

THE CHINESE ECONOMY

A JOURNEY INTO HISTORY AND ECONOMICS

Lecture 1: Foundations





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History

"...the science of men in time."

Marc Bloch

we will use it

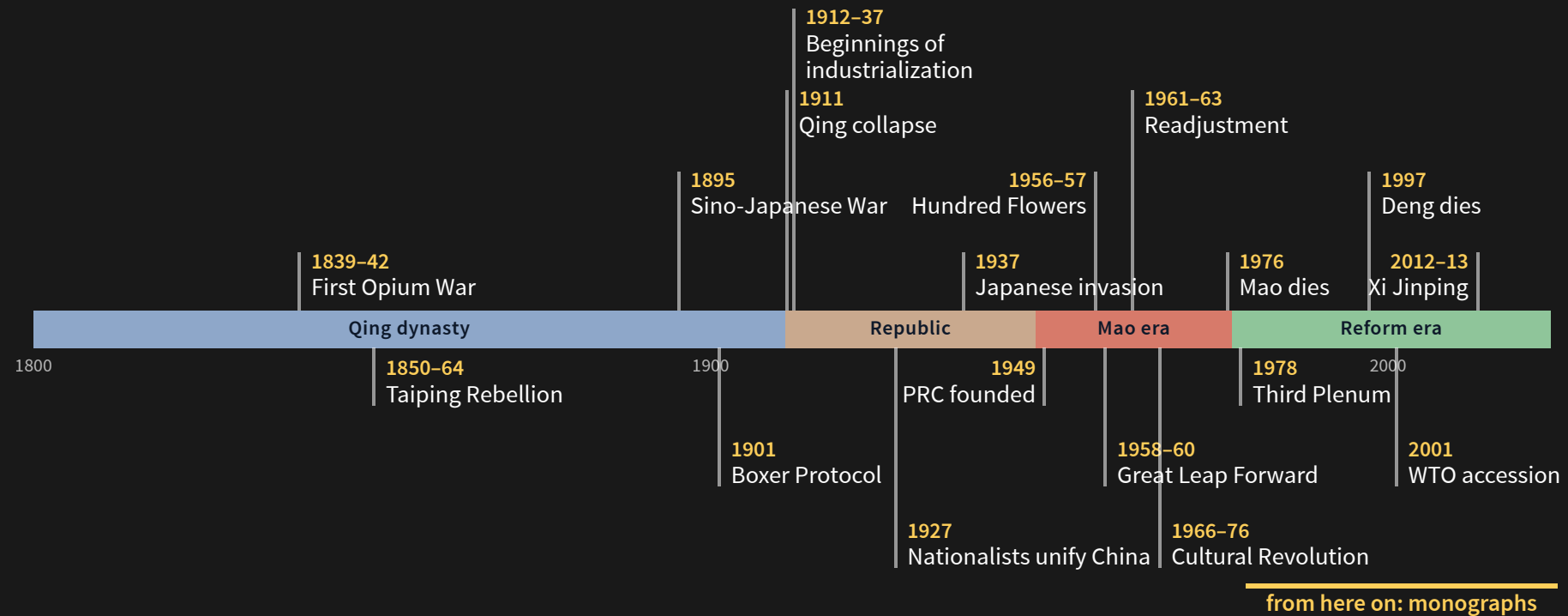
Economics

"...the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses."

Lionel Robbins, 1932

we will do it

150 YEARS IN ONE LINE



THE COURSE IN SEVEN BLOCKS

- **Foundations** — lecture 1 · history and institutions, from 1800 to 1978
(*today*)
- **Causality** — lectures 2-3 · the method: what a cause is, and how economists find one
- **Reallocation across sectors** — lectures 4-5 · from the farm to the factory: GDP, hukou, migration
- **Reallocation within sectors** — lecture 6 · firms, state-owned enterprises, misallocation
- **Trade** — lectures 7-8 · growth, the WTO, tariffs and trade wars
- **Innovation** — lectures 9-11 · China at the Frontier
- **Conclusions** — lecture 12

RULES OF THE JOURNEY

- **Website** — syllabus and slides: framana111.github.io/the-chinese-economy
- **Exercises** — from time to time, a short problem to take home: tools to learn the logic of economics, analysis and reflection; **not graded**
- **Assessment** — final written exam

A QUICK POLL

Yardsticks

Average annual real GDP growth, 2005-2024

- Italy 0.3% a year
- European Union 1.3% a year
- United Kingdom 1.4% a year
- United States 2.1% a year
- Japan 0.6% a year

CHINA, 2005-2024

7.9% a year — real GDP, 20 years

- The economy became **4.6 times** larger (+356%)
- Italy +5% · European Union +30% · United Kingdom +30% · United States +51% · Japan +12%

POLL 2

What drove this growth? Rank all six, from 1 (most important) to 6 (least)

- movement of workers from the countryside to the cities
- reform of state enterprises and better allocation across firms
- foreign trade and WTO entry
- innovation and technology catch-up
- high investment and saving
- industrial policy and state direction



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CHINA, AROUND 1800

- About 381 million people in 1820 — around 36% of the world
- About a third of world GDP (32%, Maddison); living standards close to the world average
- Over 90% rural: very high yields per hectare, low output per worker
- A dense, commercial economy: markets, money, contracts, competition — small and household-based ("bottom-heavy")

...ALREADY UNDER STRAIN

- **Land:** nearly all cultivable land in use by 1800 — a "high-level equilibrium trap" (Elvin 1973)
- **State:** a thin layer — revenue 2-3% of national income; one official per 32,000 people (Europe: one per 600-800)
- **Inequality:** the gentry (under 1% of people) took about 20% of national income
- "The Chinese peasant is like a man standing on tiptoe up to his nose in water" (Tawney)



Johanna Helena Herolt, *A Poppy in Three Stages of Flowering, with a Caterpillar, Pupa and Butterfly*, late 17th-early 18th century.
Metropolitan Museum of Art (CC0)

TRADE, SILVER AND OPIUM

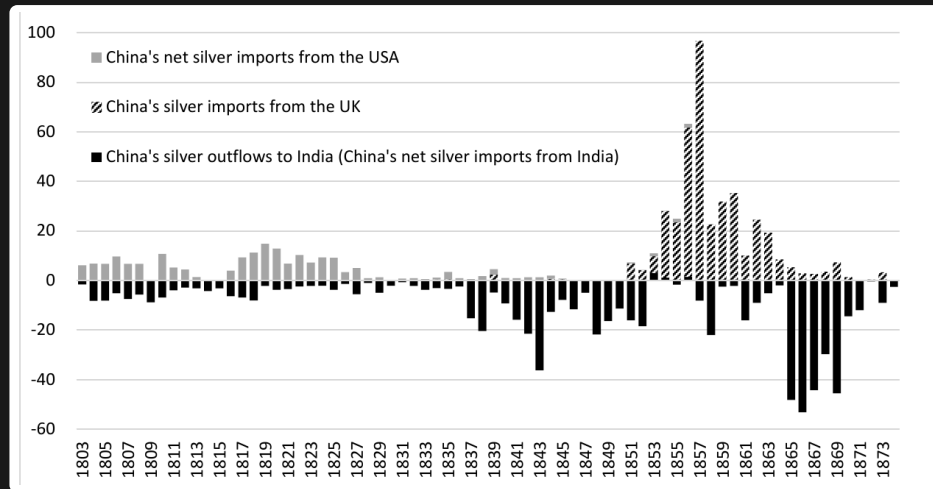


The opium fleet on the Ganges, c. 1850. Lithograph after W. S. Sherwill (Wellcome, CC BY 4.0)

- For centuries China sold tea, silk and porcelain, and received **silver**
- Britain needed something China would buy: **opium**, grown in India and sold at Canton by private British traders. Its proceeds paid for the tea
- By the 1830s China imported more than it exported

SILVER AND OPIUM: WHAT THE SERIES SHOW

- Silver left China for India in the late 1830s and the 1840s (black bars below zero)
- Then the 1850s: a very large inflow from Britain. And in the 1860s, a new outflow
- Opium shipped from India roughly doubled in five years: **21,885 chests** (1834/35) to **40,200** (1838/39)
- Did opium push the silver out — or did the scarcity of silver push opium in? Historians disagree: Irigoin and co-authors find only a weak association; Lin (2006) told a supply-side story
- Two lines that move together can mean nothing, and can run either way: [spurious correlations](#)



Silver trade of China with India, Britain and the US, 1803-1874 (million rupees). Irigoin et al. (2023), Fig. 2

WHAT THE OPIUM SURGE DID



Two wealthy Chinese opium smokers. Gouache on rice paper, 19th century (Wellcome Collection, CC BY 4.0)

- Imports of Indian opium doubled in five years: 21,885 chests (1834/35) to 40,200 (1838/39) — *Greenberg, via Farooqui (2016)*
- More users, but no reliable count: estimates run from a few million to over ten million — *MIT Visualizing Cultures*
- It reached officials, soldiers and the court; local officials took bribes to ignore the ban — *MIT Visualizing Cultures*
- The court split between prohibition and legalisation — *Polachek (1992)*
- Silver outflow and currency stress: usually blamed on opium, a link recent work questions — *Lin (2006); Irigoin et al.*

THE OPIUM WARS

- **1839-42** — China tries to stop the opium inflow; Britain attacks. *Treaty of Nanjing* (1842): Hong Kong ceded, five treaty ports opened, indemnity of 21 million silver dollars, end of the Cohong monopoly
- **1856-60** — second war; treaties of Tianjin (1858) and Convention of Peking (1860): more ports, envoys in Beijing, missionaries, opium legalised
- Through 1895, **three more** wars, all lost: reparations, more treaty ports (over 80 at the peak)



The *Nemesis* destroying Chinese war junks, Anson's Bay, 7 January 1841. Print by Edward Duncan, 1843 (public domain)

FROM BRITAIN TO JAPAN

- **1895:** Sino-Japanese War → Taiwan to Japan; the Treaty of Shimonoseki lets foreigners invest — modern industry begins
- **1901:** after the Boxer Rebellion, eight powers occupy Beijing; Boxer Protocol: indemnity, tariff revenue under foreign control
- **1911:** the Qing dynasty collapses
- Share of world GDP: **32% (1820) → 9% (1913)**



China, the cake of kings and...
emperors. *Le Petit Journal*, January
1898 (public domain)



The Battle of the Yalu River, 17 September 1894.
Kobayashi Kiyochika (British Library, public
domain)

1912-1937: FIRST INDUSTRIALIZATION

- After 1911: warlords; 1927 the Nationalists unify the country; the "Nanjing decade"
- Modern factories grow 8-9% a year — from 2% of GDP and 0.4% of the labour force
- Two patterns: **Treaty-Port** industry (light, Chinese-owned by the 1930s) and **Manchuria** (Japanese, heavy, few spillovers)

1937-1949: WAR AND CIVIL WAR

- 1931 Manchukuo; 1937 Japan invades China proper — a decade of war
- Manchuria's industry grows 14% a year (1936-42); Shanghai never regains its 1936 output before 1949
- The Nationalist state runs the war economy; **hyperinflation**: prices in 1948 = 660 million (1936 Shanghai = 100)
- 1949: the Communist victory

WHERE THIS LECTURE GOES

- 1800 → 1949 — how a great economy arrived at the revolution
- 1949 → 1978 — a planned economy: how it worked, what it did, and the Great Leap Forward
- 1978 — the turn, and a question we cannot yet answer

THE ECONOMIC PROBLEM

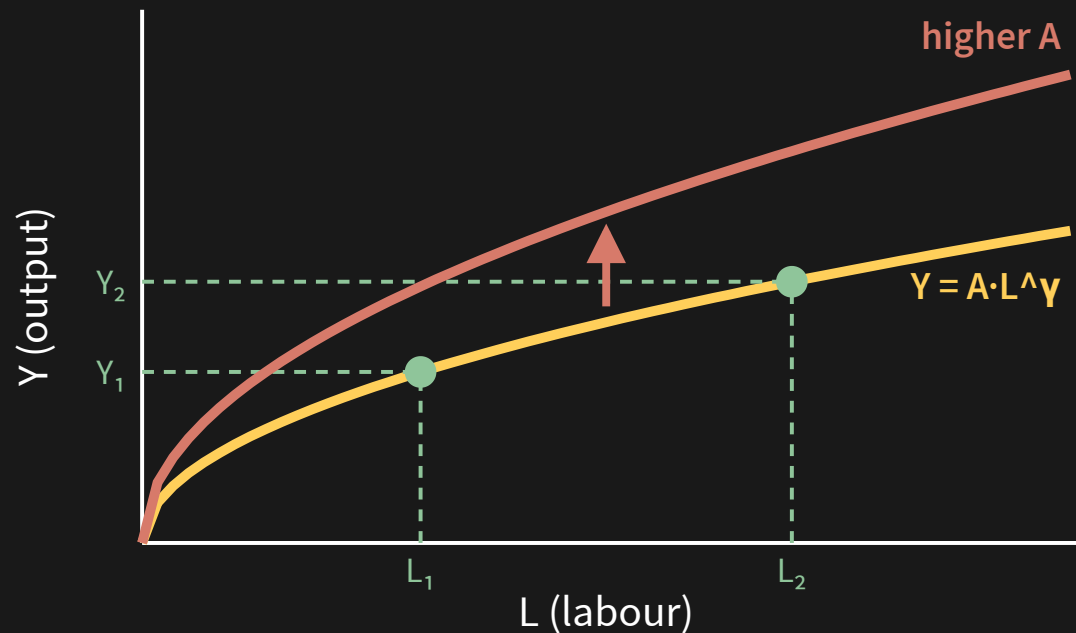
Who gives what to whom — and who decides?

- Millions of different actors: households, farms, factories
- Each must decide how much to take and how much to give to the others
- Two ways to coordinate: through **prices**, or through **quantities** (a plan)

WHAT DOES A PRICE DO?

- It says how **scarce** something is, relative to everything else
- It carries information nobody holds in full — *Hayek (1945)*: knowledge is dispersed; prices coordinate separate actions
- It rewards whoever economises or finds a substitute
- *Other traditions: prices also reflect technology and the distribution of income (Ricardo, Marx, Sraffa)*

HOW PRODUCTION WORKS



$$Y = A \cdot L^\gamma, \text{ with } 0 < \gamma < 1$$

Y output · L labour, the only input for now · A productivity

More L: we move **along** the curve, to a higher Y. Each extra worker adds less: diminishing returns

Higher A: the **whole curve** shifts up. Same labour, more output

A PLAN WORKS ON QUANTITIES



- The planner sets **targets** and allocates **quantities** to each producer
- Prices are still there — but set by the state, not by the market

CHINA'S COMMAND ECONOMY

- Initially inspired by the **USSR model**, but with differences
- The state owns the big factories; collectives own the land
- **Commands**: production targets; resources allocated directly — prices lose their role as the main signal
- The state still *sets* prices — industry dear, agriculture cheap — to channel resources to itself; compulsory grain procurement from 1953
- The Party controls managers' careers
- Labour fixed in place: tight limits on movement, jobs for life
- **Main limitations**
 - **Weak control**: weaker than in the USSR (Naughton). Symbol: Beijing could allocate at most 600 product varieties; the USSR, 60,000 by the 1970s

MEASURING WITHOUT MARKET PRICES

- GDP adds up value at market prices — what is "value added" without them?
- China used the **Material Product System (MPS)** until 1992: it counts material production (agriculture, industry, construction, freight transport, distribution) but not *non-material* services (education, health, finance, housing, administration)
- MPS and GDP coexisted in 1985-92; GDP only from 1993
- So we look at a different indicator, the planners' main lever: **investment**



Figure 3.1
Investment as a share of GDP

Naughton (2007), *The Chinese Economy*, Fig. 3.1

LEAPS AND RETRENCHMENTS

- A **leap**: investment grows more than 20% in a year — rapid growth *and* political mobilisation; radical, "leftist" phases
- Then **retrenchment**: slower investment, consolidation, often a more moderate climate (Hundred Flowers 1956-57; readjustment 1961-63; drift 1972-76)
- "Policy swings like a pendulum from left to right and back again" — and drives, and is driven by, economic developments

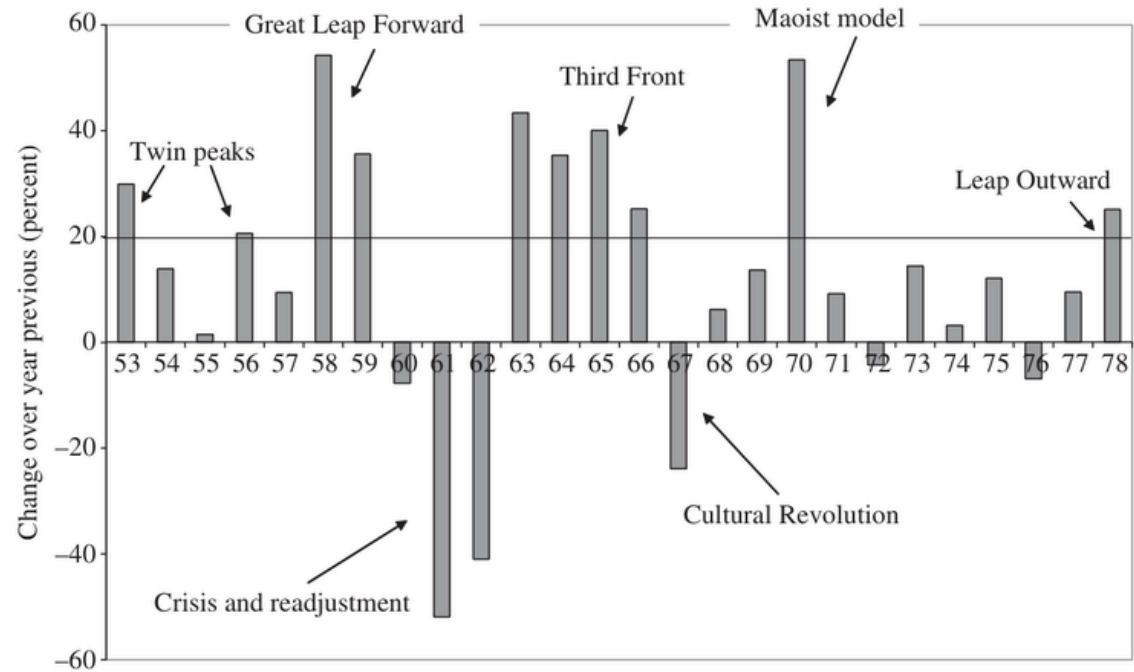


Figure 3.2
Growth of investment

Naughton (2007), *The Chinese Economy*, Fig. 3.2 — annual growth of investment

1958 — HUKOU

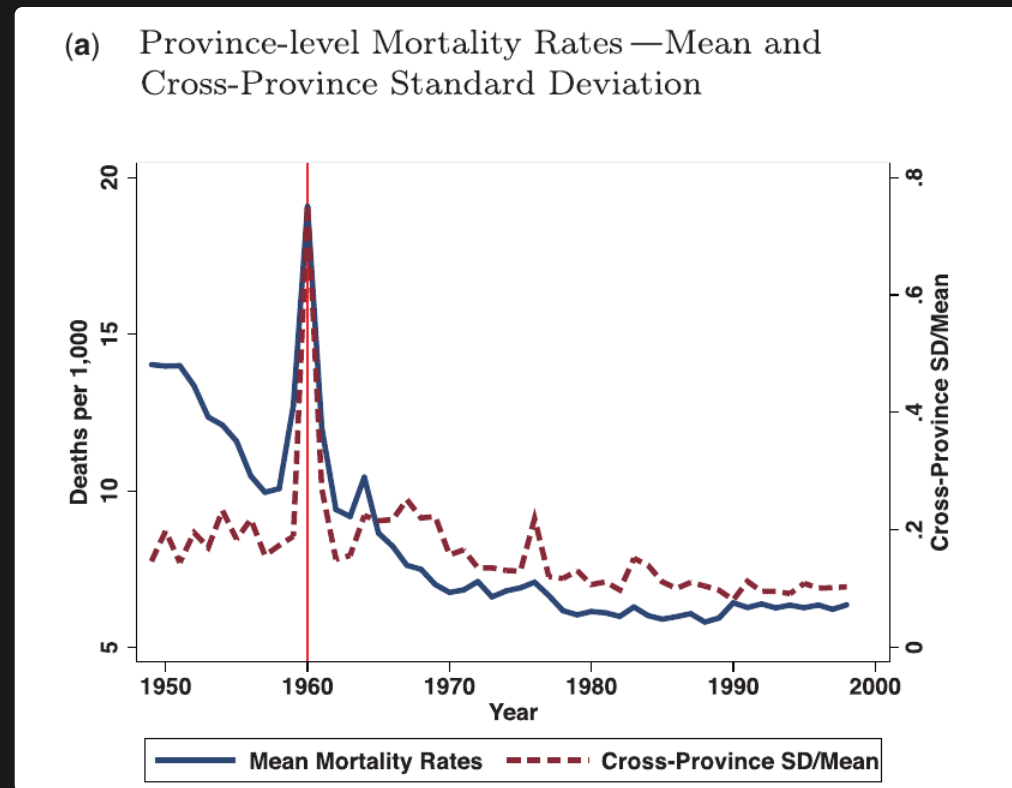
- 1955: grain rationing begins (lasts over 30 years)
- 1958: household registration formally instituted — working outside one's hukou place or category is prohibited
- After the Leap: urban registration a "meal ticket", rural registration "a license to starve"
- 1961-62: six million recent urban arrivals sent back to the villages; by the mid-1960s, a "caste system"

THE GREAT LEAP FORWARD, 1958-60

- **Goal: industrialise fast**
 - Everything at once, regardless of real resource constraints: "a vision, rather than a plan"
- **Organisation:** communes; bonuses and free markets abolished; decisions decentralised; "walking on two legs"
- **Two fateful decisions:** less labour and land for farming; more grain taken by the state
- **Why nobody braked:** inflated reports — the statistical system, the leaders' "eyes and ears", collapsed

HOW MANY DIED, AND WHAT "UNEVEN" MEANS

- Nobody counted. Estimates of excess deaths: **16.5 million** (Coale 1981), **30 million** (Banister 1987), **45 million** (Dikötter 2010)
- In 1960 the national average death rate jumps from about 10 to about **19 per 1,000**
- And so does the *spread* between provinces (dashed line): the same national shock, very different local outcomes
- That is what "uneven" means: not just more deaths, but more different deaths



Meng, Qian, Yared (2015), Fig. 1a

THE PUZZLE

In 1959-61, average food availability in the Chinese countryside was enough to feed the population.

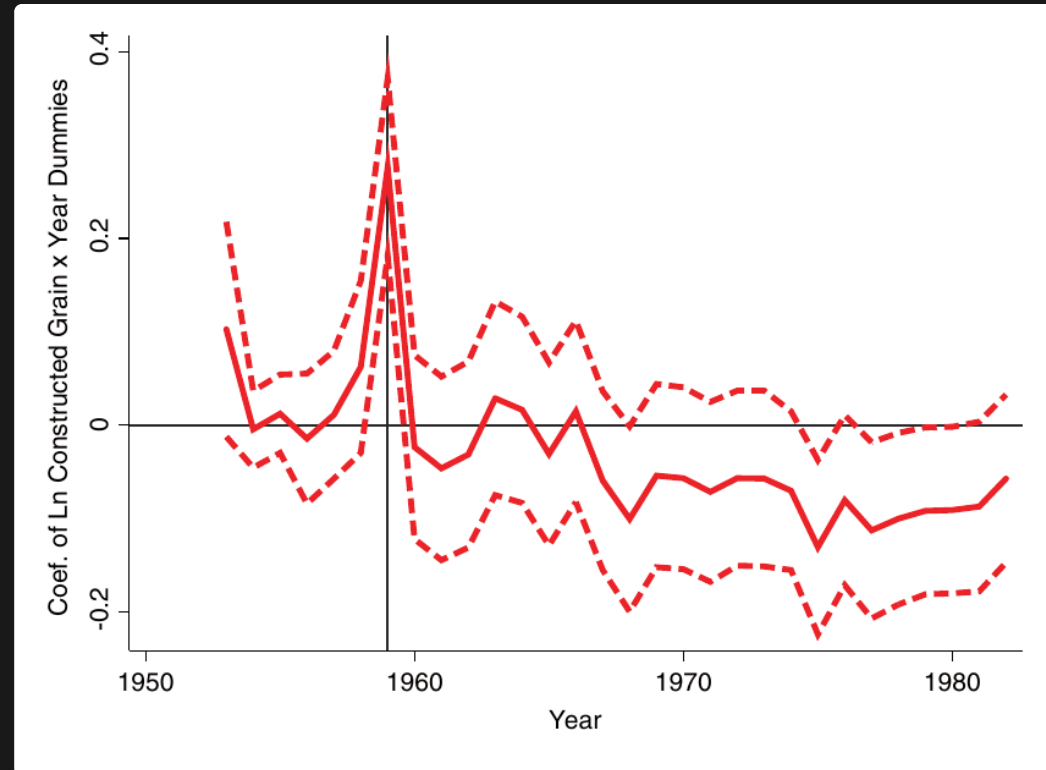
So why did 16.5 to 45 million people die?

- After the state took its share, the rural average in 1959 was about **2,300 kcal a day**; the survival benchmark is about **800**
- Production per person fell about 15% in 1959 — the largest fall of the period — but stayed far above that line

Meng, Qian, Yared (2015), *Review of Economic Studies* — 19 provinces, 77% of the population

THE SURPRISE

- We would expect more deaths where there was *less* food
- Across provinces, the paper finds the opposite: **more deaths where predicted grain output per head was higher** — only in the famine years
- How to read the graph: each point is a year; the line says by how much mortality differs between provinces whose output differs by 1% (a coefficient). Dashed lines: 95% interval
- About zero in normal years; clearly positive in 1958-59



Meng, Qian, Yared (2015), Fig. 3

HOW DO WE MEASURE THIS WITH BAD DATA?

- Official figures for output and deaths are unreliable in these years
- **Proxy 1:** output *predicted* from weather, geography and rural population, not the reported one
- **Proxy 2:** the missing children. In the 1990 census, how large is each birth cohort, in 511 counties?
- A small cohort born in 1959-61 = more deaths and fewer births. And the counties with better land lose the most cohorts (right)

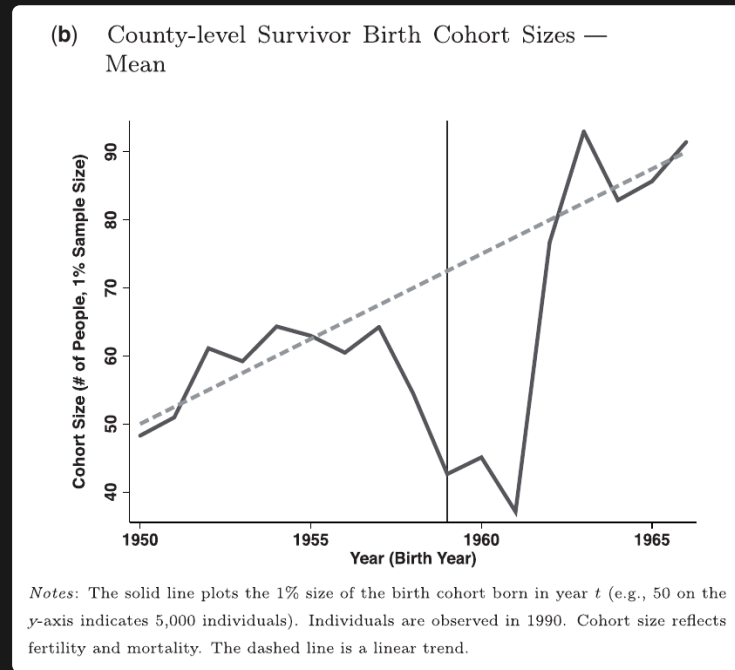


Fig. 1b: cohort size, by birth year

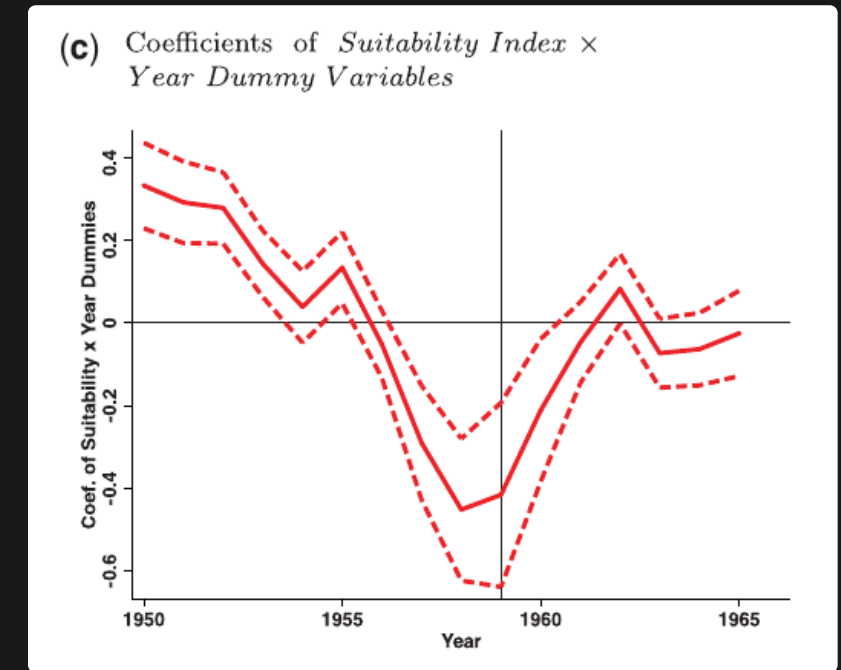
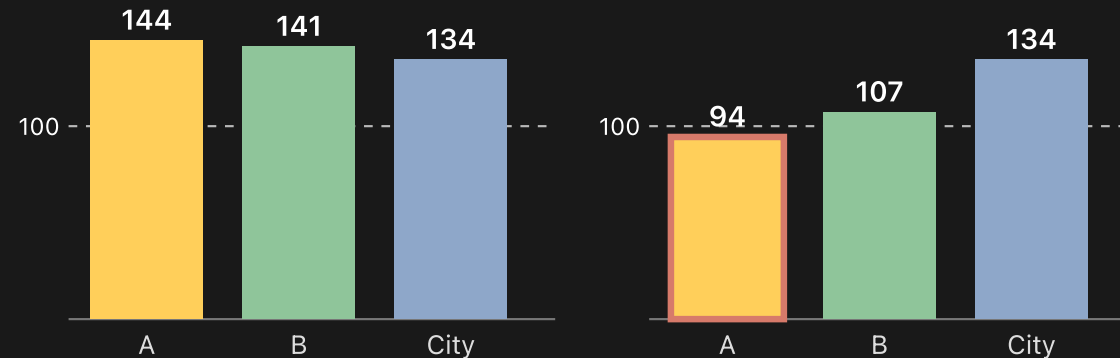
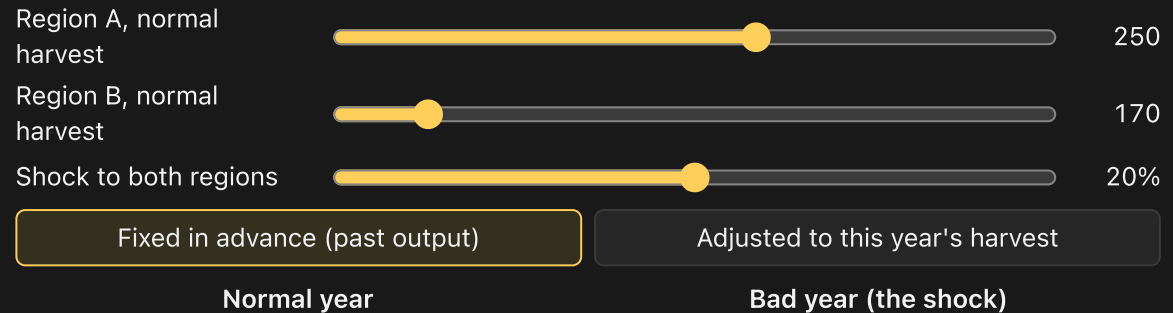


Fig. 4c: land suitability x birth year

HOW THE STATE COLLECTED GRAIN: A TOY ECONOMY

- Quotas were set **in advance**, from past verified output, top-down (province, prefecture, county)
- Each collective delivered its quota **even if the harvest fell short**
- Regions with higher output faced a **higher share** taken
- Try it: with the default numbers, after the shock region A (better land) is left with **less** than region B

Stylised example inspired by the paper's illustration (Table 5), not its estimates. Each person needs 100 units of food. Two rural regions (A: better land, B) and a city.



Bad year: A keeps 94, B keeps 107, the city 134. **The region with the better land ends up with less food.**

WHAT THE PAPER ACTUALLY ESTIMATES

- **Unit:** a province in a year; 19 provinces, 1953-1982. **Outcome:** log deaths the following year
- **Regressor:** log grain output per head, *predicted* from weather, geography, rural population and land (not the reported figure)
- **Question:** do provinces with more output per head have more deaths, and does this change in the famine years (1958-60)?
- Year effects absorb everything that hits all provinces alike; we control for total and urban population
- **Normal years:** $\alpha \approx 0$. **Famine years:** $\alpha + \beta > 0$ (about 0.14)

(1) province, famine vs normal years — Table 2

$$m_{p,t+1} = \alpha P_{p,t} + \beta P_{p,t} I_t^{Fam} + Z'_{p,t} \gamma + \delta_t + \varepsilon_{p,t}$$

(2) one coefficient per year — Figure 3

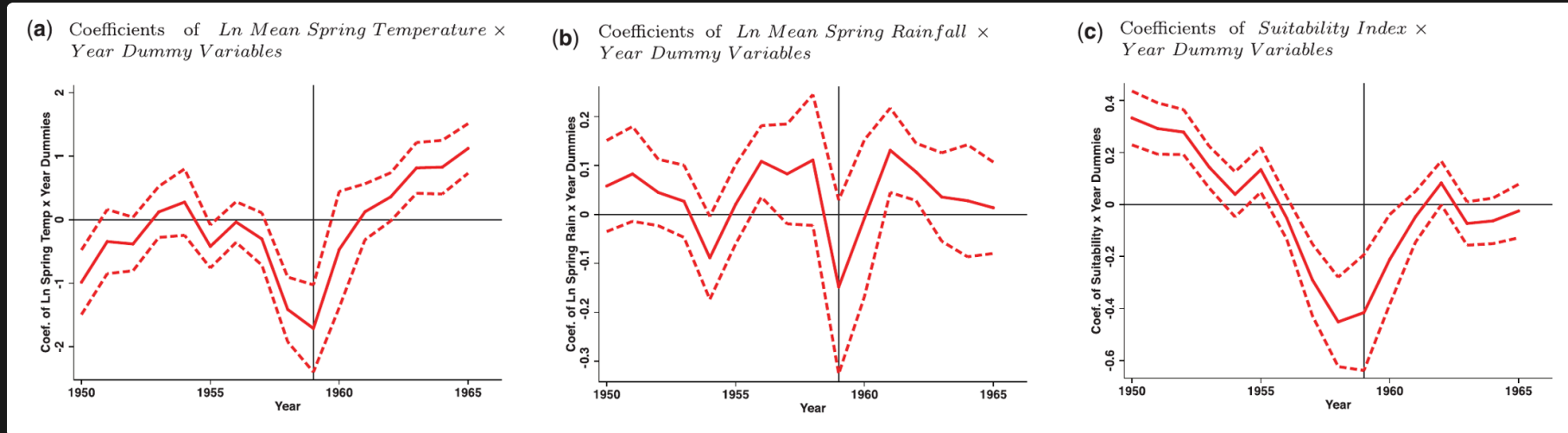
$$m_{p,t+1} = \sum_{\tau} \alpha_{\tau} P_{p,t} I_t^{\tau} + Z'_{p,t} \gamma + \delta_t + \varepsilon_{p,t}$$

(2') counties, birth cohorts — Figure 4 (rebuilt from the text)

$$\ln C_{c,t+1} = \sum_{\tau} (a_{\tau} T_{c,t} + b_{\tau} R_{c,t} + s_{\tau} S_c) I_t^{\tau} + \gamma \ln \bar{C}_c + \delta_{p(c)} + \delta_t + \varepsilon_{c,t}$$

m: log deaths · P: log predicted grain output per head · I^{Fam} : 1 in 1958-60 · I^{τ} : year dummy · Z: log total and urban population · δ : fixed effects
C: size of the birth cohort (1990 census) · T, R: log spring temperature, rainfall · S: grain suitability · $\bar{C}$: county average cohort

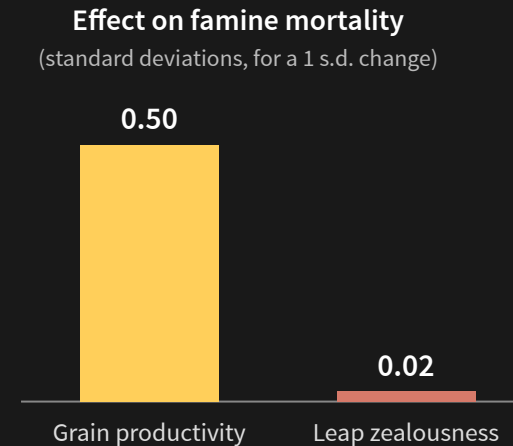
FIGURE 4: THE SAME QUESTION, BY COUNTY



Meng, Qian, Yared (2015), Fig. 4. Coefficients of (a) spring temperature, (b) spring rainfall and (c) land suitability, each interacted with birth-year dummies, with 95% intervals; outcome: log size of the birth cohort, 511 counties

IS IT JUST GREAT LEAP ZEAL? AND HOW BIG IS IT?

- Robustness of equation (1). Alternative: Great Leap **zealousness** (sown-area cuts, steel output, communal dining, purges, late liberation), urban bias, misreported output
- First check, in 17 provinces: were more productive provinces more zealous? If anything, *less*
- Add the zeal measure (their first principal component) and its interaction with the famine dummy to equation (1): the result barely changes
- Back-of-the-envelope: the procurement mechanism accounts for roughly **one third to 43%** of famine mortality — which leaves room for the Leap's policies and for politics



1961-76 — READJUSTMENT, THIRD FRONT, CULTURAL REVOLUTION

- 1961-63 readjustment: investment chopped back, about 20 million workers sent to the countryside
- 1964-66 Third Front: a new expansion into the interior
- 1966-76 Cultural Revolution: 17 million urban school-leavers sent to the countryside (*xiafang*); schools and universities closed
- 1976: Mao dies

1976-78 — THE TURN

- Growth had accelerated under the Big Push — but even more in Taiwan and Hong Kong, far ahead of the PRC by 1978
- That demonstration effect convinced Chinese leaders to reform and open up
- **December 1978:** Third Plenum — ease the terms of trade with agriculture, "give farmers a chance to catch their breath"
- Deng Xiaoping consolidates power; *gaige kaifang*, reform and opening

A QUESTION, FOR NEXT WEEK

The famine paper argues that fixed procurement quotas, and not just the Leap's policies, made the famine deadlier where there had been more food. Imagine you could run any experiment you like. What would you change, in which places, and what would you measure? And what is the thing you still could not observe?

- Also: pick **one number** from today that you would not trust. Describe the **ideal data**: what would be measured, for whom, by whom, and what would still be missing
- And: what was the least clear point in today's lecture?
- Open answers, anonymous, ungraded



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docs.google.com/forms/d/e/1FAIpQLSdJ-sN-UY0lVRH3Mkkj20xz_2E9v7TsZBKIGN1arnVtdgiyfw/viewform

Answer before the next lecture. → Lecture 2: how do we answer a question like this?