INTRODUCTION

Three Views on when globalization begins:

1. Globalization begins in around 1492-1498 with the discovery of America (1492) and voyage to Africa (1498).
2. It goes back even much earlier
3. World economy was fragmented and completely deglobalized before the 19th century.

Which of these views are correct? All of these views have one common point: they all treat globalization as an increase in the trade volume of countries, but none of them make a distinction between booming demand and supply within the trading economies and integration of markets between trading economies.

This paper makes this distinction. Empirical studies in this paper show that

- No evidence of globalization prior to 1492-1498
- No evidence that these dates have an economic significance on globalization.
- The 19th century contains a very big globalization bang.

It’s very important the way we define globalization. Globalization is the integration of world economies.

\[
P, P^* \quad \text{S (world supply curve)}
\]

\[
P_1 = P_1^* \quad \text{Transport cost and tariffs create a wedge between the prices of trading countries}
\]

\[
D (\text{world demand curve}) \quad \text{Trade}
\]

As seen from the graph above, in the absence of transport costs and trade barriers globalization-integration of world commodity markets - leads convergence in prices of traded goods and increase in trade volume. Here, absence of trade barriers and transport costs directly related to globalization.

As globalization leads higher trade volume, it seems logical to use trade volume to measure globalization: if trade volume increases it must be due to globalization.
However, this view of globalization can be very misleading. Trade volume can increase for reasons beyond globalization. For example, if world supply curve shifts outward, trade volume will increase although there are transport costs and barriers to trade (presence of transport cost and barriers to trade means less globalization). Supply curve can increase due to following reasons:

- Increase in the population
- Colonization of empty lands
- Capital accumulation
- Technological change

Therefore, Trade volume is not a good proxy for globalization. Any empirical study of globalization based on measurement of trade volume will be misleading. The only irrefutable evidence on globalization is price convergence across countries.

When they determine the history of globalization historians did not look at the price convergence instead they look at

- shipping technologies
- port histories
- evolution of trading monopolies
- trade volume etc.

If growing imports are due to population growth, for example, that means that trade merely passively responding to some internal demographic shock, which happened a lot in pre-industrial economies of Europe.

In order for globalization to have an independent effect on an economy two conditions must hold:

1- Trade creating forces should change domestic commodity prices.
2- The change in prices should change resource allocation between economic activities.

These conditions ensure the integration of economies; not discoveries, flows of gold, silver, size of trade profits which are all ‘rent seeking’ behavior of countries.

**HISTORY OF COMMODITY EXCHANGE**

The history of commodity exchange and specialization since 1400 can be analyzed in three eras:

**First Era:** Long distance trade in the pre 18\textsuperscript{th} century period was strictly limited to non-competing goods: Europe imported spices, silk, sugar and gold which were not found in Europe and exported silver, linens and woolens to Asia. Since these goods do not have substitutes in importing countries, trade in these goods did not have an effect on domestic
production. Their presence or absence had an impact only on the living standards of the very rich.

**Second Era:** It starts in the early 19th century with rise of trade in basic competing goods such as wheat and textile. The 19th century was the classic Hecksher-Ohlin era. As a result of trade in basic goods prices of these goods converged. The globalization forces had a big income distribution effect on long distance trading partners.

Land abundant countries exported food & raw materials to the capital & labor abundant but land scarce European continent.

**Third Era (Present):** This era witnesses the trade in both basic and highly differentiated manufactured goods. It is characterized as the rising dominance of skills and new technologies. It’s very difficult to characterize this era with a simple trade model.

**TEST OF THE HYPOTHESIS**

**Hypothesis:** Globalization begins in the 19th century not during or before 1492-1498.

**How they test their theory?** The real evidence for globalization is the convergence of the prices of traded goods. If the prices of these commodities converged then transport costs should be very low. So they first look at the transportation cost to determine the history of globalization. If transportation cost goes down implies price convergence and therefore globalization.

They collected evidence on the shipping costs for the three era.

**Findings:**

**First Era (Pre 18th Century):** No evidence of any transport revolution along Europe and trade routes during this era. (Age of Commerce).

- Large trade in textile but no decline in trading costs.
- There are some decreases in the transportation costs but that’s not due to trade but due to decrease in turnover time in Southeast Asia.
- Only tobacco freight data offer an evidence of transatlantic transport revolution prior to 19th century.

There is plenty of evidence of a trade boom during this era but no sign of globalization. Historians only look at the trade volume that’s why they had misleading results.

**Second Era (19th Century):**

- International freight rates are collapsed. Steamship, Suez Canal, railroads contributed to decrease in the freight rates.
Not only the decline in transportation cost but also:
- Japan switched from autarky to free trade in 1858 following 15 years Japan’s foreign trade rose from zero to 7% of national income. Other Asian countries followed Japan: Korea, China, India, Indonesia. Asia’s commitment to globalization begins in 19th century. After 1860 commodity price convergence is driven by decline in transport cost in Asia.

- North freight rate went down by 41%. British freight rate went down by 70% between 1840 and 1910. Steady decline in Atlantic economy transport cost of 45% till 1913. (See figure 10 in the article)

These are very strong evidence that globalization occurred in 19th century not before.

**Commodity Price Convergence in this era (Second Era):**

The globalization took place in 19th century in Atlantic economy cannot be attributed to liberal trade policies (such decline in barriers) but to falling transport costs. In Asia, however, liberal trade policies were more predominant in globalization.

- Knick Harley (1980) documented the following data on the difference in Liverpool wheat prices and Chicago wheat prices:

Liverpool Prices exceeded Chicago prices by: 57.0% in 1879
17.8% in 1895
15.6% in 1912

These finding confirm the price convergence in 19th century, and this decrease in price differences occurred mainly due to decline in transport costs.

- The price difference in cotton between Boston and Manchester went down from 13.7% to ‘0’ from 1870 to 1913.
- Price difference in iron-bar between Philadelphia and London went down from 75% to 20%.
- Price differences between Britain and Asia fell dramatically with the completion of Suez Canal in November 1869.
- Switch from sail to steam ship decreased the cotton price spread between Liverpool and Bombay from 57% to 20% in 1913; and between London and Calcutta from 35% to 4% in the same period.

Same events were taking place even farther East.

All these developments took place between 1870 and 1930. How about the other half of the 19th century, 1800 and 1860?

- In 1846 major victory for liberalism: Corn Law Repeal in UK
Asia went through the same liberal wave: Japan switched from autarky to free trade, China in 1842, and Korea in 1855 followed Japan.

**Evidence:** Dramatic Price Convergence in 19th Century.

**Third Era (Present, 20th Century):**

Pre World War I decline in the transport costs between Europe and The rest of the world slowed down a bit during the 20th century interwar periods, and transport costs decreased only modestly since 1950 (after the II World War).

What made 20th century globalization different was that it was induced by the undoing autarkic restrictions created after the Great War.

What made 19th century globalization even more impressive was that it saw the dismantling of mercantilism, the establishment of Pax Britannica, and a more dramatic transport revolution.

**ECONOMETRIC TEST OF GLOBALIZATION**

**Theory:** Globalization begins in 19th century

**Proposition:** If countries were not integrated before 19th century then domestic factor and commodity prices should be determined merely by domestic supply and demand. Since globalization is claimed to begin in 19th century, domestic prices in this century should be determined by global supply and demand not domestic supply and demand.

**Test of the proposition:** O’Rourke & Williamson study Great Britain, which was the center of the 19th century global economy. They collected data on:

- British endowments
- Commodity Prices
- Factor Prices

from 1565 to 1936. They construct the following ratios:

- Agricultural land/Wide labor supply : LANDLAB
- Agricultural prices/Industrial prices: PAPM
- Wage rates/farm land rates: W1

All variables are expressed in terms of natural logs.

**They determine the proposition more explicitly in terms of their data:** Assuming that food (agricultural good) is produced with land & labor; manufacturing goods (industrial goods) are produced with capital & labor, in a closed economy we expect that an increase in land/labor ratio (LANDLAB) should lead a decrease in the relative price of food
(PAPM), because an increase in LANDLAB leads an increase in the supply of food that uses land intensively. The increase in LANDLAB should lead an increase in the w/r ratio, because land becomes more abundant compare to labor leading an increase in the marginal product of labor and wages in return.

In an open economy however, factor prices will be determined more and more by world commodity prices and less and less by domestic endowments, and commodity prices will be determined purely by global market. **This means that in an open economy rising land/labor ratio (LANLAB) will still increase the wage/rental ratio but will not have an effect on the relative prices of the goods (PAPM).**

**Showing this proposition in a more organized way:**

**In a closed economy:**

An increase in LANLAB leads a decrease in PAPM because as result of an increase in LANDLAB supply of food increases so food’s relative price should go down.

An increase in LANDLAB leads an increase in w/r, because after an increase in LANDLAB Marginal product of labor increases.

**In an open economy**

An increase in LANDLAB leads an increase w/r (like in closed economy), but will not have an effect on PAPM (commodity price ratios), because commodity prices are determined in the world market.

O’Rourke and Williamson divide the data in two parts: before 1820 (represents no globalization) and after 1820 (represents globalization period). They make different tests using this data set.

**First test:**

**Figures 12A and 12B in the article:**

**Before 1820:** PAPM increases steadily while w/r decreases. This is consistent with the proposition: PAPM and w/r moves in an opposite direction in a closed economy.

**After 1820:** w/r increased steadily, while PAPM stopped increasing after 1840. This shows that after 1840 commodity prices are determined by world market not by domestic market.

So, first test confirms their theory.
Second test

They use the same data, but this time they look at the correlations among the variables. In a closed economy we expect positive correlation between LANDLAB and w/r and negative correlation between LANDLAB and PAPM. In an open economy we would expect again positive correlation between LANDLAB and w/r but zero correlation between LANDLAB and PAPM.

Their findings show that: (Table 2 in the article):

**Before 1820:** Correlation between LANDLAB and w/r = 0.889  
Correlation between LANDLAB and PAPM = -0.096

This confirms the theory that economies were not integrated prior to 1820.

**After 1820:** Correlation between LANDLAB and w/r = -0.859  
Correlation between LANDLAB and PAPM = zero

The correlation between LANDLAB and PAPM confirms the theory: commodity prices are not correlated with domestic endowments, because they are determined in the world market. However, the correlation between LANDLAB and w/r is puzzling, we would expect positive correlation.

One explanation to this puzzling result is omitted factors: In 19th century technology is widely used in the production. They should have included technology too in determination of wage rental ratio.

w/r should be a function of (land, labor, technology) where commodity prices are exogenous in an open economy. They should include capital/labor (technology) into the analysis. Inclusion of technology should solve the puzzle. So, the econometric model should be:

\[ w/r = a1 + a2 \text{LANDLAB} + a3 \text{PAPM} + a4 \text{Trend} \]

where, a1, a2, a3 and a4 are the regression coefficients (can be thought as partial correlations of each variables with w/r) and trend is a proxy for technology, capital/labor.

Results of this regression analysis are shown in table 4 in the article. Results confirm the theory once technology is included into model.

As a result economic analysis of the theory also confirms that globalization begins in 19th century.
Voyages of Discovery (Christopher Columbus’ discovery of Americas (1492) & Vasco da Gama’s end run around Africa (1498)) has an important effect on the world economy but in the long term. It is not the immediate cause of the globalization. Globalization also requires a break down of monopolies, controlling long distance trade, technological revolution that makes the transportation easy and cheap leading domestic price changes and reallocation of resources. These fundamental conditions were not satisfied prior to 19th century.

Pre 19th century trade was sufficiently expensive that only luxury goods were traded. This means that countries then were not fully integrated. H.O. model suggests that in order for globalization to have an effect on welfare of a country it should change income distribution in a trading country. This did not happen till 19th century.

There was little or no price convergence before 19th century but there was afterwards.

If globalization was strong enough to have an effect on income distribution within a country we should observe intensive political battles prior to 19th century but we do not. Now we observe political bargaining across countries regarding trade. This also shows that countries were not integrated till 19th century.