Infant Industries

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Ideas surrounding trade in early America

- A majority of thinkers in early America were proponents of uninhibited world trade.
  - Franklin in 1781: "supposes it is best for every country to leave its trade entirely free from all encumbrances."
  - Jefferson in 1785: "I think all the world would gain by setting commerce at perfect liberty."
- They also believed that trade restrictions were imposed at the behest of private interests, not public interest.
  - Franklin: "Most of the restraints put upon it in different countries seem to have the projects of particulars for their private interest, under the pretense of public good."
- Both because of intellectual reasons and as a reaction to Navigation Acts.

Open trade vs. free trade

- However, there is the recognition that tariffs were necessary for financing the large Revolutionary War debt, the cost of fighting Native Americans in the west, and the establishment of a federal government.
- Why tariffs and not other taxes?
- So free trade means trade free from discriminatory prohibitions as long as duties for pure revenue reasons were paid.
- Thus, the term open trade would be a more accurate characterization.
- Echoing the invisible hand of Adam Smith, the prevailing thought was that commerce was beneficial and required no central direction.

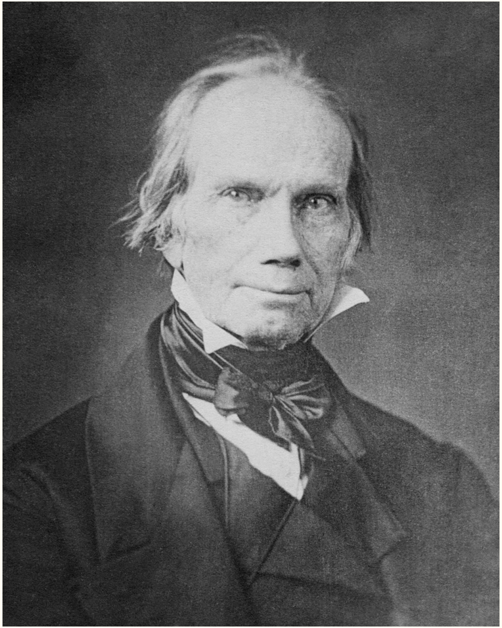
"[I]t is also a truth, that if industry and labor are left to take their own course, they will generally be directed to those objects which are the most productive, and this in a more certain and direct manner than the wisdom of the most enlightened legislature could point out." Madison, in 1789.

Agreement on some exceptions

- The need for retaliatory trade policies as well as those that were in accord with defense were highly relevant for political leaders at the time. It can be found, for instance, in Adam Smith.
- There was also agreement concerning national security and the protection of shipping:
    - "As a branch of industry, it is valuable, but as a resource of defense, essential" (Jefferson).
    - "A perfect freedom in the System, which would be my choice ... [But] before such a system will be eligible perhaps for the U.S., they must be out of debt; before it will be attainable, all other nations must concur with it." (Madison).
- The combination of the need of tariff revenue and these exceptions meant that the ability to carry out trade policy is one of the key drivers behind the push for a new arrangement of government and adoption of the Constitution.

Hamilton's approach

- Hamilton does not share that view.
- He considered the idea that trade could be left to itself without government encouragement as "one of those wild speculative paradoxes, which have grown into credit among us, contrary to uniform practice and sense of the most enlightened nations." (1782).
- Instead, he wants to use industrial and trade policy to promote American manufactures.
- Hamilton's reasons for supporting manufacturing will become classic arguments that are still debated today.
- It would become the base of the "American system": the economic program of Henry Clay and the Whig Party.



Debates in Congress, I

- Madison immediately proposes a 5% tariff on all imports and higher specific duties on such commodities as alcohol, tea, and coffee.
- Argument ensues whether the tariffs should be used to promote domestic manufacturing.
- Madison wants to save that debate for another time and get the revenue measure past. Does agree that shipping should be encouraged and higher tonnage charges should apply to foreign ships as compared to American ships.
- As well, Madison is open to helping infant industries especially those producing goods necessary for national defense.
- Debate gets bogged down in all aspects of trade.
- Bill that passes the House has some protectionist aspects, but largely is concerned with revenue.

Debates in Congress, II

- After much give and take with the Senate the Bill passes on Aug 1, 1789.
- Preamble states that import duties were necessary "for the support of government, for the discharge of debts of the United States, and the encouragement and protection of manufactures."
- Specific duties on 36 imports (molasses and coffee, distilled spirits, salt, and nails, boots, shoes, fish, and hemp), ad valorem tariffs on most other goods, and duty free treatment for a few goods (saltpeter, brass, tin plates, iron and brass wire, cotton and wool, furs)
- Revenue jumps from \$2 million in 1785-88 to \$12 million in 1792-95. Partly due to a revival in trade.
- In August 1790, at Hamilton's behest additional duties are levied, and again in March 1791, in 1792, 1794, and 1797.
- Average tariff rises from 12% to 20% 1790-95.

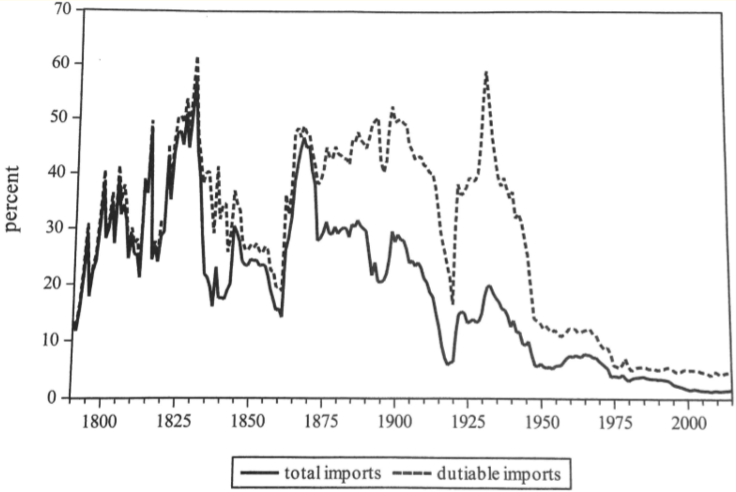


Figure I.1. Average tariff on imports, total and dutiable, 1790–2015. (US Bureau of the Census 1975, series U-211–12 for 1790–1970; US International Trade Commission, "U.S. Imports for Consumption, Duties Collected, and Ratio of Duties to Value, 1891–2015," March 2016, for 1970–2015.)

Interrelationship between trade policy and industrial policy, I

- Hamilton, emphasized the need for more independence from foreign nations for military and other essential supplies.
- Manufacturing would provide a stable market for domestic agriculture.
- Hamilton believes that for people to try new ideas they often require some form of encouragement to overcome the uncertainty inherent in new enterprises.
- Further, some aid may be required for a new industry to become competitive with more mature foreign competitors and importantly, to level the playing field.
- Implicit in his view is that infant industries will in time become more productive and competitive.

Interrelationship trade policy and industrial policy, II

- Manufacturing would also provide a path for greater equality in trading arrangements. Currently the country "cannot exchange with Europe on equal terms."
- Could be remedied by tariffs and duties, prohibitions, and bounties, similar to the policies of European countries.
- To encourage manufacturing, Hamilton believes that bounties are the most efficacious means, because they are direct and can be targeted at the most efficient businesses.
- They also would not result in higher prices or cause a scarcity as would a tariff. Finally, they would aid manufacturing in both the home and world market.
- Hamilton is skeptical of protective tariffs, because they shelter both efficient and inefficient producers.
- He is also skeptical of continued bounties on long established manufactures. Encourage, not protect.

Hamilton's bigger schemes

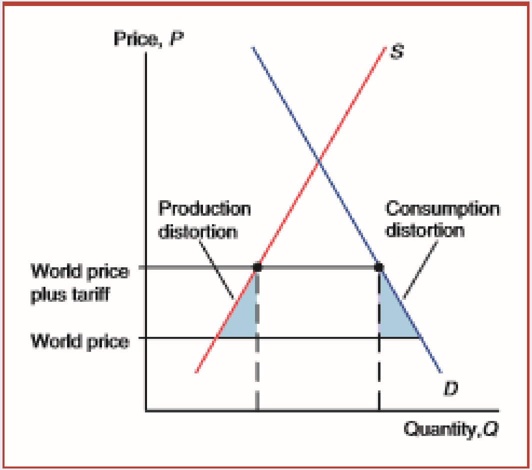
- Hamilton believes that trade policy is just one instrument tool.
- Many others:
  - Protecting home technology.
  - "Learning" about British technology: industrial espioanage.
  - Infrastructures to create a unified internal market.
- He also promotes the Society for Establishing Useful Manufactures (SEUM) in Paterson, New Jersey, by the Great Falls of the Passaic.
- Madison and Jefferson are particularly worried about this wide interpretation of federal power.

Optimal tariff for a small economy

FIGURE 10-1

The Efficiency Case for Free Trade

A trade restriction, such as a tariff, leads to production and consumption distortions.



Strengthening this result

- There may be additional gains from trade if there exists some economies of scale over some part of the production function.

    1. If an industry is protected from foreign competition, it will have higher profits encouraging more firms to enter and limiting scale economies at the level of a firm.
    2. It also may encourage entrepreneurs to innovate because they will face a larger world market when there is no protection.
    3. Additionally, the most productive firms are likely to find it profitable to export. They will grow in size relative to less productive firms increasing the overall efficiency of production.

Arguments against free trade

1. A large open economy can move the terms of trade in its favor with a tariff: the price of its exports rise relative to the price of imports.
    - In general, however, the optimal tariff is small.
    - Thus, Great Britain may face different incentives than the U.S.
2. Knowledge spillovers from one industry to other sectors:
    - There are additional social benefits to protecting that industry.
3. Industries may become more profitable over time, perhaps due to learning-by-doing.
    - It may be worthwhile to protect those industries initially, because in the long run the gains will outweigh the short term welfare costs of protection.
    - As Hamilton points out, once the industry matures it should be able to compete on its own, so protection should be relatively short lived.

External economies of scale

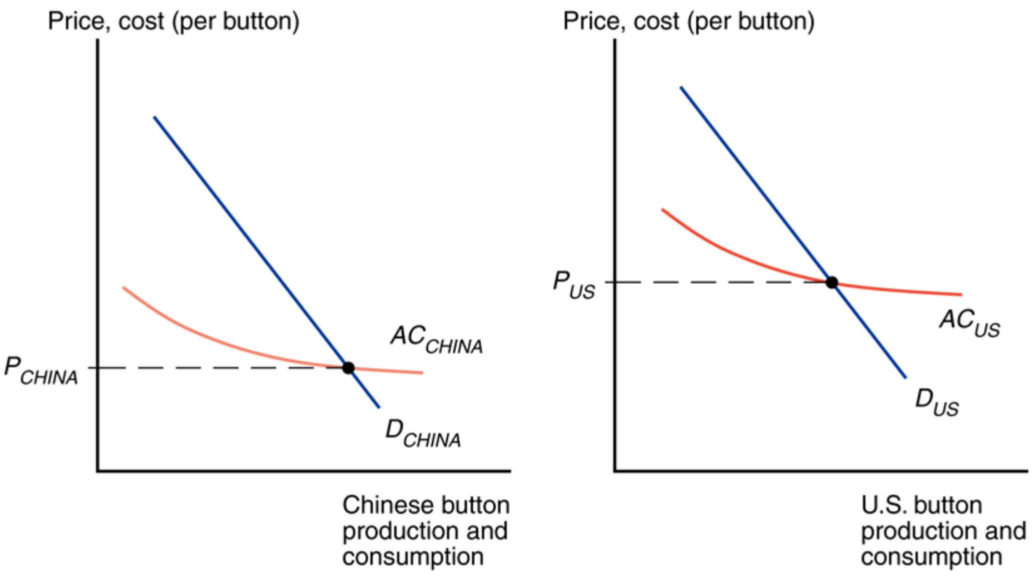
"The mysteries of the trade become no mystery, but are as it were in the air... Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: If one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas. As well, allowing firms to scale up may help create a specialized pool of labor." Alfred Marshall

- Reasons:
  1. Production may require specialized suppliers, but until scale is built up there is not enough demand for those specialized suppliers to exist.
  2. Allowing firms to scale up may help create a specialized pool of labor.
  3. New industries may require specialized knowledge that can come from innovation or learning from competitors.
- Examples: semiconductors, finance, or clothing production in China (where one town accounts for a large share of the world's underwear). Early republic?

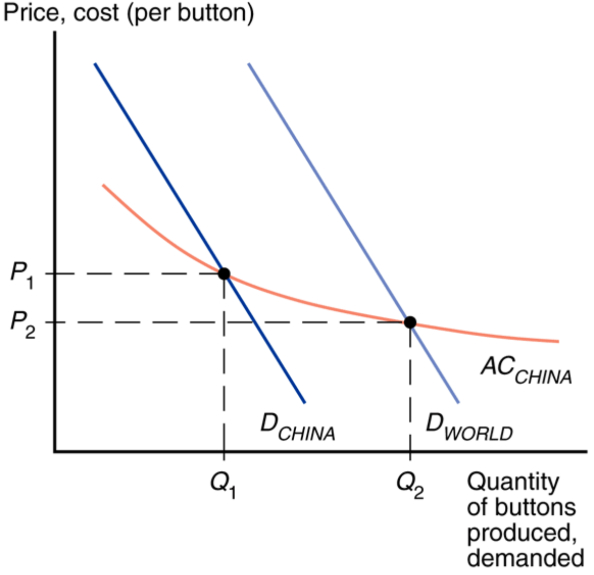
Strategic trade policy

- With external economies, government intervention is potentially welfare improving.
- Ceteris paribus, a larger industry generates larger economies of scale.
- We have the usual downward sloping demand curve, but now the industry supply curve is downward sloping as well.
- For each firm in the industry: $C_i = C(w, r, Q)$, where Q is total industry output.
- Because of the externality, costs are falling with Q.
- Suppose one country has lower unit costs before opening to trade.

External economies before trade



External economies after trade

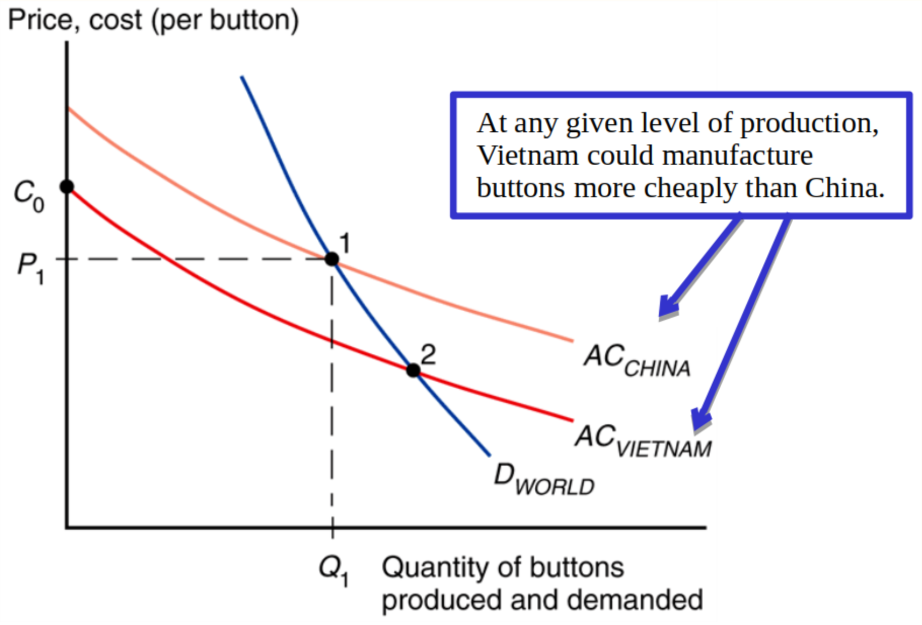


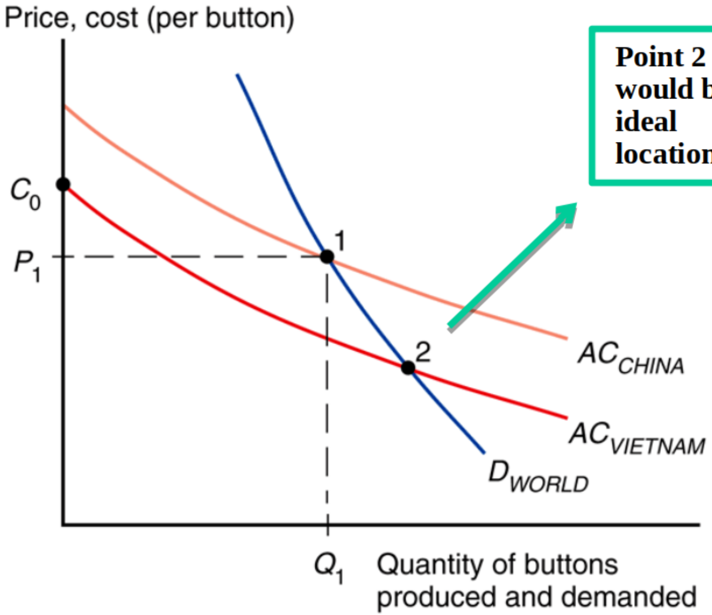
The importance of initial conditions

- The Chinese economy, as the low cost provider will expand and costs will go down further and, as the U.S. contracts, its costs will rise.
- This is unlike our earlier discussion, when we opened to trade, cloth prices in the U.S. fell while food prices rose. The opposite happened in Great Britain.
- Here button prices fall world wide as external economies kick in at a greater scale.
- What determines who will dominate which industry?
    - China has a comparative advantage in low skilled occupations.
    - Or could be an accident of being first or having large scale to begin with. London and New York in finance. Silicon Valley because Hewlett and Packard started there.

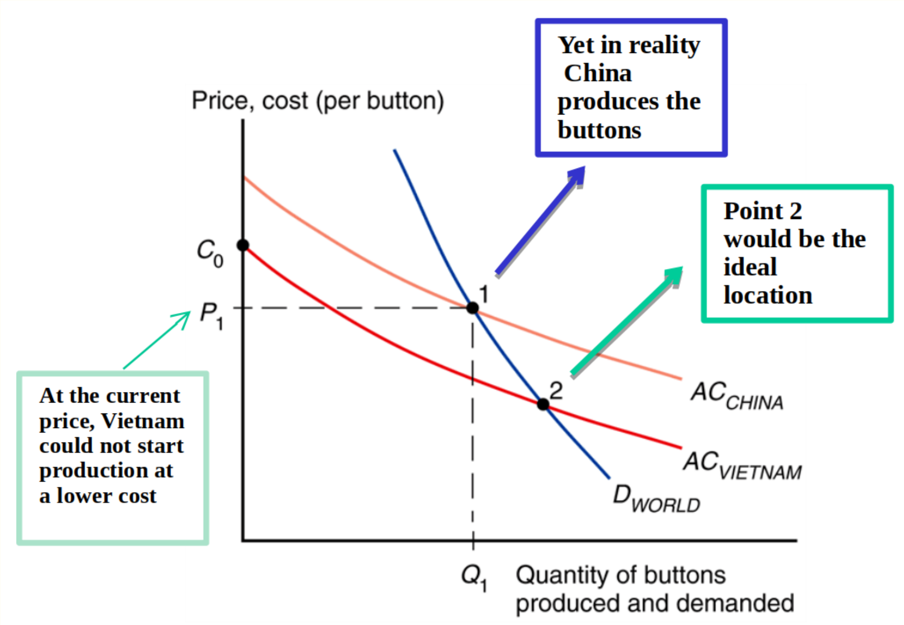
Dynamic inefficiencies

- However, external economies open up the possibility that production may not be optimally situated worldwide.
- Having a head start could mean that production is in a place that has large scale, not in a place that is best suited.
- Suppose costs of producing buttons are even lower in Vietnam.
- Will Vietnam take over? Not necessarily.


Price, cost (per button)
C_0
P_1
1
2
At any given level of production, Vietnam could manufacture buttons more cheaply than China.
AC_{CHINA}
$AC_{VIETNAM}$
D_{WORLD}
Q_1
Quantity of buttons produced and demanded

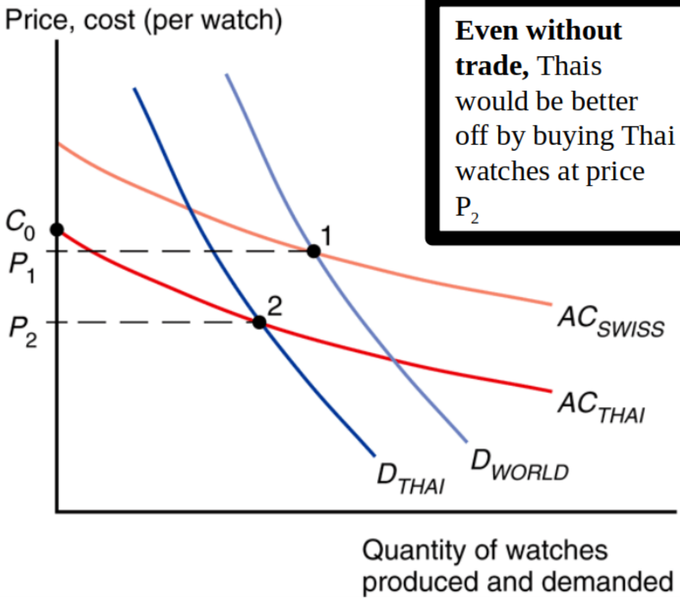


Point 2 would be the ideal location


Price, cost (per button)
Yet in reality China produces the buttons
Point 2 would be the ideal location
At the current price, Vietnam could not start production at a lower cost
C_0
P_1
1
2
AC_{CHINA}
$AC_{VIETNAM}$
D_{WORLD}
Q_1
Quantity of buttons produced and demanded

External economies and international trade

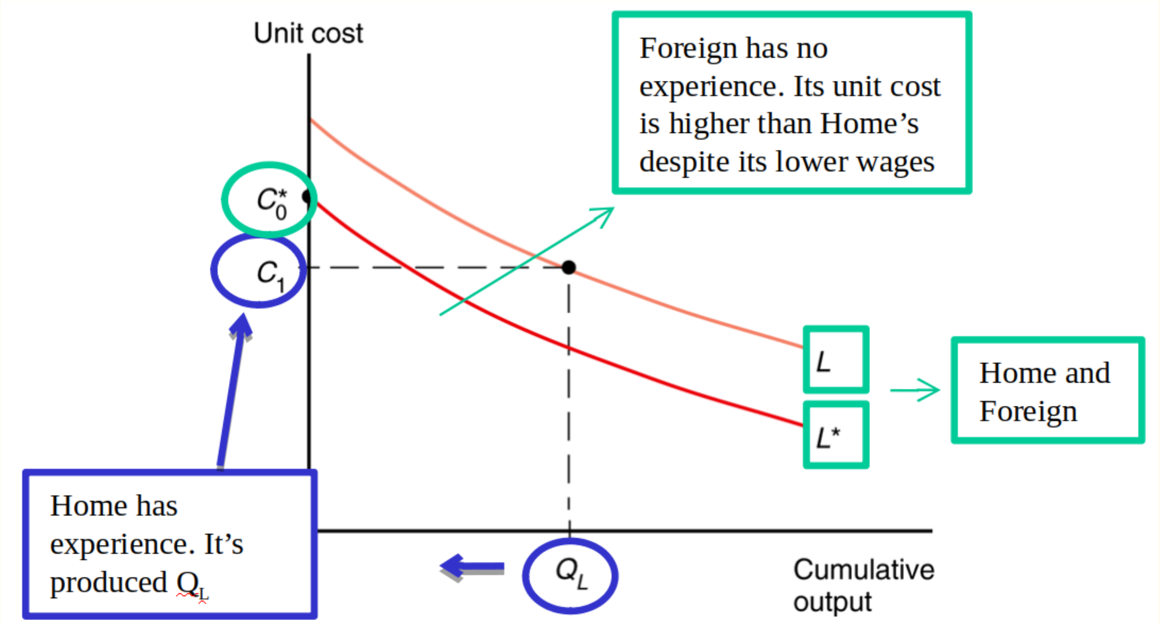
- Can a country experiencing external economies in an industry be better off by restricting trade?
- In the watch industry, Thailand can produce watches more cheaply than Switzerland, but the Swiss got there first.
- If Thailand restricts trade it will benefit.
- Even without trade, Thais would be better off by buying Thai watches at price P_2.



Even without trade, Thais would be better off by buying Thai watches at price P_2

The learning curve

- Can there be circumstances where you would want to protect an infant industry?
- Suppose there is knowledge spillover across firms and costs depend on experience. And the more produced the more experience an industry acquires.
- This situation is referred to as **dynamic increasing returns**.
- For example, the cost of producing steel may depend on how much steel was produced in the past.
- Summarized by a **learning curve** that relates cost to cumulative output.
- In what follows, the U.S. is the foreign country and Britain is home.
- The U.S. average cost curve is below that of Britain, but it has no experience.


Unit cost
Foreign has no experience. Its unit cost is higher than Home's despite its lower wages
C_0^*
C_1
L
L^*
Home and Foreign
Home has experience. It's produced Q_L
Q_L
Cumulative output

Locking in an early advantage

- Like ordinary external economies, dynamic external economies can lock in an initial advantage of having a head start.
- Europe is producing at Q_L, at cost of C_1, making it too costly for the U.S. to enter.
- The U.S. could benefit by either subsidizing the industry (Hamilton's bounties), or placing a tariff on the foreign good so that its price is above C_0.
- Then, the U.S. industry could gain experience by producing domestically, eventually out competing Britain.
- However: it is important that the protection be temporary. A point emphasized by Hamilton.
- Also, while the industry is learning, prices in the U.S. will be higher than with trade.

Evidence of learning-by-doing

- Importantly, there is evidence that learning by doing is an important mechanism of growth.
- In a seminal article on productivity growth in cotton textile mills in Lowell (Massachussets), Paul David finds that early on from 1833-39 that roughly 80% of the annual productivity growth was accounted for by learning-by-doing (.0202/.0260).
- For later periods, such as the 1850s, learning-by-doing was no longer a significant contributor.
- Thus, initially protecting Lowell's cotton mills may make sense, because as a developing economy the U.S. may eventually enjoy a comparative advantage in textiles, but the first mills will not have the expertise and hence productivity to compete with those of more developed Europe, especially Great Bitain.
- May make sense to let them get a toehold.

Where is the market failure?, I

- If the industry will be an eventual world better private investors should be willing to suffer early losses to develop the industry. Think of Google's initial profits as opposed to today's.
- However, financial markets may not be well enough developed to raise the necessary capital to cover initial losses.
- The U.S. had 3 Banks at the start, and the lack of depth and financial sophistication is why Hamilton regards the First Bank of the United States as essential to his overall program.
- As well, the innovating firm may face start-up costs that later entries may avoid because they learn from the start up. In which case, potential future profits will be competed away.
- Could lead to no entry into an industry.

Where is the market failure?, II

- Additionally, there may not be sufficient capital in place to make manufacturing, especially large scale manufacturing attractive.
- Think of South Korea, which became an exporter of cars in the 1980s after rapid saving had built up the capital stock. Protecting car manufacturing in 1960 would have been a bad idea.
- However, many countries that have had high rates of protection forever and have experienced dismal growth.
- Political-economic considerations.

Long run vs. short run

- For the policy to make sense, the long run gains must outweigh the short run costs (higher prices or subsidies).
- Here is where the sectional rivalries come into play, with the north and middle states have more to gain than the southern states.
- Infant industry protection often fails because politicians are not usually good at identifying the right industries and protectionism often does not incentivize domestic producers to improve.
- Once protection is entrenched, it may be hard to remove.
- India protects a lot of industries, but historically the policy has not produced a dynamic economy.

U.S. trade policy in practice

- In general, U.S. tariffs were not high at the start of the republic.
- They become significantly higher around the Madison administration and continue to be fairly protectionist until the beginning of the 20th century.
- Sectional differences are large and political parties will gravitate to somewhat different positions.
- Northern Whigs will advocate tariffs and southern Democrats will oppose them.
- Also, the U.S. engaged in industrial espionage: Francis Cabot Lowell (1775-1817).