded, and became a prime savings vehicle for the moneyed classes in the UK.

2.2. Britain's growth and industrial transformation

Growth during the classic period of the British Industrial Revolution (1760-1850) was slow by modern standards. Initially, output growth per capita was barely faster than during the pre-industrial period. After the middle of the 18th century, growth accelerated from around 1% p.a. to 2.5%. At the same time, population increased rapidly, from 5.2 million to 19 million. Growth rates across sectors were highly unequal. Figure 2.2 shows annual GDP by sector. Agriculture expanded relatively slowly over the period 1700-1860, increasing total output by a factor of 2.8 – a slower rate of increase than that of population. Over the same period, real GDP in services increased 9-fold, and in industry, 14-fold (Broadberry et al. 2010).

6 Galor (2005) gives a figure of 0.1% p.a. for the pre-industrial era, while the work of Crafts and Harley suggests rates of 0.2% p.a. in the years 1760-1800.
The economic consequences of sea empires

- World transmission of monetary forces.

- Convergence of world prices.

- New world slavery.

- Changes in Europe.

- Columbian Exchange.
Figure 4.7. Intercontinental silver flows, early seventeenth and eighteenth centuries (kilograms per annum): (a) 1600–50; (b) 1725–50. Source: de Vries (2003, figure 2.3a,b). Note: the figures in rectangles (exporting regions) represent production, while the figures in circles (importing regions) represent domestic absorption.
Real prices of pepper before 1503

Figure 2. Real pepper prices, pre-1503

Source: see data appendix.
Nominal prices of pepper after 1503

Figure 4. Real pepper prices, post-1503

Source: see data appendix.
Table 5.8. Composition of European overseas imports, 1513–1780.

(a) Imports from Asia to Lisbon, 1513–1610 (% by weight)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pepper</td>
<td>80.0</td>
<td>84.0</td>
<td>89.0</td>
<td>68.0</td>
<td>65</td>
<td>69.0</td>
</tr>
<tr>
<td>Other spices</td>
<td>18.4</td>
<td>15.6</td>
<td>9.6</td>
<td>11.6</td>
<td>16.2</td>
<td>10.9</td>
</tr>
<tr>
<td>Indigo</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>8.4</td>
<td>4.4</td>
<td>7.7</td>
</tr>
<tr>
<td>Textiles</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>10.5</td>
<td>12.2</td>
<td>7.8</td>
</tr>
<tr>
<td>Misc.</td>
<td>1.4</td>
<td>0.4</td>
<td>1.4</td>
<td>1.5</td>
<td>2.2</td>
<td>4.6</td>
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<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

(b) Imports of VOC into Europe, 1619–1780 (% by invoice value)

<table>
<thead>
<tr>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Pepper</td>
<td>56.5</td>
<td>50.4</td>
<td>30.5</td>
<td>11.2</td>
<td>8.1</td>
<td>9</td>
</tr>
<tr>
<td>Other spices</td>
<td>17.6</td>
<td>17.9</td>
<td>12.1</td>
<td>11.7</td>
<td>6.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Textiles</td>
<td>16.1</td>
<td>14.2</td>
<td>36.5</td>
<td>54.7</td>
<td>41.1</td>
<td>49.5</td>
</tr>
<tr>
<td>Tea and coffee</td>
<td></td>
<td></td>
<td></td>
<td>4.2</td>
<td>32.2</td>
<td>27.2</td>
</tr>
<tr>
<td>Drugs, perfumes, and dye-stuffs</td>
<td>9.8</td>
<td>8.5</td>
<td>5.8</td>
<td>8.3</td>
<td>2.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Sugar</td>
<td>6.4</td>
<td>4.2</td>
<td>0.2</td>
<td>0.2</td>
<td>3.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Saltpeter</td>
<td>2.1</td>
<td>5.1</td>
<td>3.9</td>
<td>2.6</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td>0.1</td>
<td>0.5</td>
<td>5.2</td>
<td>5.7</td>
<td>1.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Misc.</td>
<td>0.2</td>
<td>0.1</td>
<td>0.4</td>
<td>2.3</td>
<td>1.7</td>
<td></td>
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<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The technological and geopolitical underpinnings of globalization were thus much weaker before 1800 than they would be afterwards. Nevertheless, the fact remains that Europe’s trade with the rest of the world grew substantially in the three centuries after 1500. Moreover, there seems to be a clear statistical link between transoceanic trade and prosperity during this period. According to Acemoglu et al. (2005, p. 549), the urbanization rate in the “Atlantic” European economies (England, France, the Netherlands, Portugal, and Spain) was just 10.1% in 1500, less than in the rest of Western Europe (11.4%) or Asia (11.5%). By 1700, urbanization was higher in Atlantic Europe (14.5%) than in either of the other two regions (13.1% in the rest of Western Europe and 11.6% in Asia), and the margin was even higher by 1800 (19.8% versus 16.9% and just 8.9% in Asia). GDP statistics show the same pattern of disproportionate growth in the five overseas colonial powers whose fortunes we have been exploring in this and the previous chapter. Similarly, Allen (2003a) finds a strong statistical relationship between trade and growth in early modern Europe, concluding that “the inter-continental trade boom was a key development that propelled north-
### (c) Imports of English East India Company into Europe, 1668–1760 (% of invoice value)

<table>
<thead>
<tr>
<th></th>
<th>1668–70</th>
<th>1698–1700</th>
<th>1738–40</th>
<th>1758–60</th>
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<tr>
<td>Pepper</td>
<td>25.25</td>
<td>7.02</td>
<td>3.37</td>
<td>4.37</td>
</tr>
<tr>
<td>Textiles</td>
<td>56.61</td>
<td>73.98</td>
<td>69.58</td>
<td>53.51</td>
</tr>
<tr>
<td>Raw silk</td>
<td>0.6</td>
<td>7.09</td>
<td>10.89</td>
<td>12.27</td>
</tr>
<tr>
<td>Tea</td>
<td>0.03</td>
<td>1.13</td>
<td>10.22</td>
<td>25.23</td>
</tr>
<tr>
<td>Coffee</td>
<td>0.44</td>
<td>1.93</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>Indigo</td>
<td>4.25</td>
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</tr>
<tr>
<td>Salt peter</td>
<td>7.67</td>
<td>1.51</td>
<td>1.85</td>
<td>2.97</td>
</tr>
<tr>
<td>Misc.</td>
<td>5.15</td>
<td>4.52</td>
<td>1.44</td>
<td>1.65</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### (d) Estimated annual sales of colonial imports, England and Netherlands, 1751–54

<table>
<thead>
<tr>
<th></th>
<th>Total sales (1000 pesos)</th>
<th>Percentage of sales From Asia</th>
<th>Of total</th>
</tr>
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<tbody>
<tr>
<td>Textiles</td>
<td>6,750</td>
<td>41.7</td>
<td>21.1</td>
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<tr>
<td>Pepper</td>
<td>1,100</td>
<td>6.8</td>
<td>3.4</td>
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<tr>
<td>Tea</td>
<td>2,800</td>
<td>17.3</td>
<td>8.7</td>
</tr>
<tr>
<td>Coffee</td>
<td>1,000</td>
<td>6.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Spices</td>
<td>1,850</td>
<td>11.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Misc.</td>
<td>2,700</td>
<td>16.7</td>
<td>8.4</td>
</tr>
<tr>
<td>Total from Asia</td>
<td>16,200</td>
<td>100.0</td>
<td>50.5</td>
</tr>
<tr>
<td>From America</td>
<td></td>
<td>From America</td>
<td>Of total</td>
</tr>
<tr>
<td>Sugar</td>
<td>8,050</td>
<td>50.8</td>
<td>25.1</td>
</tr>
<tr>
<td>Tobacco</td>
<td>3,700</td>
<td>23.3</td>
<td>11.5</td>
</tr>
<tr>
<td>Misc.</td>
<td>4,100</td>
<td>25.9</td>
<td>12.8</td>
</tr>
<tr>
<td>Total from America</td>
<td>15,850</td>
<td>100.0</td>
<td>49.5</td>
</tr>
<tr>
<td><strong>Total overseas imports</strong></td>
<td>32,050</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Prakash (1998, pp. 36, 115, 120) and Steensgaard (1990, p. 12).*
Spice markups, Amsterdam price over Southeast Asia price, 1580-1890

<table>
<thead>
<tr>
<th></th>
<th>1513-19</th>
<th>1523-31</th>
<th>1547-48</th>
<th>1587-88</th>
<th>1600-3</th>
<th>1608-10</th>
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<tr>
<td><strong>Pepper</strong></td>
<td>80</td>
<td>84</td>
<td>89</td>
<td>68</td>
<td>65</td>
<td>69</td>
</tr>
<tr>
<td><strong>Other spices</strong></td>
<td>18.4</td>
<td>15.6</td>
<td>9.6</td>
<td>11.6</td>
<td>16.2</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Indigo</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8.4</td>
<td>4.4</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>Textiles</strong></td>
<td>0.2</td>
<td>0</td>
<td>0</td>
<td>10.5</td>
<td>12.2</td>
<td>7.8</td>
</tr>
<tr>
<td><strong>Misc.</strong></td>
<td>1.4</td>
<td>0.4</td>
<td>1.4</td>
<td>1.5</td>
<td>2.2</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1619-21</th>
<th>1648-50</th>
<th>1668-70</th>
<th>1698-1700</th>
<th>1738-40</th>
<th>1778-80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pepper</strong></td>
<td>56.5</td>
<td>50.4</td>
<td>30.5</td>
<td>11.2</td>
<td>8.1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Other spices</strong></td>
<td>17.6</td>
<td>17.9</td>
<td>12.1</td>
<td>11.7</td>
<td>6.1</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Textiles</strong></td>
<td>16.1</td>
<td>14.2</td>
<td>36.5</td>
<td>54.7</td>
<td>41.1</td>
<td>49.5</td>
</tr>
<tr>
<td><strong>Tea and coffee</strong></td>
<td>4.2</td>
<td>32.2</td>
<td>27.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drugs, perfumes, and dye-stuffs</strong></td>
<td>9.8</td>
<td>8.5</td>
<td>5.8</td>
<td>8.3</td>
<td>2.8</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Sugar</strong></td>
<td>6.4</td>
<td>4.2</td>
<td>4.2</td>
<td>0.2</td>
<td>3.7</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Saltpeter</strong></td>
<td>2.1</td>
<td>5.1</td>
<td>3.9</td>
<td>2.6</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td>0.1</td>
<td>0.5</td>
<td>5.7</td>
<td>5.3</td>
<td>1.1</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Misc.</strong></td>
<td>0.2</td>
<td>0.1</td>
<td>0.4</td>
<td>2.3</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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</tr>
</tbody>
</table>
Asian textile trade markups, 1664-1759
Why Slavery? I


To have a rich upper class of warriors/bureaucrats, you need:

1. Sufficient productivity to support an upper class.

2. Sufficient differential in military effectiveness to make becoming a lord or an unproductive specialist in coercive violence worth the risk.

3. Scarce land, or an effective "recapture technology" (Cossacks, language competence, black skin as a marker, etc.) to keep your slaves/serfs/debt peons from successfully running away.

Colonial-era Caribbean slavery requires:

1. Guns that European merchants can sell to African kings on the coast.
2. Prior slave-raiding made more effective and larger scale by guns.
3. Caravels and equivalent to carry slaves to the Caribbean reliably.
4. Europe with a taste for sugar and rich enough to pay for it.
5. Legal systems that will support colonial slavery.
Slavery in the Americas

- Shortage of labor in mining, plantations, and domestic service.

- Biggest movement of peoples into the Americas.


- Consequences for Africa.

- Consequences for America. The Engerman-Sokoloff hypothesis.
Elmina castle
Triangular trade
PLAN SHEWING THE STOWAGE OF 130 ADDITIONAL SLAVES ROUND THE WINGS OR SIDES OF THE LOWER DECK BY MEANS OF PLATFORMS OR SHELVES (IN THE MANNER OF GALLERIES IN A CHURCH) THE SLAVES STOWED ON THE SHELVES AND BELOW THEM HAVE ONLY A HEIGHT OF 2 FEET 7 INCHES BETWEEN THE BEAMS AND FAR LESS UNDER THE BEAMS. See Fig 1.
Census of slave trade

Between 1650 and 1860, approximately 10 to 15 million enslaved people were transported from western Africa to the Americas. Most were shipped to the West Indies, Central America, and South America.
The relationship between slave exports (normalized by land area) and income per capita in 2000, after taking into account other country characteristics.

Figure 5.2: The negative relationship between slave exports and income observed in figures 5.1 and 5.2. As discussed above, the effect of the dominant form of measurement error in the data is that even if a relationship exists, it will be less likely to be observed. It is very unlikely that measurement error alone would induce a relationship between slave exports and income when one really does not exist. There are also strategies that can be employed to check how the measurement errors present in the data affect the statistical results. The lowest quality ethnicity and shipping data are from the earlier time periods, and from the Red Sea and trans-Saharan slave trades. One can exclude the Red Sea and trans-Saharan slave trades, or...
Figure 5.5: The relationship between slave exports normalized by historic population and current ethnic fractionalization.

5.1 Quantifying the Effects of the Slave Trades

To this point, the focus has been on examining whether there is a statistical relationship between slave exports and current income, and whether this relationship is causal. The statistical estimates allow one to also assess the specific magnitude of the estimated impact of the slave trades on economic development. Specifically, they can be used to provide an answer to the following question: how much better off would Africa be if the slave trades had...
Consequences for Europe

- Accumulation of capital.

- Political-economic equilibrium within European.

- Deep changes in diet (sugar, tea, coffee, chocolate, tobacco).

- Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History*. 
London coffee-house, 17th century