Lecture 2

GLOBAL INDUSTRIALIZATION

Growth of the Global North
I. Industrialization
II. 19th Century
III. 20th Century
IV. Postwar Golden Age
I. Industrialization

A. • What is Industrialization?

B. Geographic Industrialization

C. Industrial Revolutions
More & better things

- Rising output
  - IR began with old products
    - pottery, cloth, iron, guns, clocks
  - Mass production & factories

- Cheaper goods
  - Lower costs, rising consumption

- New things
  - Never before possible
    - Cars, plastics, computers, etc.
Rising Productivity

- More output per unit input
  - Esp. higher labor productivity
  - = falling unit costs

- New ways of working
  - Factories: collaboration & division of labor
  - Mechanization & automation

- Revolutions in technology
  - ≠ Efficiency (cost reduction)
  - ≠ Economies of scale (output)

(See lecture 12)
Faster & cheaper movement

- Better transport
  - Lower costs of movement

- Better communication
  - Faster interaction

See lectures 10-11
More & better energy & materials

- New & cheaper fuels
  - More power at lower cost

- New materials
  - Better & cheaper
  - New qualities
    - Steel, aluminum, nylon, etc

(see lectures 21-23)
Creating a New World

- Manufacturing more goods
  = wealth of nations (Adam Smith)

- Industrialization fills the world with…
  - More things, better things, new things

- Without modern industry…
  - No factories, plane, telephones, computers, etc.
I. Industrialization

A. What is Industrialization?

B. Geographic Industrialization

C. Industrial Revolutions
Industrialization creates modern geography

- Industry has made the places we inhabit
- New industries = new places
- From Lancaster to Guangdong...
How industry makes place

- Build factories
- Attract labor force
  - Add housing
- Attract suppliers
  - more factories, warehouses
- Require infrastructure
  - roads, water, power

(see lecture 8)
Creating economic geography

- Industry clusters create cities & regions
  (lectures 8 & 11)

- Industrialization creates national economies
  - ‘Development’
    (Lectures 1-5)

Amsden, *Escape from Empire*
Industrial Geography: The Movie

- Expanding rings
  - Britain, Europe, US
  - Japan, East Asia, China
    (lectures 2 & 3)

- Today’s expansion
  - no surprise
I. Industrialization

A. What is Industrialization?

B. Geographic Industrialization

c. • Industrial Revolutions
Long-term evolution

- Industrial development
  - Ongoing process

- Continuous revolution of production
  - Technological progress

- Breakthroughs
  - ‘Industrial revolutions’ or epochs
    - (Don’t exaggerate)
Industrial Revolutions

- First IR, c. 1790 (Textiles, iron, factory)
- Second IR, c. 1850s (Machinery, steel, RRs)
- Third IR, c. 1900s (Fordism, electricity)
- Fourth IR., c 1940s (Oil, aerospace, plastic)
- Fifth IR, c. 1990s (Chips, Internet, Info)

- Useful heuristic
- Broad range of changes
  - More than ‘Fordism’ or ‘Internet’
Industrial revolutions redraw the map

- Epochs of industrial geography (US)
  - Rise of New England (first IR)
  - Pittsburgh, Philly & Mid-Atlantic (second IR)
  - Detroit, Chicago & Midwest (third IR)
  - California & New South (fourth IR)
  - High Tech Coasts (fifth IR)
Restless globe

- Epochs of global industrialization
  - First IR: Britain & Belgium
  - Second IR: US & Germany & France
  - Third IR: Japan & Italy
  - Fourth IR: Mexico, Brazil, Korea
  - Fifth IR: China, India

More to epochs than just industrial revolutions…
  e.g., trade regimes, labor systems, state systems
GLOBAL INDUSTRIALIZATION

I. Industrialization
II. 19th Century
III. 20th Century
IV. Postwar Golden Age
II. The 19th Century

A. Rule Britannia
B. The Continent
C. Germany
D. United States

Walker’s tour of 200 years
Industrial revolution in Britain

- Historical-geographical break, c. 1800
- “Workshop of the World”
  - Propels Britain to the top
- Reverses geography
  - Lancaster & Midlands > London
- Antecedents
  - Commerce & Capitalism
  - Modern state (lecture 4)
  - Agrarian revolution
Rule Britannia

- Britain presides over 19th century
  - Everyone else races to catch up
    - Free Trade vs. ‘Late developers’
      - (Lectures 5 & 7)

- Britain & growth of world trade
  - Global commercial-financial hub
    - (Lectures 14-15)
II. The 19th Century

A. Rule Britannia
B. The Continent
C. Germany
D. United States
IR across the continent

- First Wave (1800-1850)
  - Northwest Europe
    - Belgium, Würtenburg, Barcelona

- Second wave (1850-1900)
  - France (Second Empire & Paris)
  - Germany (Ruhr, Berlin & Saxony)
  - Russia, Northern Italy

Sidney Pollard, *Peaceful Conquest*
Spread of industry – 1815 & 1875
II. The 19th Century

A. Rule Britannia
B. The Continent
C. • Germany
D. United States
Rise of Germany

- Capitalist west
  - Rhineland
  - State fragments
  - Commercial & ‘liberal’
- Prussian east
  - Berlin + Brandenburg
  - Rural semi-feudalism
  - Military prowess
- Unification 1870
  - Powerful combination
Germany races ahead

- State-led development
  - Bismarck
    - Against Free Trade (F. List)
- Rapid industrialization
  - Heavy industry (Ruhr)
  - Science & universities
- Expansion
  - Defeats France (1870)
  - Catches Britain, c 1890s
  - Imperial rivalry heats up
    - Lecture 7
II. The 19th Century

A. Rule Britannia
B. The Continent
C. Germany
D. United States
US industrialization

- Early Industrialization > 1810
  - Centered in New England
  - Tariff protection

- Rise of mass production
  - ‘American system’ (standardization)
    - Machinery
  - Cloth, lumber, meat, etc.

- Cotton south
  - Slavery
  - Supplies UK & North
  - Little industry
US expansion

- Westward expansion > 1825
  - Erie Canal & Old Northwest
  - Farmer’s Empire

- Continental conquest > 1850
  - California & the Far West
    - Mining & timber
  - Centrality of Midwest
    - Agro-industrialization
    - Fordism
US consolidation

- Civil War, 1860-65
  - North overtakes South
  - First industrial war

- Full industrialization > 1865
  - North takes charge
  - Industrial Belt of NE

- Industrial giant
  - Passes UK c. 1900
  - Global expansion (see lecture 7)
GLOBAL INDUSTRIALIZATION

I. Industrialization
II. 19th Century
III. 20th Century
IV. Postwar Golden Age
III. The 20th Century

A. Japan
B. Russia
C. The Rest
Rising Sun

- Meiji Revolution, 1868-1900
  - Coup d’Etat (‘Restoration’)
  - State-led industrialization
  - Facing west & modernization
  - New geography: Tokyo

- China, c 1900
  - Some industrialization
  - Revolution of 1911
Imperial ambitions

- Japanese expansion,
  - Heavy industry
  - Military build-up
    - Defeats Russia, 1904-05
- Conquest & colonies
  - Taiwan (1895), Korea (1910)
  - Manchuria (1931)
  - Japanese impact
- Descent into dictatorship
  - 1930s
  - Tojo in WW2
Long-term growth of Japan

FIGURE A
Historical real GDP per capita growth in Japan and the U.S.

III. The 20th Century

A. Japan
B. Russia
C. The Rest
Russia

- Late 19th century growth
  - Czarist state
  - End of feudal agriculture, 1860s
  - Early industrialization

- Disintegration
  - Russo-Japanese War, 1904-05
  - First revolution, 1906
  - WW1 defeats
USSR

- Bolshevik revolution, 1916-17
  - Experimentation - 1920s
  - Renewed industrialization
  - Lenin & Fordism

- Stalin & Dictatorship, 1928-55
  - Forced collectivization
  - Rapid industrialization
  - World War II giant
III. The 20th Century

A. Japan
B. Russia
C. •The Rest
The Colonial World
Global division of labor

- European colonization
  - Global south conquered
  - Specializes in resource exports
  - Captive markets (manufactured imports)

- World market disrupts global economies
  - Undermines agriculture & industry
  - Blocked development (little industrialization)

- Mike Davis, *Late Victorian Holocausts*
Global collision

- Growth & Competition
  - Battle for resources & markets

- Geographic rivalries
  - German ‘liebensraum’
  - Into Africa
  - Japan in the Pacific

- Descent into war
  - World Wars I & II
  - Europe & Japan in ruins
GLOBAL INDUSTRIALIZATION

I. Industrialization
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IV. Postwar Golden Age
IV. Postwar Golden Age

A. American Dominance
B. German & Japanese Miracles
C. Global Trouble
US industry on top

- WWII destroys rivals
  - US occupation of Japan & Germany
  - c. 1945-1950

- US = 3/5ths of world industry
  - Best production
  - Best & biggest corporations
US global dominance

- US biggest exporter & importer
- US industry expands abroad
- Dollar is king
Global revival

- Revival of world industry & trade

![Graph of Global real GDP and export growth](image_url)
US invests abroad

- Capital outflow
  - Marshall Plan
  - Military bases
  - US multinationals
  - FDI

Figure 4.1: Ratio of foreign to domestic manufacturing investment by US corporations, 1957-93.

Source: M. Fahim-Nader, 'Capital Expenditures by Majority Owned Foreign Affiliates of US Companies'.

Figure 3.5: U.S. Share of World FDI Outflows, 1970-2004 (%)
(Source: UNCTAD Foreign Direct Investment Database)
IV. Postwar Golden Age

A. American Dominance
B. •German & Japanese Miracles
C. Global Trouble
German miracle

- **West Germany only**
  - Industrial legacy
  - Labor skills
  - Eastern refugees

- **US investment**
  - Marshall Plan
  - US military
  - Private capital

- **European reconciliation**
  - European markets
  - *(see lecture 4)*
Japanese miracle

- Korean War (1951-53)
  - US military spending
- Industrial revival
  - Reorganization
  - Experimentation
  - Labor repression
- Exports to US
Japan’s rapid postwar growth
Keys to miracles

- Up from the ruins
  - Rebuild capacity
  - Knowledge & skills
  - Surplus labor, low wages

- Build on the best
  - Adopt US technology
  - Adapt to new conditions

First double-digit growth rates, 1950s and 60s
A fresh start

- Social renewal
  - US occupation -- cleans house
  - Elimination of old elites & rulers
  - New political systems
  - Suppression of labor & communists
Big Three

- US, Germany + Japan
  - 1950: 60% of world output
  - 1994: 66% of world output

- 2000s: US #1, Japan #2, Germany #3
  - Soviet Union was #2 until c. 1980
IV. Postwar Golden Age

A. American Dominance

B. German & Japanese Miracles

C. •Global Trouble
New competitors

- Export-led development
  - Lower wages + rising tech
    = lower unit costs

- Share of world exports
  - Germany = US by 1970
  - Japan = US by 1980

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SHARES OF WORLD EXPORTS OF MANUFACTURES
(In Percent)

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*Average for first two quarters.
Note: World exports are defined as the sum of exports from 14 major industrial countries.

Source: Thomas Pepper, Merit E. Janow and Jimmy W. Wheeler
The Competition: Dealing with Japan. (Indianapolis, Indiana: Hudson Institute, 1983)
Japanese surplus, US deficit

Figure 1  Current Account Balance

Source: Ministry of Finance, Balance of Payments.

American Net Exports as a Share of GDP

Japan  USA
Global glut -- prices drop
Troubles at home

- US feels squeeze
  - Profit plunge > 1965
    - Profit rate falls by half

- US economy suffers
  - First postwar crisis (1970-75)
    - Double dip
  - Inflation of 1970s
  - Deindustrialization crisis (1979-82)
Troubles abroad

- Blowback on exports from Japan & Germany
  - US slowdown, 1970-75
  - Dollar devaluation, 1971
- Profit fall spreads to J & G
Overall profit drop

- Profit
  - Key signal
- Investment
  - Key action
- Accumulation of capital
  - Key to growth

Figure 0.4. US, Japanese, and German private sector net profit rates, 1949–2001.

Source: See Appendix 1 on Profit Rates.
A Long Downturn?

- Golden Age, 1945-75
  Vs.

- Neoliberal Era, 1975-2010(?)
  - Poor overall performance
  - More instability

- Recall lecture 1 on crisis & cycles
Old slides
First industrial revolution, c 1760-1800

- Factories
  - Mass labor & detail labor
- Machines do hand work (e.g., Jacquard Loom)
- Machine to do heavy work (e.g., cutting wood)
- Iron furnaces & cast iron
- Water & Steam power
- Canals
- Agricultural revolution (e.g., closed feeding)
Second I. R.

- Replaceable parts
- Machines by machines
- German coal-tar chemistry & labs
- Steel
- Balloon-frame house
- Elevator
- Revolver & rifles
- Railroads & telegraph
Third I. R.

- Electricity -- lights & motors
- Steel alloys (hard steel)
  - Standardized parts
  - Taylorism (finer detail labor)
  - Fordist assembly line
  - Movies & radio
  - Portland cement
  - Skyscrapers (steel frame)
  - Autos & trucks
  - First aircraft
  - Telephone
Fourth I.R.

- Jets & missiles
- Cheap aluminum
- Synthetic fibers
- Petroleum
- Petrochemicals & plastics
- Computers & semiconductors
- Television, radar
- Green revolution
- Shipping containers
Fifth industrial revolution today?

- Internet & distributed computing
- Information technology
- Laminates & new metals
- Superships
- Computer automation & design
- Lean production

*Shift to Pacific Rim?*