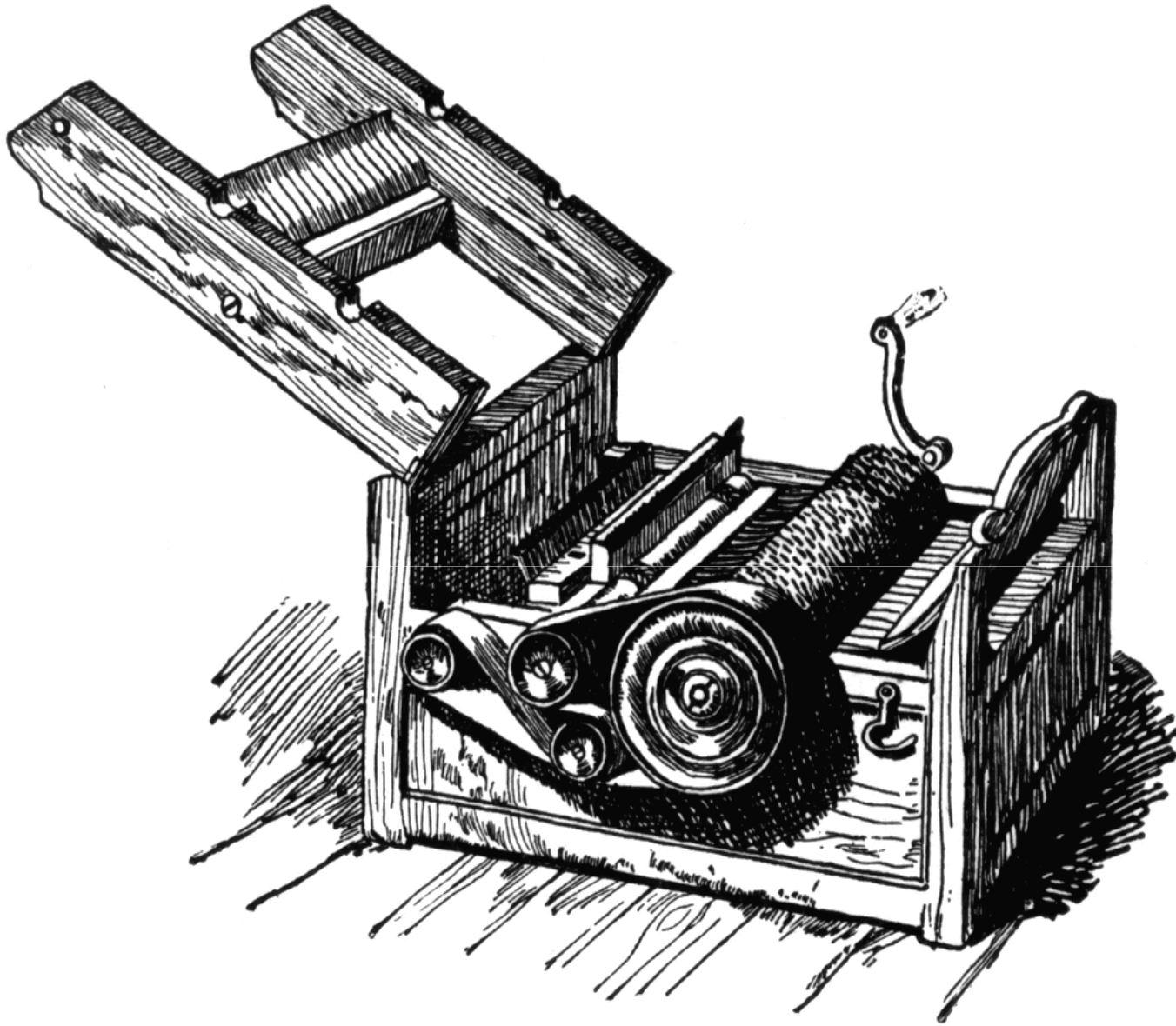


US cotton: my lessons learned.
(and may be some ideas for India).

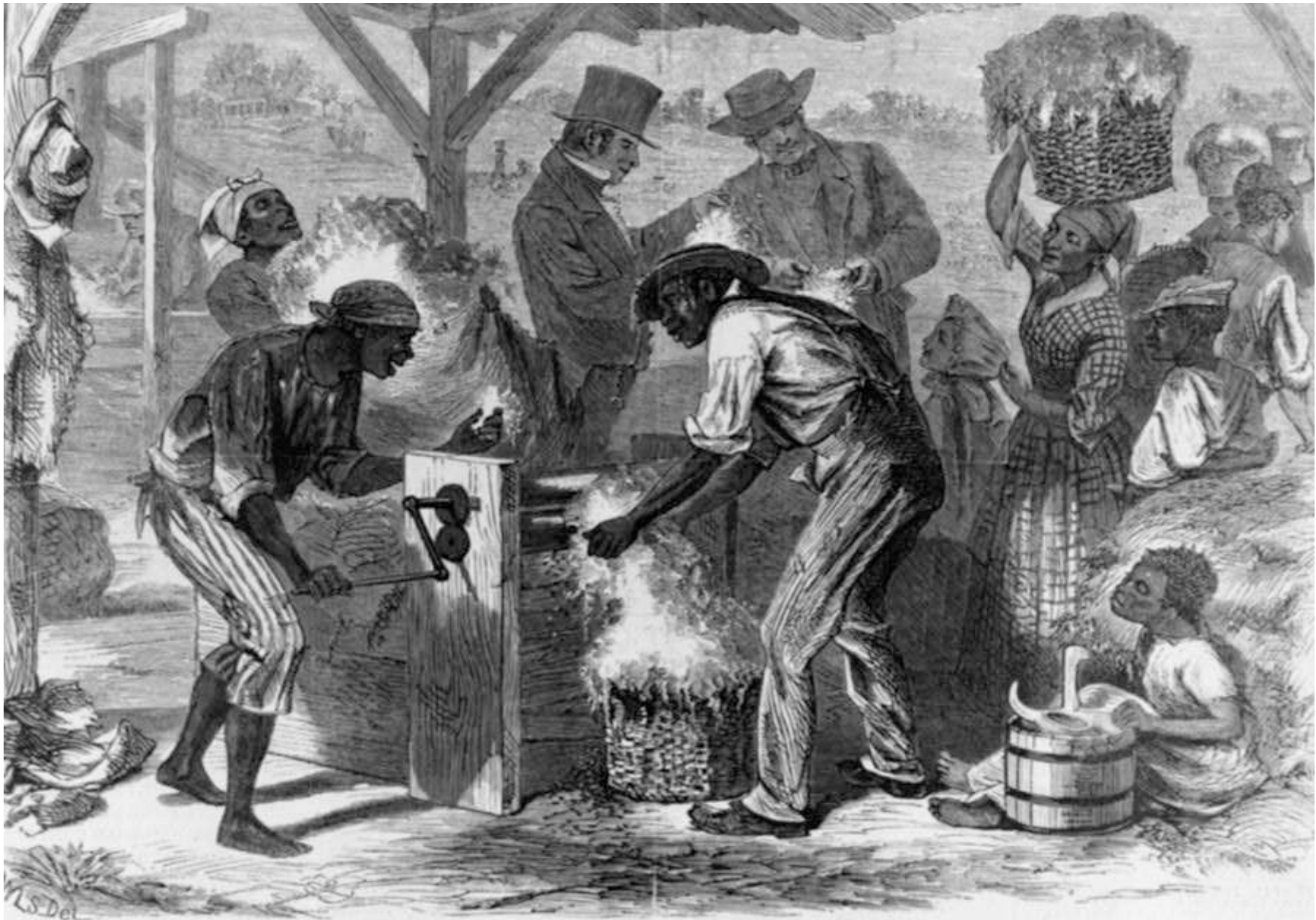
December 5-7, 2016.

1793: invention of the cotton Gin

- A turning point for the cotton industry, Eli Whitney's invention increased ginning productivity by a factor of 50. from 1 Lb per day to 50 Lb per day.
- The United States became overnight a global leader in cotton production.
- In the late 18th century, cotton was produced in the west indies, Brazil, Ottoman Empire and India- not North America.
- In 1791 capital invested in cotton production in Brazil was 10 times more than US. In 1801, 60 pct more capital was invested in the US than in Brazil.
- A sequence of production numbers:
 - In 1793 the South exported 974 bales of cotton.
 - In 1820, 256 000 bales were exported to England.
 - Cotton production expanded from 750 000 bales in 1830 to 2.85 million bales in 1860, prior to the civil war.



Eli Whitney's gin- 1793.



First cotton gin- circa 1800. illustration 1869.

1800's: the industrial revolution

- “The industrial revolution, powered by cotton, is the most important event in the history of the world.” Eric Hobsbawm-Historian.
- By 1825 the cost of spinning cotton in England is lower than in India.
- By 1830: 15 pct of workers in Britain work in cotton.
- By 1862: 25 pct of the English workforce was based in the cotton industry.



Mule spinning at Swainson & Birley Cotton Mill, near Preston, Lancashire, 1835.

1800's: the industrial revolution

- In 1870, Europe in general and Britain in particular, was the hub of the world cotton trade. The European industry drew on its experience from wool and linen. The American then drawing from the British experience.
- The first mechanized textile mill established in the US by Francis Cabot Lowell led the industrial revolution. The 'Boston manufacturing company' was established in 1813.
- It was based on a new business model:
 - Selling shares to launch the company
 - Hire women to staff the mill
 - Clean environment with fair wages for single daughters (sons on farm)
 - 'Lowell Mill girls' made the highest wages of working women in America
 - At same time British industry was marked by poor working conditions.

CONSTITUTION OF THE Lowell Factory Girls Association.

P R E A M B L E.

Whereas we, the undersigned, residents of Lowell, moved by a love of honest industry and the expectation of a fair and liberal recompense, have in our homes, our relatives and friendly associates, and come hither and subjected ourselves to all the danger and inconvenience, which necessarily attend a young and unprotected family, when among strangers, and on a strange land; and whereas, we, our families, and our friends, are daily reminded of the condition of our fellow-factory girls, (as we are termed) in our own city, and are grieved and pained, and desire to attain and preserve pure and elevated characters, a true reverence for the divine principle, which bids us render to every one his due; and appreciate of those great and cardinal principles of our Government, of justice and humanity, which enjoins on us "to love and let live"—that chivalrous and honorable feeling, which with equal force, forbids us to invade others' rights, or suffer others, upon any consideration, to invade ours; and at the same time, that utter abhorrence and detestation of whatever is mean, sordid, dishonorable or unjust—all of which, can alone, in our estimation, entitle us to be called the daughters of freedom, or of Republican America.

And, whereas, we believe that those who have preceded us have been, we know that ourselves are, and that our successors are liable to be, assailed in various ways by the wicked and unprincipled, and cheated out of just, legal and constitutional dues, by ungenerous, illiberal and voracious capitalists,—and convinced that "union is power," and that we must unprincipledly consult and advise, that they may the more effectually defraud—we (being the weaker) claim, it to be our undeniable right, to associate and concentrate our power, that we may the more successfully repel their equally base and unprincipled aggressions.

And, whereas, impressed with this belief, and conscious that our cause is a common one, and our conditions similar, we feel it our imperative duty to stand by each other through weal and woe; to administer to each others wants, to prevent each others back-sliding—to comfort each other in sickness, and advise each other in health, to incite each other to the love and attainment of those excellences, which can alone constitute the perfection of female character—unalost virtue, refined taste and cultivated intellect—and in a word, do all that in us lies, to make each other worthy ourselves, our country and Creator.

Therefore, for the better attainment of those objects, we associate ourselves together, and mutually pledge to each other, a firm and irrefragable vow, to stand by, abide by, and be governed by the following

P R O V I S I O N S.

Article 1st. It shall be denominated the LOWELL FACTORY GIRLS ASSOCIATION.
 Art. 2d. Any female of good moral character, and who works in any one of the Mills in this city, may become a member of this Association, by subscribing to this Constitution.

Art. 3d. The officers of the Association shall be, a President, Vice President, a Recording Secretary, a Corresponding Secretary, a Treasurer, a Collector, and a Prudential Committee, two of whom shall be selected from each Corporation in this city.

Art. 4th. The officers shall be chosen by the vote of the Association; that is, by the vote of a majority of the members present.

Art. 5th. The duties of the President, Vice President, Secretaries, Treasurer, and Collector, shall be the same as usually appertain to such officers. The duties of the Prudential Committee shall be to watch over the interests of the Association generally; to recommend to the Association, for their consideration and adoption, such By-Laws and measures as in their opinion the well-being of the Association may require; and also to ascertain the necessities of any of its members, and report the same as soon as may be, to the Association. And whenever, in the opinion of the Committee, there are necessities so urgent as to require immediate relief, they shall forthwith report the same to the President, who shall immediately draw upon the Treasurer for the sum recommended, and which sum the Committee shall forthwith apply to the relief of the necessitous.

Art. 6th. The Treasurer and Collector shall be subject to the supervision of the Prudential Committee, to whom they shall be accountable, and to whom they shall give such security for the faithful discharge of their duties, as the Committee shall require.

Art. 7th. All moneys shall be raised by vote of a majority of the Association, or of the members present, and shall be assessed equally on all the members.

Art. 8th. All the officers shall hold their office for the term of one year, with the privilege of resigning, and subject to be removed by vote of the Association, for good cause.

Art. 9th. The Association shall meet once in three months, and may be convened oftener, if occasion require, by the President, upon a petition of twenty of the members first presenting her for that purpose.

Art. 10th. It shall forever be the policy of the members of this Association, to bestow their patronage, so far as is practicable, upon such persons as befriend, but never upon such as oppose our cause.

Art. 11th. The Association shall have power to make all necessary By-Laws, which shall be consistent with these Provisions, and such By-Laws, when made, shall be binding upon all the members.

Art. 12th. Any member may dissolve her connection with the Association, by giving two weeks notice to the Recording Secretary; and any member shall be expelled from the Association by a vote of a majority of the members present, for any immoral conduct or behavior unbecoming respectable and virtuous females.

Art. 13th. This Constitution may be altered or amended at any time, by a vote of two thirds of the members present.

US as a global leader in Cotton

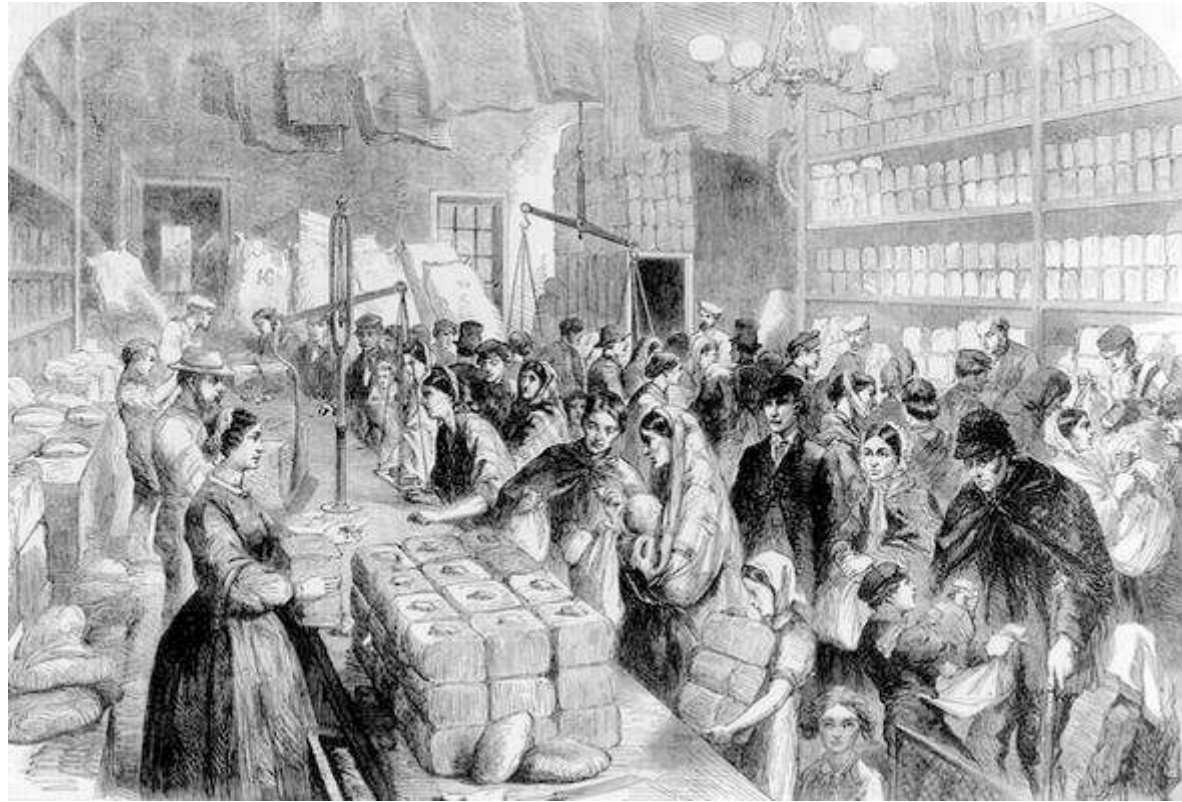
- In 1860's the South of the US was producing most of the world's cotton (between 4 and 5 million bales) while the North had become a financial and manufacturing center, with an industrial capacity 10 times greater than the South.
- In 1860 cotton accounted for 60 pct of US exports value.
- In 1810 there were a total of 87 000 spindles in the US, by 1860 there were 5 million. The US cotton industry experienced a phenomenal growth, which exacerbated tensions between the South and the North.
- In 1860 Cotton was the most important industry in the US in terms of capital invested, workers employed and net value of product.
- Cotton was central to the world economy.

The civil war

- During the civil war cotton production dropped from 4.5 million bales in 1861 to 300 000 bales in 1864.
- The cotton commerce that linked The North, the South and England broke down. in 1862, half of Lancashire cotton industry shut down.
- Europe turned to India for its cotton and Great Britain did not ally with confederates against the union, contrary to the South expectations.
- The British believed that the South would never produce competitively large quantities of cotton any more.



Oct 2, 1862 – Victory of Antietam- Lincoln visiting the field headquarters.



Lancashire cotton famine 1862

After the civil war

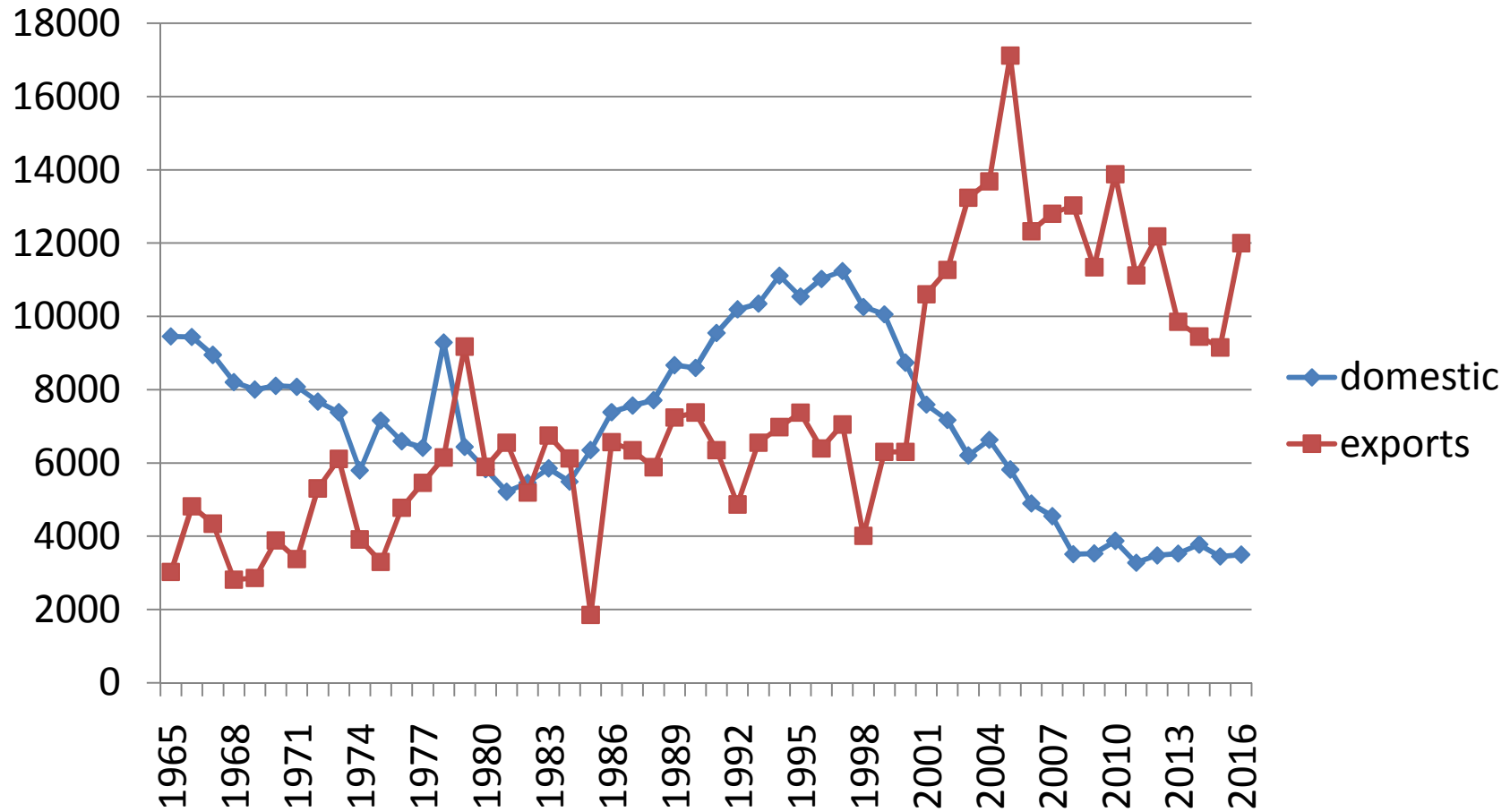
- In 1880 the South was producing more cotton than before the war- disproving the theory that slavery was essential to cotton production.
- Slavery being abolished a new production system was put in place: sharecropping-
 - The land owner supplies a plot of land and the necessities for planting a crop, including a mule
 - Seed, fertilizer were provided as a loan to be repaid at harvest
 - Sharecroppers raised their own crop and the landowner received a share.
 - Sharecroppers were also paid 'day wages' to work the owner's acreage.
 - Initially 60 pct of sharecroppers were black and 40 pct were white. In 1900, $\frac{3}{4}$ sharecroppers were black farmers.



Manufacturing moves to the South

- The post civil war era marked the largest industrial migration in American history, with mills moving from the North-East to the South:
 - Wage disparity between North and South, Unionized labor in the North and innovations reduced the need for skilled labor in favor of low paid workers off the farm.
 - With the emergence of coal-fired steam engines, mills did not have to be located along the rivers of the North East were they were water powered.
 - Mills could now get located closer to the production zone.
 - Between 1880 and 1900, 100 000 workers lost their job in the North while the numbers of workers employed in the textile industry increased exactly from 16 741 to 97 559.
 - In 1918, the Southern factories were producing more than the Northern ones.
 - In 1957, 80 pct of the industry had moved to the South.

Us domestic consumption/exports as per 1965



My take-aways.

- The US cotton history is marked by several fundamental transformations: disruptive new technology and deep social changes.
- The acknowledgement of a very competitive environment, with quick decisions/execution to grab opportunities prevailed.
- The US cotton industry has systematically turned to the future and organized itself to optimize the supply chain.

How it materializes?

- Creating an optimal environment for commerce.
- Transparency
 - Quality determination and standardization
 - Government statistics
- Promotion of cotton
 - Cotton Inc.
 - Cotton council International
- Homogeneous federation of states
- Trading rules-governing bodies- contract sanctity
- Hedging with liquid futures.