

Economic Development of Japan



No.11 The High Growth Era

Topics for Discussion

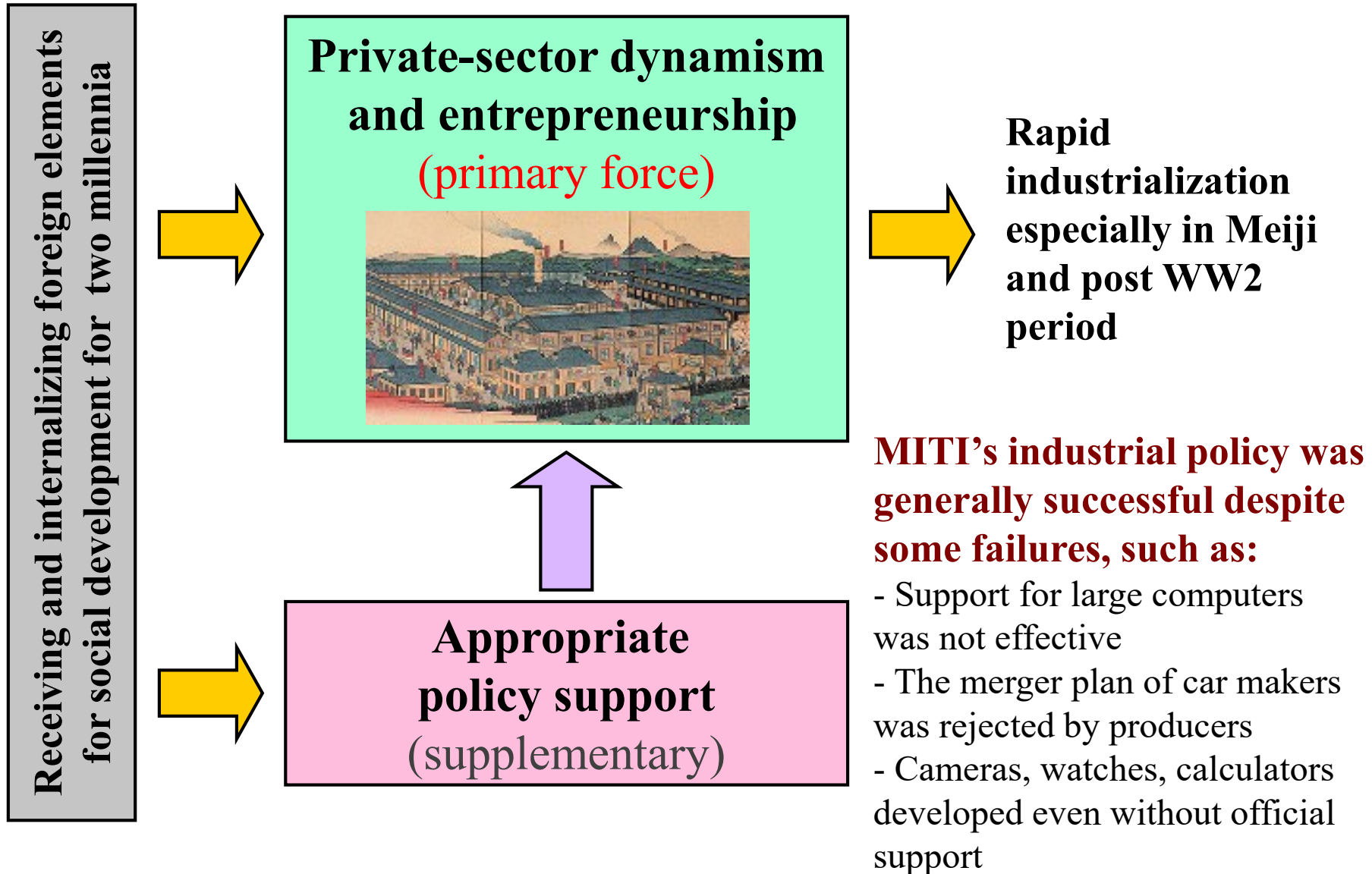
- ❑ How did defeated Japan transit from the recovery phase to high growth? What was the main driver(s) of high growth?
- ❑ How was the international business environment?
- ❑ Give concrete examples of private sector dynamism that generated high growth.
- ❑ What did government do to accelerate industrialization?
- ❑ What social changes and issues did high growth bring? How did Japan cope with them?
- ❑ Did Japan experience a middle income trap on the way to high income? Why or why not?

Note: MITI's industrial policy will be discussed more fully in the next session.

High Growth Era

- ❑ From the mid-1950s to the early 1970s, the Japanese economy grew rapidly. Product quality and competitiveness improved. Rising output and income, and strong investment and consumption, reinforced each other. This was partly a rebound from war damage and partly a result of strong private dynamism supplemented by (mostly) appropriate policies. Macroeconomic and global economic conditions were also favorable.
- ❑ Heavy, chemical and high-tech industries advanced greatly. Automobile and electronics giants such as Toyota, Honda, Panasonic and Sony expanded or newly emerged. Kaizen was practiced widely to improve factory efficiency.
- ❑ Government provided support and incentives for rationalization, SME development, priority sectors, meeting global competition, restructuring sunset industries, regional planning, etc.
- ❑ High growth and rising income accelerated standardization and westernization of lifestyle, rural-urban migration and the formation of middle mass. It also caused environmental damage, urban congestion, housing shortage and traffic problems. These negative aspects were dealt with only toward the end of the high growth era.

Japan's economic growth was driven primarily by private dynamism while policy was also helpful



Postwar High Growth

Mid 1950s to early 1970s

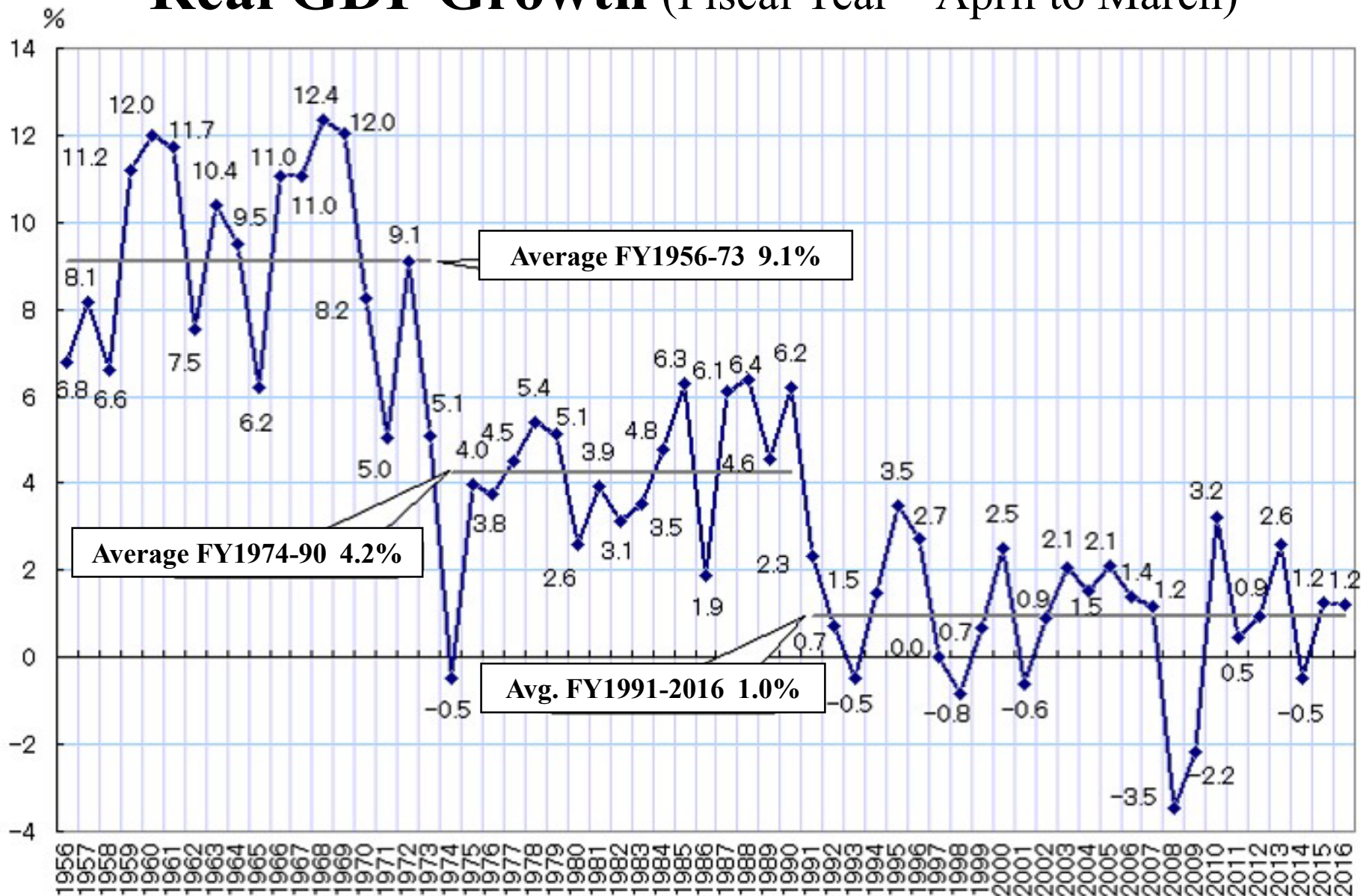
Favorable global conditions for Japan's postwar catch-up

- Pax Americana: US-led global economic growth and stability
- Trade expansion and liberalization under fixed exchange rates

Combined private and public effort for industrialization

- Rationalization (1950s)—adoption of new technology and capital investment for productivity and cost reduction
- Quality and productivity movement (kaizen)
- MITI and industrial policy
- The labor market and SMEs
- Rising living standards and consumption boom
- Coping with negative aspects of high growth—environmental damage, urban congestion, traffic problems, housing shortage, etc.

Real GDP Growth (Fiscal Year – April to March)

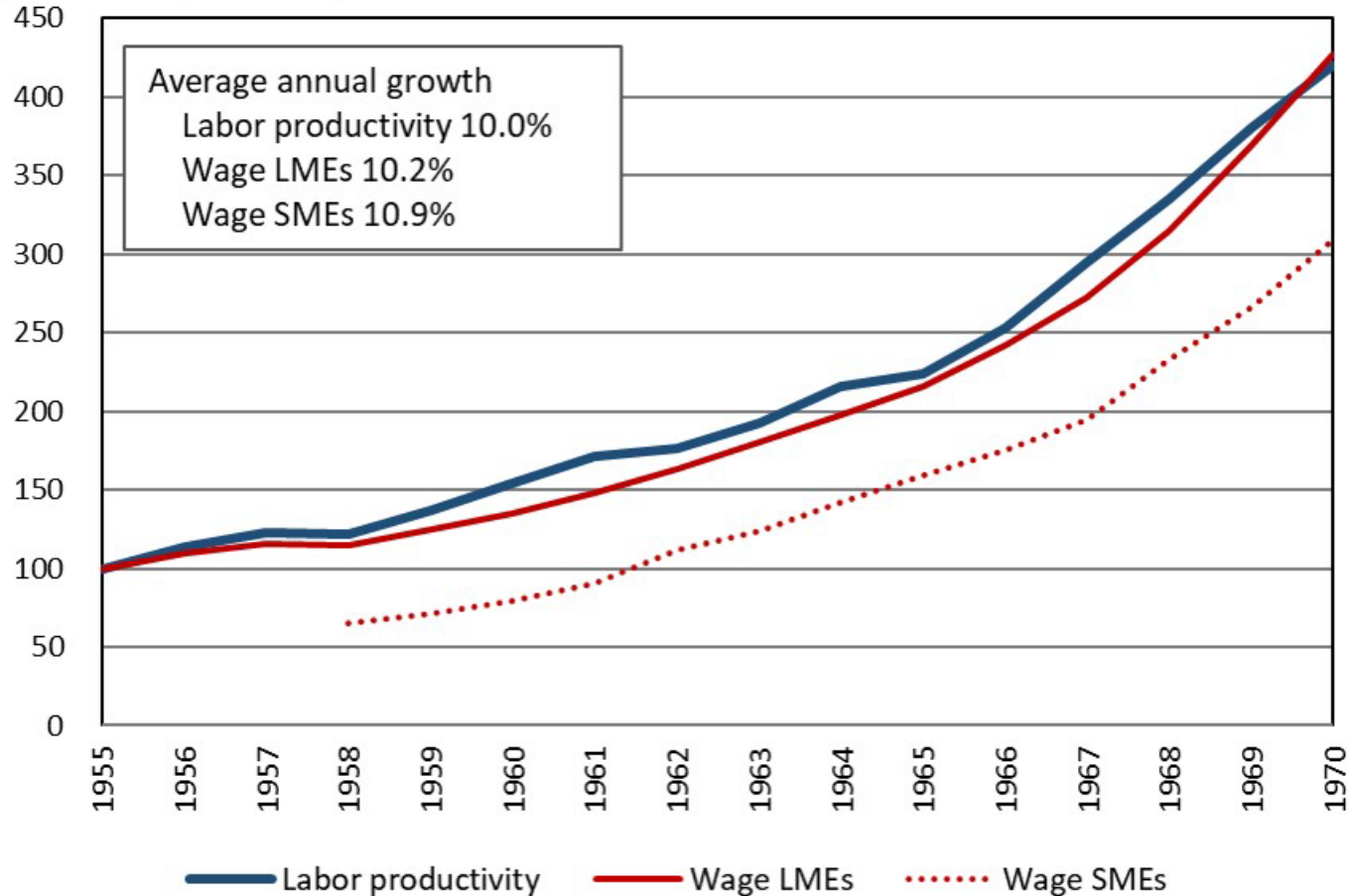


Source: The System of National Accounts website, Cabinet Office.

Manufacturing Labor Productivity and Wage (Level)

Labor productivity and wage grew very fast and in parallel at about 10%/year. Workers' living greatly improved and manufacturing remained competitive.

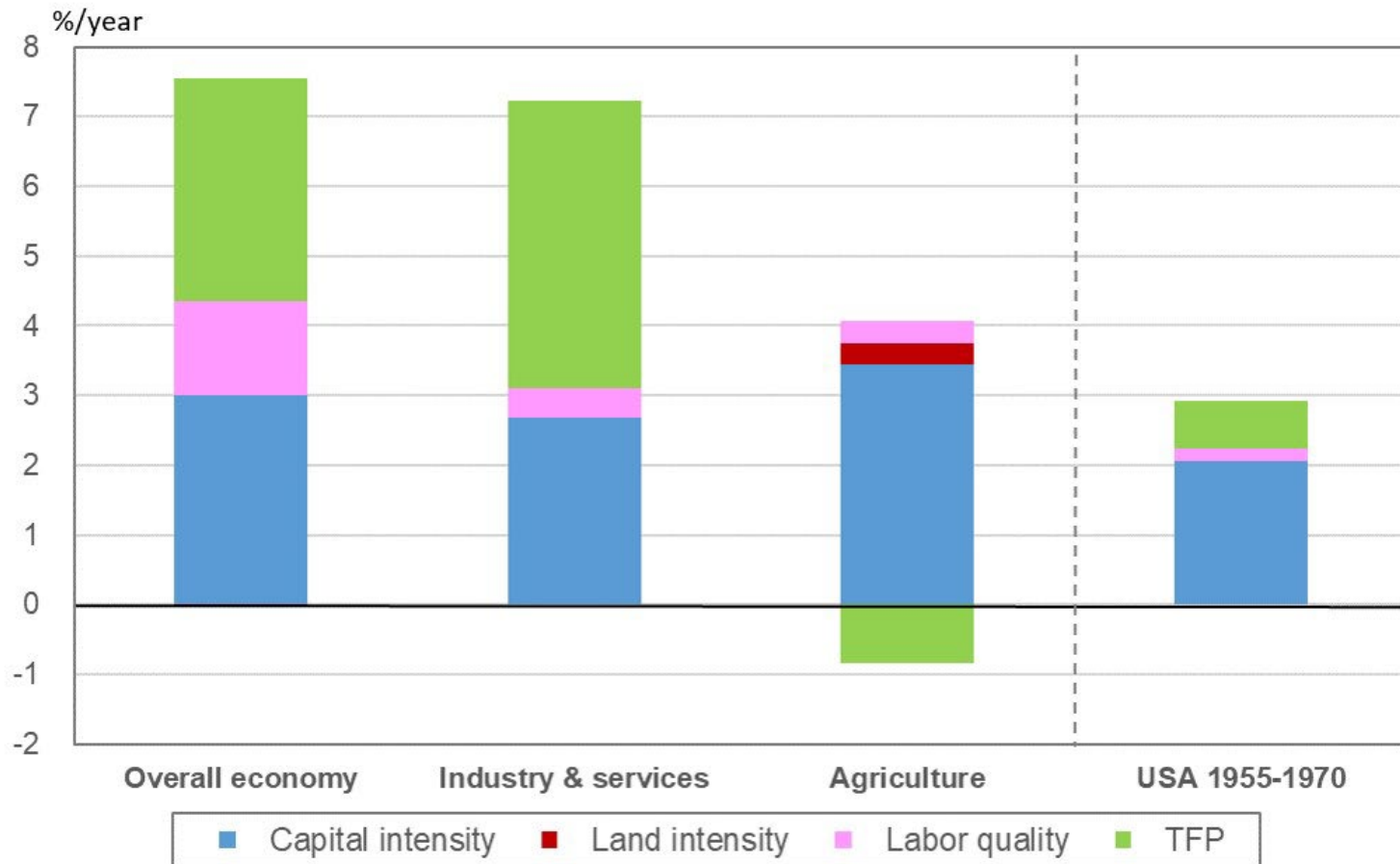
(Index, base year 1955)



SME: establishment with 5-29 workers
LME: establishment with 30+ workers

Decomposition of Labor Productivity Growth: Japan and US, 1955-1970

Labor productivity grew rapidly, thanks mainly to strong total factor productivity (TFP) growth followed by capital intensity (aggressive investment).

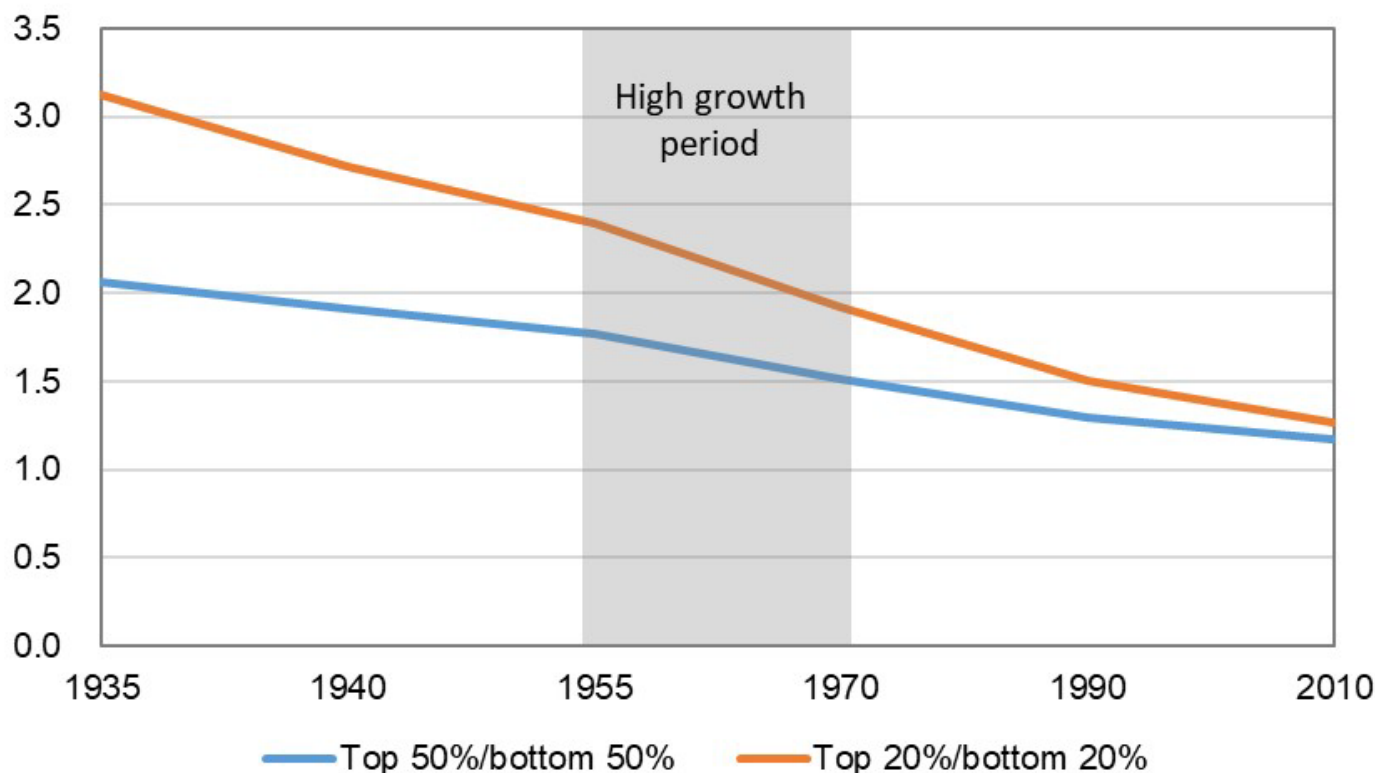


Source: Fukao Kyoji, *Japanese Growth and Stagnation from the Perspective of World Economic History 1868-2018*, Iwanami Shoten, 2020 (pp.180-181).

Regional Productivity Gap Continued to Narrow

During and after WW2, labor productivity became more uniform across prefectures. This tendency accelerated in the high growth period.

Prefectural Gap in Labor Productivity
(Ratio of high group/low group)



Consumption Boom—Cause or Effect?

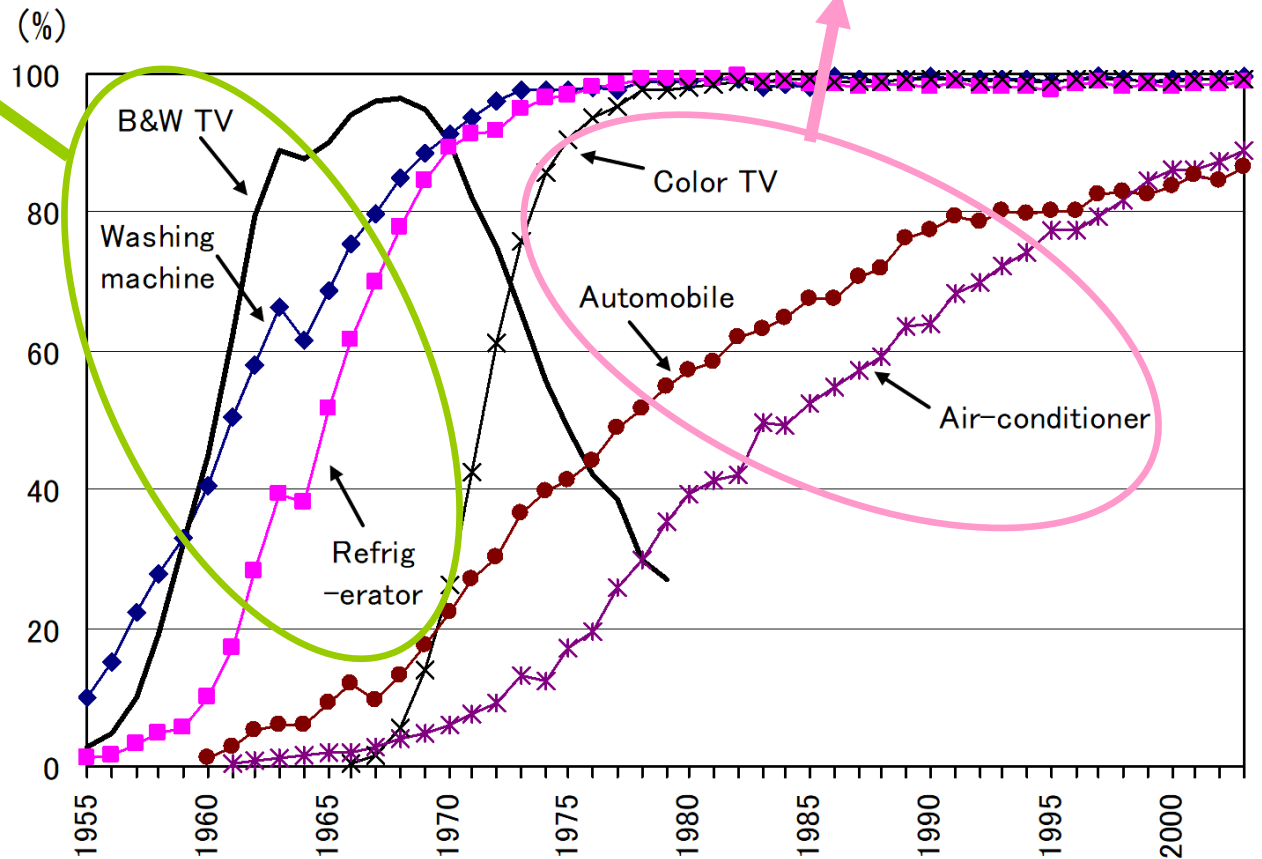


Three Divine Devices (late 1950s)

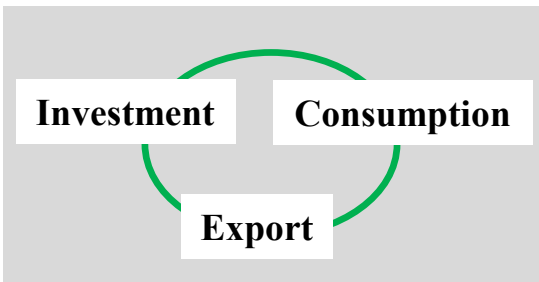


Three C's (1960s)

Household Ownership Ratios of Consumer Durables



Virtuous Circle



Skipping the Middle Income Trap

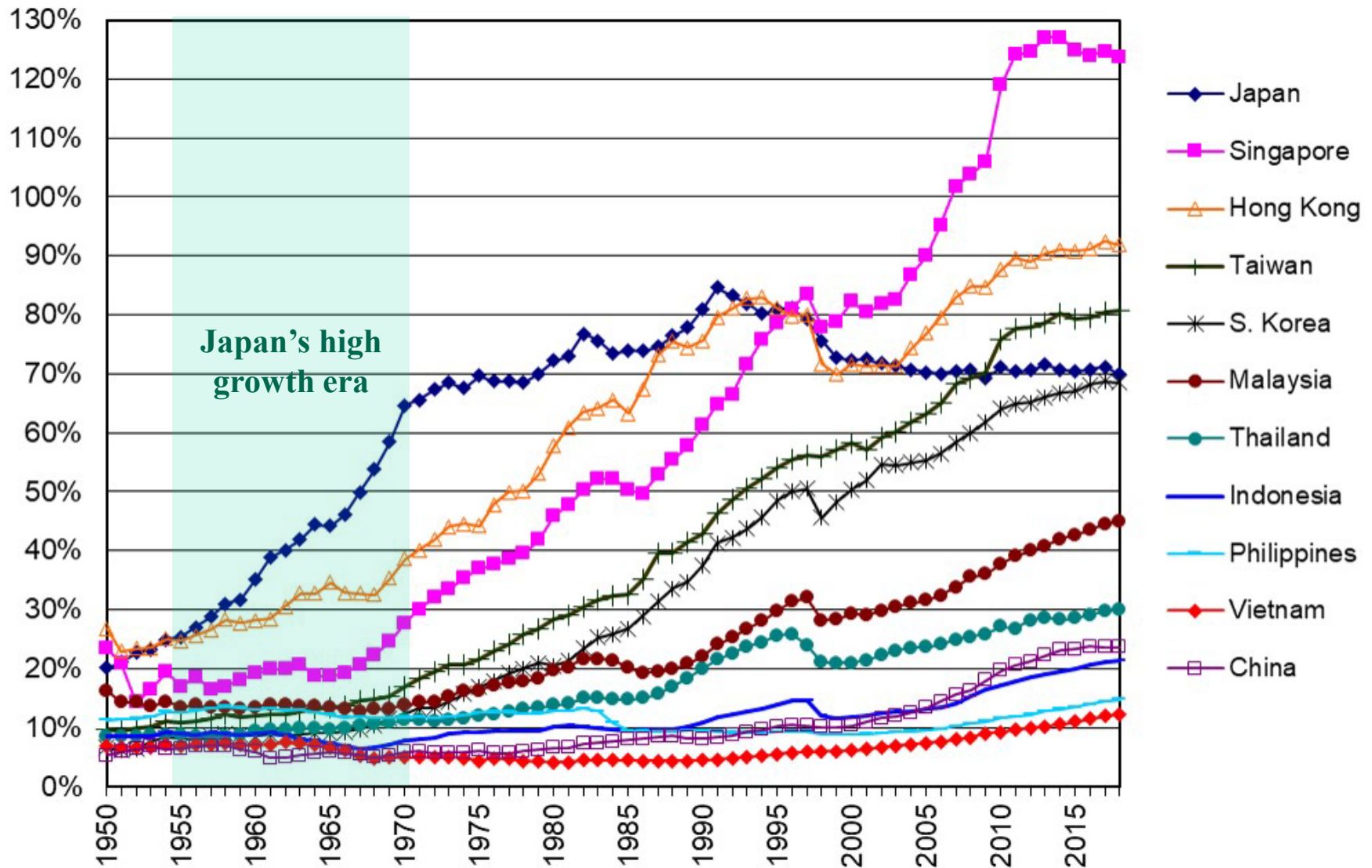
Japan did not fall into a middle income trap and rose to high income by around 1970 (Korea, Taiwan and Singapore also had no MIT).

- **Productivity growth and innovation** were strong and institutionalized (private dynamism with policy support)
- Coping effectively with **negative aspects** of growth (belatedly)
- **Macroeconomic stability** in the process of re-integration

East Asia today—some countries are worried about MITs

- **China:** “New Normal” (growth slowdown); lack of political reform; social policies to cope with growth problems (income gaps, corruption, pollution, property bubbles...)
- **Malaysia:** achieved upper middle income with reasonably good policy, but indigenous entrepreneurship remains weak
- **Thailand:** achieved upper middle income but needs innovation
- **Vietnam:** achieved lower middle income, but policy is weak and private dynamism is less than spectacular

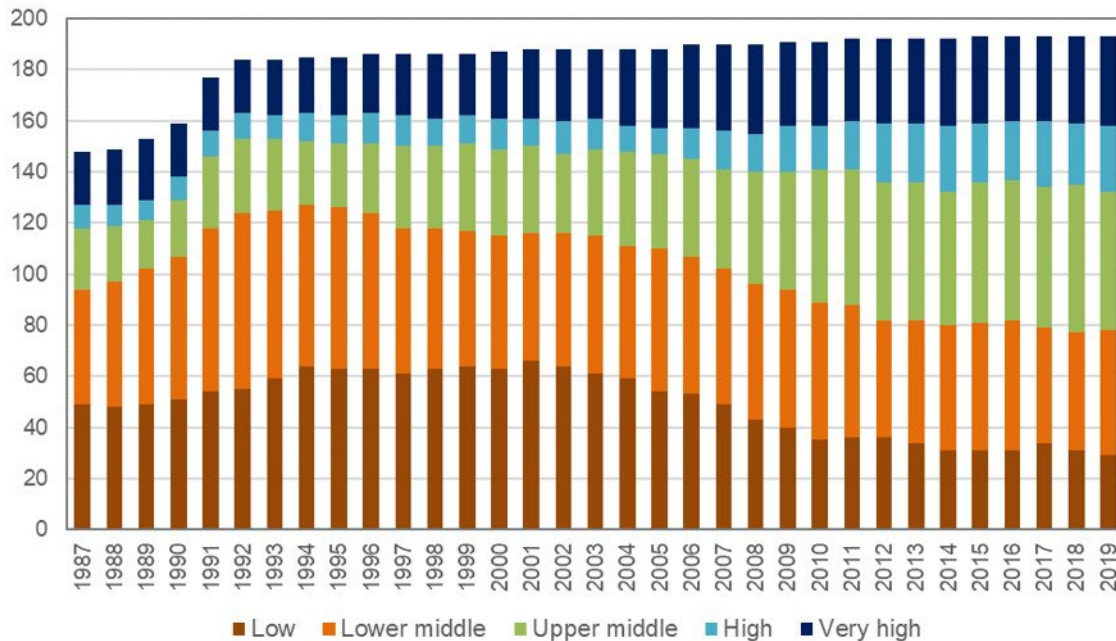
Per Capita Real GDP (1950-2018) Relative to USA



Source: compiled from Maddison Project Database, accessed on April 8, 2021.

Number of economies

World Bank Income Classification (Count)



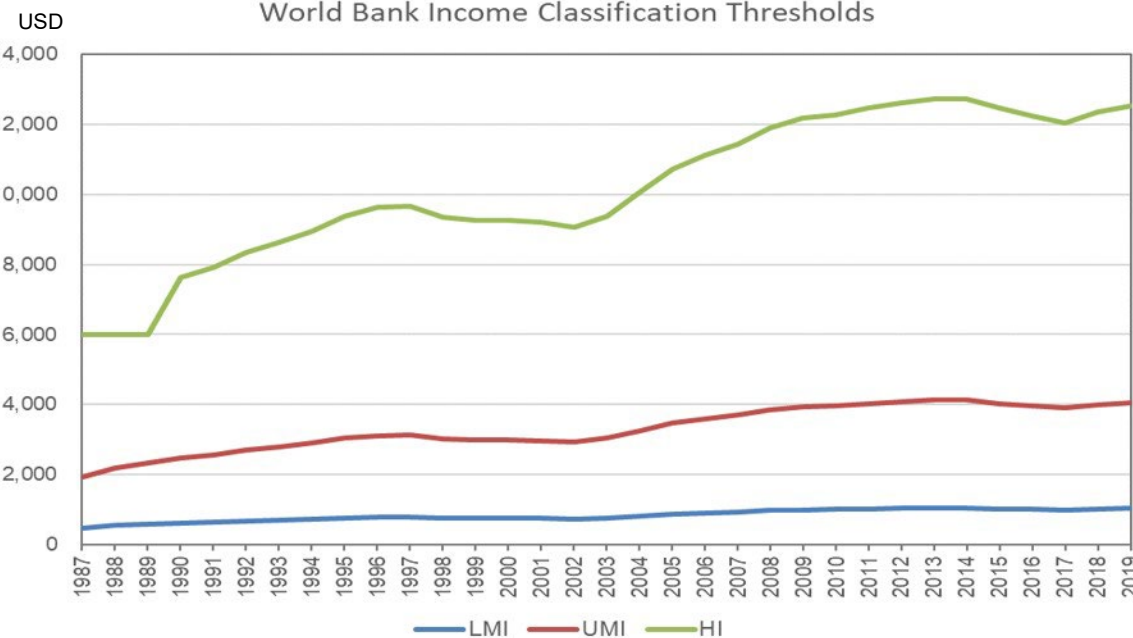
World Bank Income Classification

Many economies are graduating from low income, and many others are joining (upper) middle income. However, the very high income group is relatively stable in recent years.

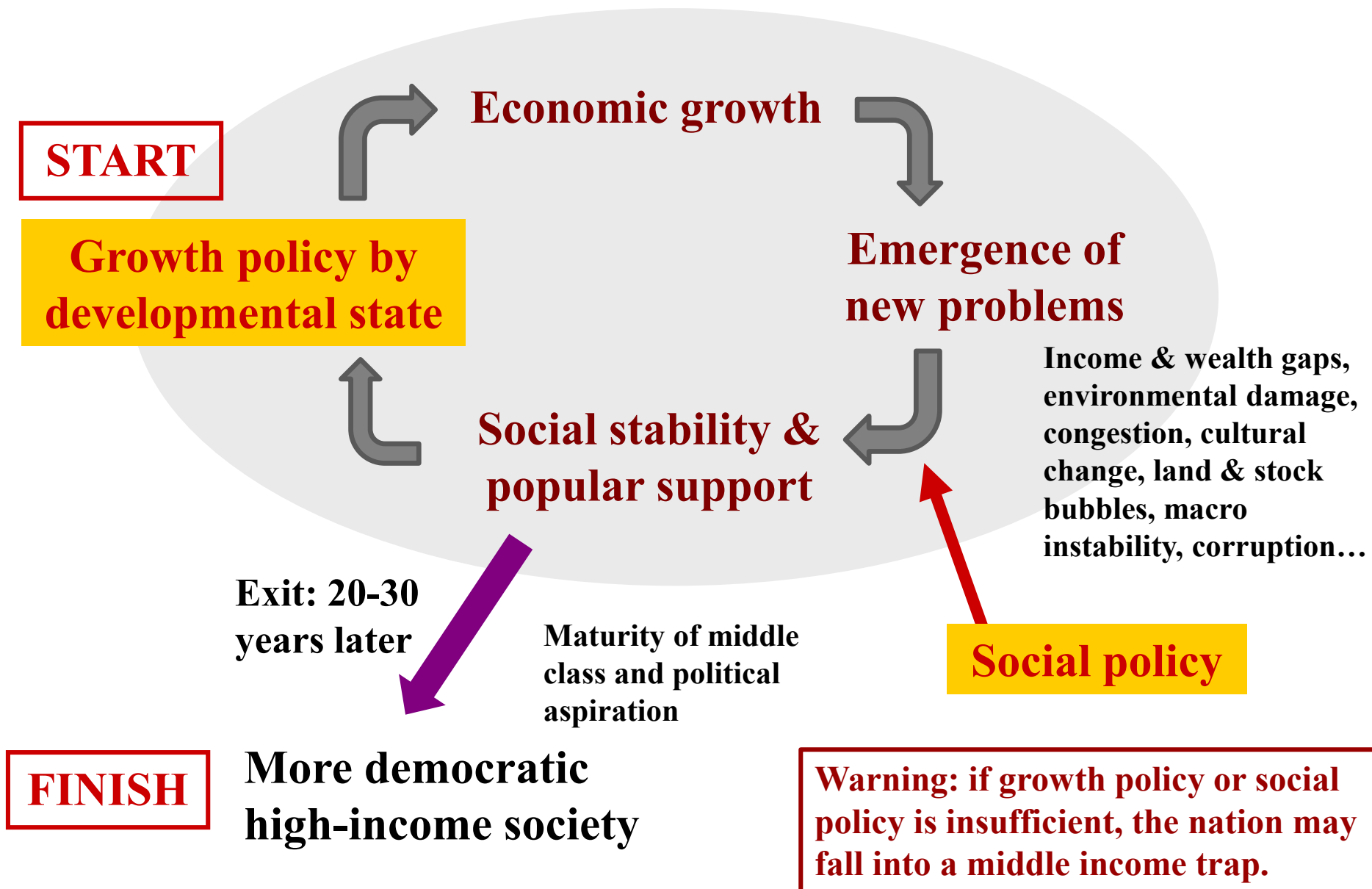
Source: World Bank, *World Development Indicators*, based on GNI per capita, Atlas method.

Note: UN members only. “Very high” is calculated by author, not a World Bank category. It is countries whose income is twice the WB high income threshold (about \$25,000 in recent years) or higher.

World Bank Income Classification Thresholds



Growth and Social Policy: East Asia's Successful Pattern



Rationalization (合理化)

- ❑ Rationalization means cost reduction and raising competitiveness by introducing new equipment which embodies new technology. The concept existed even before WW2 but became a hot issue in the late 1950s.
- ❑ Korean War inflation pushed up Japanese costs, especially those of coal and steel. Competitiveness was to be regained by investing in new technology financed by private profits generated during the Korean War boom. Any industry that failed to do this had to exit (coal).
- ❑ Government supported rationalization with tax incentives and relatively tight macroeconomic policy stance under a fixed exchange rate (to force rationalization instead of lobbying for protection or devaluation).
- ❑ However, trade unions suspected that rationalization was an excuse for laying off workers. They often resisted and staged strikes. Government and management argued that productivity gain was good for everyone and its fruits would be shared by all, including workers.



Anti-rationalization negotiation, 1955



Anti-rationalization rally, 1961

Examples of Rationalization

Product	Cost reduction	Method
Pig iron	- 4%	Pre-treatment of materials
Steel making	-10%	Large-scale open hearth furnace using oxygen
Flat steel	- 27%	Comparison of continuous casting and traditional equipment
Steel pipe	- 30%	Comparison of Fretz-Moon method and old seamless pipe making method
Oil refinery	- 15%	Comparison of latest and traditional method
Rayon fiber	- 25%	Comparison of continuous & traditional method
Ammonium sulfate	- 21%	Joint production of urea

Heavy and chemical industries and their products (industrial materials) were the main target of rationalization. Cost reduction was achieved by investing in new technology and/or large-scale production capacity. This in turn improved competitiveness of downstream industries which used these products as inputs.

Sources: *Postwar History of the Steel Industry*; *Industrial Rationalization White Paper*.

Monozukuri Spirit

- *Mono* means “thing” and *zukuri* (or *tsukuri*) means “making.”
- It describes a sincere attitude in—even obsession with—manufacturing any product with pride, skill and dedication. Production is not a means of making money but a *way* of pursuing innovation, perfection and customer satisfaction, even disregarding the firm’s short-term profit.
- Many of Japan’s excellent manufacturing firms were founded by engineers full of monozukuri spirit. With greasy hands, they were determined to create good products that would conquer the world.



Kiichiro Toyoda
(Toyota car production)
1894-1952



Konosuke Matsushita
(Panasonic founder)
1894-1989



Soichiro Honda
(Honda founder)
1906-1991



Akio Morita (Sony’s
co-founder)
1921-1999

MITI's Industrial Policy

(More Next Week)

Former MITI building



- ❑ The Ministry of International Trade and Industry (MITI) was created in 1949 by merging three ministries and agencies. In 2001, it was renamed to the Ministry of Economy, Trade and Industry (METI).
- ❑ Scholars still debate the role of MITI in Japan's industrial catch-up. Some say it was the powerful command post of industries while others deny any positive role of MITI. Most argue that MITI was only supplementing the market mechanism—and did so effectively.
- ❑ MITI had both successes and failures. In the car industry, trade liberalization and component industry promotion (stick and carrot) were synchronized. However, MITI's attempt to merge Japanese carmakers to cope with American giants was rejected by producers.
- ❑ Many of MITI policies were not unique—tax incentives, subsidies, low-interest policy loans, support for technology and R&D, SME promotion, regulating entry and investment, infrastructure, industrial zones, regional planning, etc. But MITI implemented them more effectively than most other countries.

Kaizen: Habit of Daily Improvement

- ❑ Kaizen is eliminating *muda* (waste—any motion, time, materials, reworking, etc. that does not add value) without spending money on equipment, unlike rationalization which costs money.
- ❑ Kaizen aims at a mindset change of the entire firm by constant and endless effort, team discussion and visualization of procedure and results. It starts with such instructions as remove all unnecessary things, set tools and materials in good visibility, clean the factory and toilets, etc. These sound simple but are actually difficult to sustain.
- ❑ Firms with good kaizen practice are neat and well-organized. Kaizen has the effect of immediately reducing cost and increasing profit. When basic is learned, more advanced kaizen methods are available. Even Toyota, the leader of kaizen, is still trying to improve.



Factory with kaizen (India)



Factory without kaizen (Ethiopia)



Colors, lines, boards and pictures are used to organize things and eliminate muda.



Five S

Action checklist for order, efficiency and discipline at workplace



- **Seiri** (sort) - remove unnecessary things
- **Seiton** (straighten) - keep remaining things in good visibility
- **Seiso** (shine) - clean & shine factory, office, toilets, etc.
- **Seiketsu** (systematize) - keep factory & yourself clean, tidy & agreeable to others
- **Shitsuke** (standardize) – each person must own & make habit of all above

- ❑ 5S is translated variously into many languages.
- ❑ Exact meaning may differ from company to company, from expert to expert.
- ❑ First two (2S) or three (3S) are basic, but difficult to sustain.

How Japan Developed Kaizen

Phase 1: Introduction (1950s-)

- American statistical management (W.E. Deming, J.M. Juran) was introduced to improve productivity and quality.
- The private sector drove kaizen. Efficiency promoting NPOs were created by large firms (JPC, JUSE, JMA—see below).
- American style (top-down, statistical) was modified to Japanese style (teamwork, bottom-up, participatory).

Phase 2: National Diffusion (1970s-80s)

- Kaizen spread to all Japan, including SMEs, creating a large number of Quality Control Circles (QCCs). Energy-saving component was added.

Phase 3: Globalization (mid 1980s-)

- Kaizen spread to Asia and the rest of the world, teaching kaizen philosophy and tools to foreign workers and partner companies.
- JICA, JPO, AOTS, JODC, JUSE, JPC, JMA, Kaizen Institute, etc. taught kaizen abroad.

QCC presentation in Singapore



Words of Some Leaders who Taught Kaizen to Japan and the World



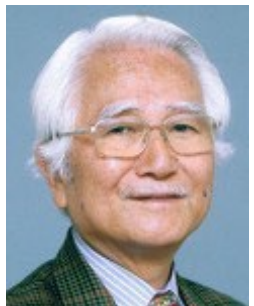
Kohei Goshi (Chairman of Japan Productivity Center who also taught productivity to Singapore) 1900-1989

“The transformation of mankind’s way of thinking [toward quality and productivity] is like a marathon with no finish line.”



Taiichi Ohno (Toyota engineer and founder of Toyota Production System) 1912-1990

“Kaizen means finding the best working method with given equipment. Working method is more important than making or buying equipment.”



Masaaki Imai (Founder of Kaizen Institute, an private consulting firm) 1930-

“The Kaizen philosophy assumes that our way of life—be it our working life, our social life, or our home life—should focus on constant-improvement efforts.”

Core NPOs for Quality and Productivity Improvement

Japan Productivity Center (JPC)

- Established in 1955 as a public-interest foundation; received US support during 1955-61
- Tripartite collaboration: govt., business, and labor unions
- Main role: productivity improvement (leading Productivity Movement) (→ supporting Singapore's Productivity Movement under JICA project)

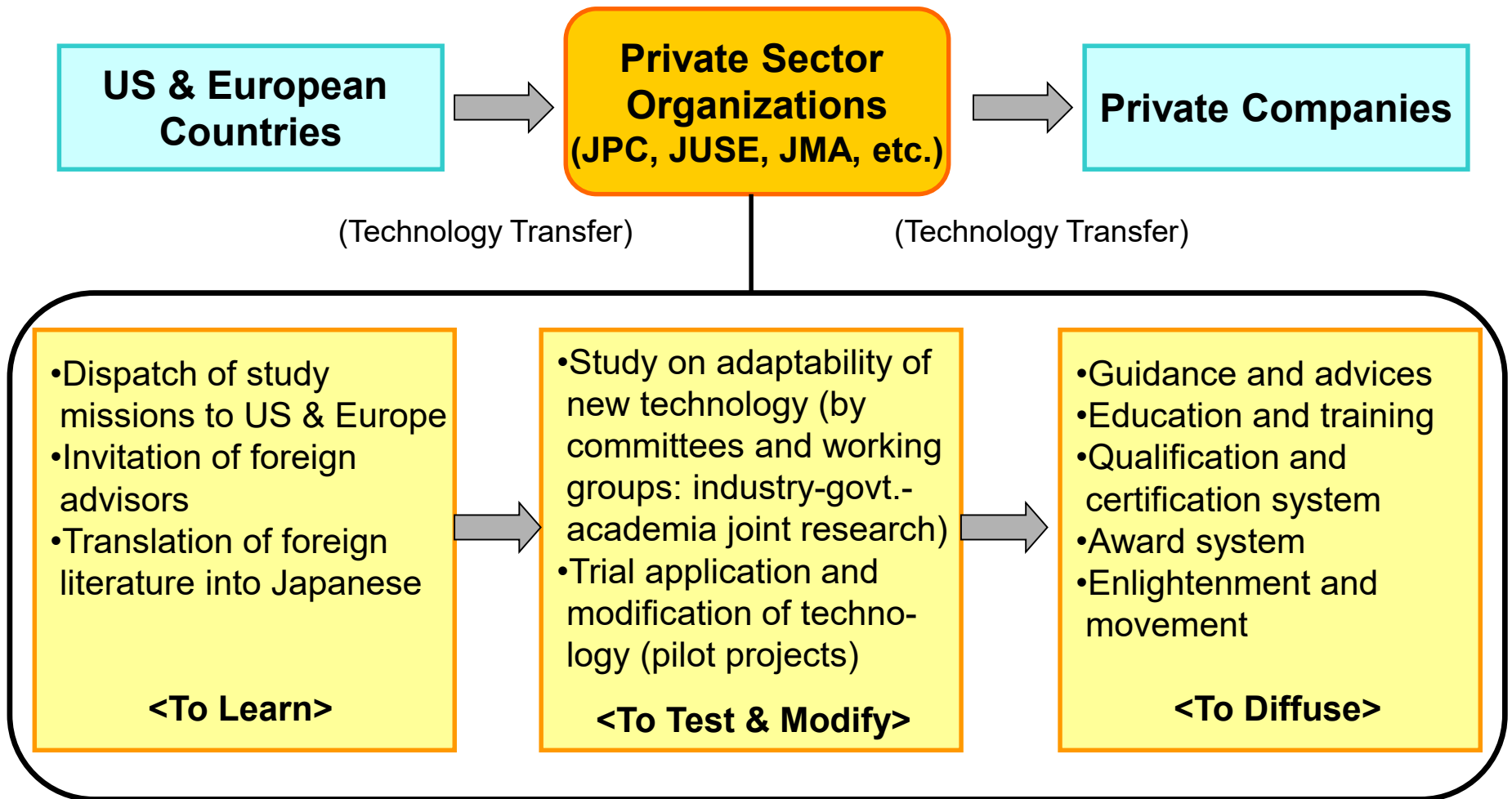
Union of Japanese Scientists and Engineers (JUSE)

- Established in 1946, as an incorporated foundation
- Main role: quality improvement ("Deming Prize", QC Circles) (→ supporting Burkina Faso (QCC) under WB/Japan PHRD fund project)

Japan Management Association (JMA)

- Established in 1942, as an incorporated association
- Main role: *noritsu* (efficiency) improvement, management innovation

Role of NPOs in the Introduction, Development and Diffusion of Foreign Technologies



Source: Adapted from Tsuyoshi Kikuchi "The Roles of Private Organizations in the Introduction, Development and Diffusion of Production Management Technology in Japan" (original paper published in the Bulletin of the Graduate School of International Cooperation Studies No. 4, 2011, Takushoku University).

Overseas Missions Dispatched by JPC (1955-60)

- A large number of study missions were sent abroad and their findings were disseminated widely in Japan.
- Different types of missions were organized for top management, industry groups, special professions, labor unions, SMEs, etc.

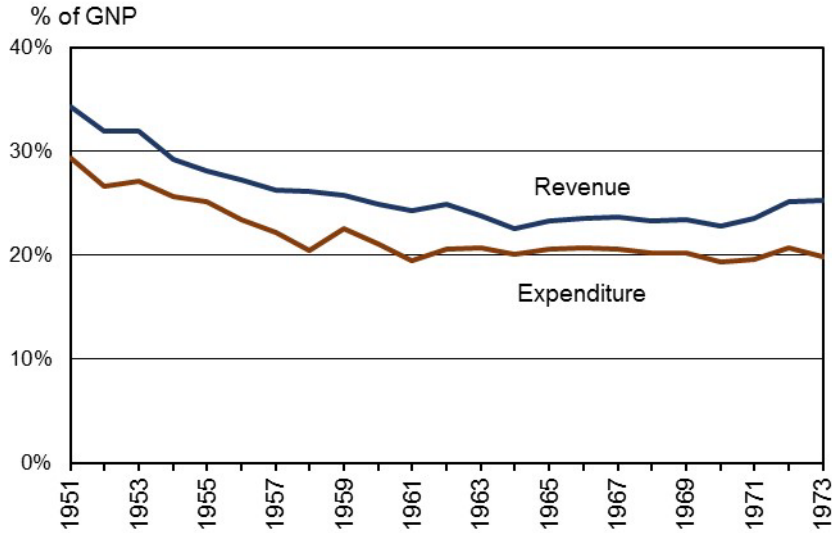
Fiscal year	Missions	Participants	Of which SMEs		Mission briefings	Participants of mission briefings
			Missions	Participants		
1955	15	174	5	58	33	10,020
1956	27	307	0	0	130	33,960
1957	43	430	4	46	180	27,420
1958	62	652	12	141	98	12,177
1959	75	749	13	137	74	7,894
1960	84	821	15	154	11	1,740
Total	306	3,133	49	536	526	93,211

Source: *History of Trade and Industry*, Vol. 6, Edited by the Ministry of Trade and Industry (original data come from various reports of the Japan Productivity Center).

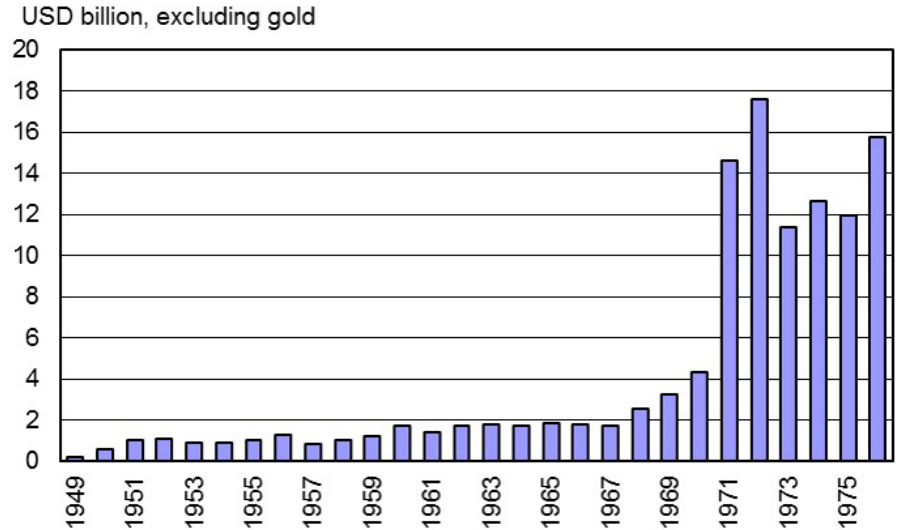
Macroeconomic Management in the High Growth Era

- ❑ Government was small and central government budget was in surplus. The size of government fell from 30-35 percent to 20-25% of GDP and stabilized there. No government bonds were issued until 1965. After that, bonds were issued for the purpose of financing public investment (not deficit financing).
- ❑ In the late 1950s to 1960s, Japan's current account (trade balance plus service and remittance flows) was more often in deficit than in surplus. It ranged from -2 percent to +1 percent of GDP.
- ❑ The exchange rate was fixed at \$1=360 yen from 1949 to 1971. The world was on the US-centered International Monetary System.
- ❑ When a trade deficit emerged, the Bank of Japan tightened money and raised interest rates to cool domestic demand instead of intervening in the foreign exchange market. As a result, Japan's international reserve remained stable and small (about \$1-2 billion).

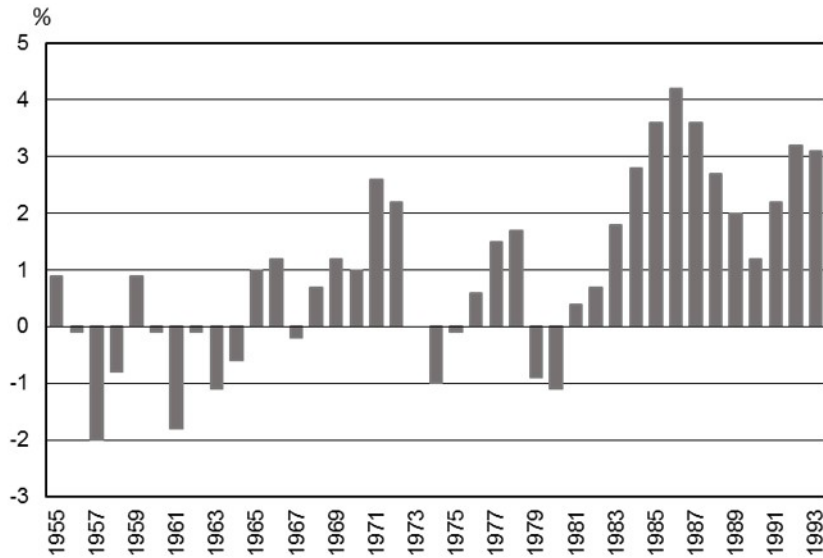
Central Government Budget



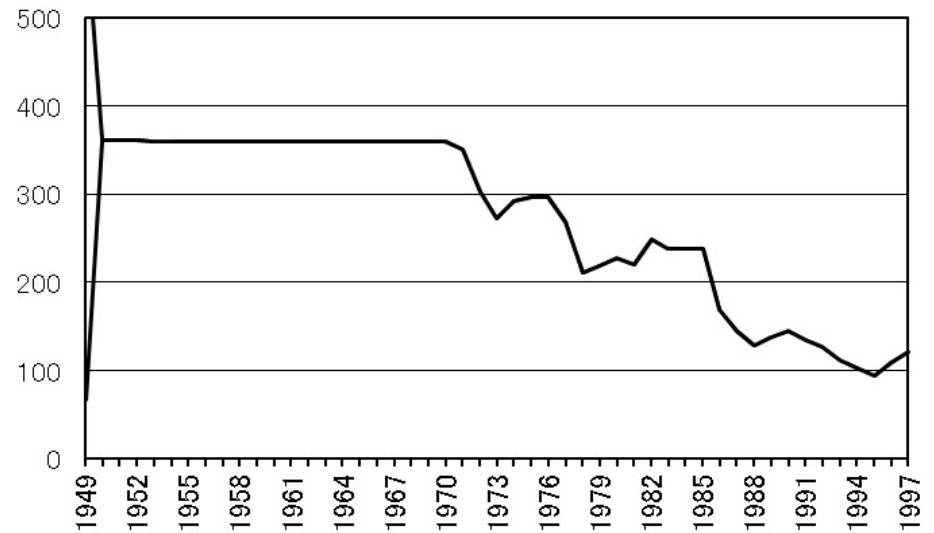
International Reserves



Current Account



Yen/Dollar Exchange Rate

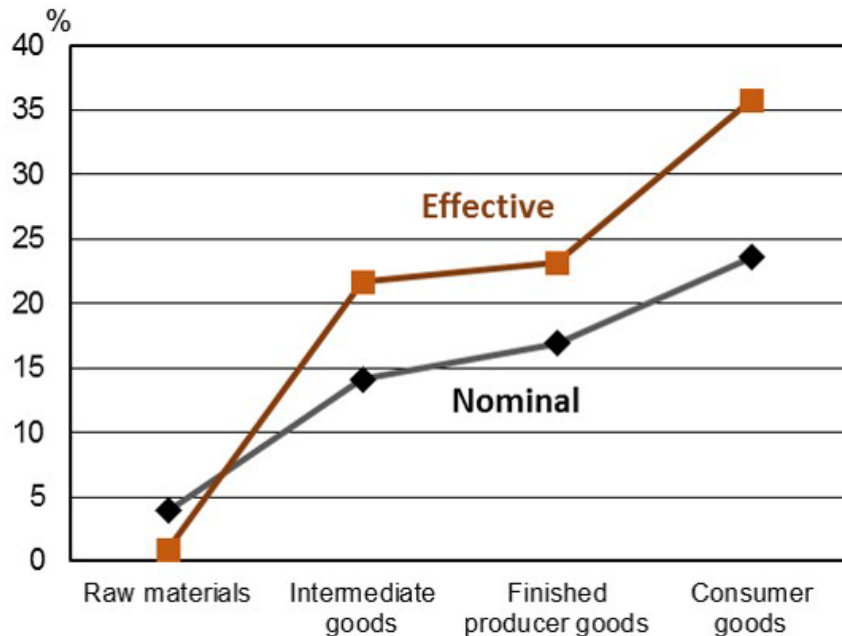


Note: multiple exchange rates were unified in 1949 as part of Dodge Line Stabilization policy.

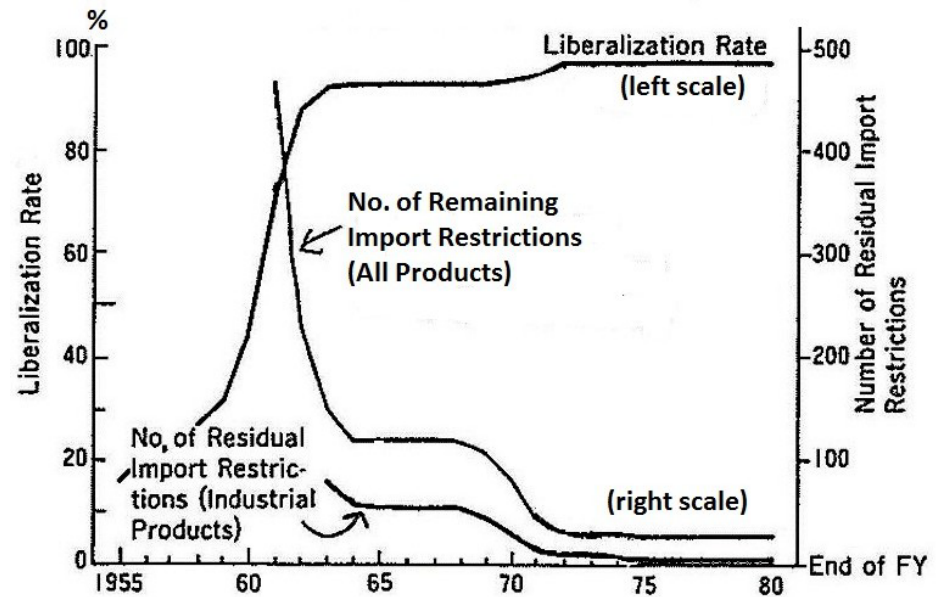
Reintegration into the World Economy

- ❑ Japan regained independence in 1951 (San Francisco Peace Treaty, effective in 1952).
- ❑ Japan joined the International Monetary Fund and the World Bank in 1952. It soon became the World Bank's second largest borrower after India. World Bank loans were less than 1 percent of Japan's investment need, and were used exclusively for infrastructure.
- ❑ Japan was admitted to the General Agreement on Tariffs and Trade (GATT, the predecessor of WTO) in 1955. However, many members refused to grant full GATT rights to Japan for fear of cheap exports. This situation continued until around 1960 when Japan committed to serious trade liberalization.
- ❑ Japan joined the United Nations in 1956.
- ❑ Japan became a member of the OECD, the club of advanced nations, in 1964. The Tokyo Olympics was also held in 1964.
- ❑ The world economy in the 1950s and 60s enjoyed high growth, low inflation and strong trade expansion under exchange rate stability. The US provided a large and growing market for Japan. Trade barriers were globally and gradually lowered under GATT trade negotiations.

Cascading Tariff Structure (1968)



Quantitative Import Restrictions

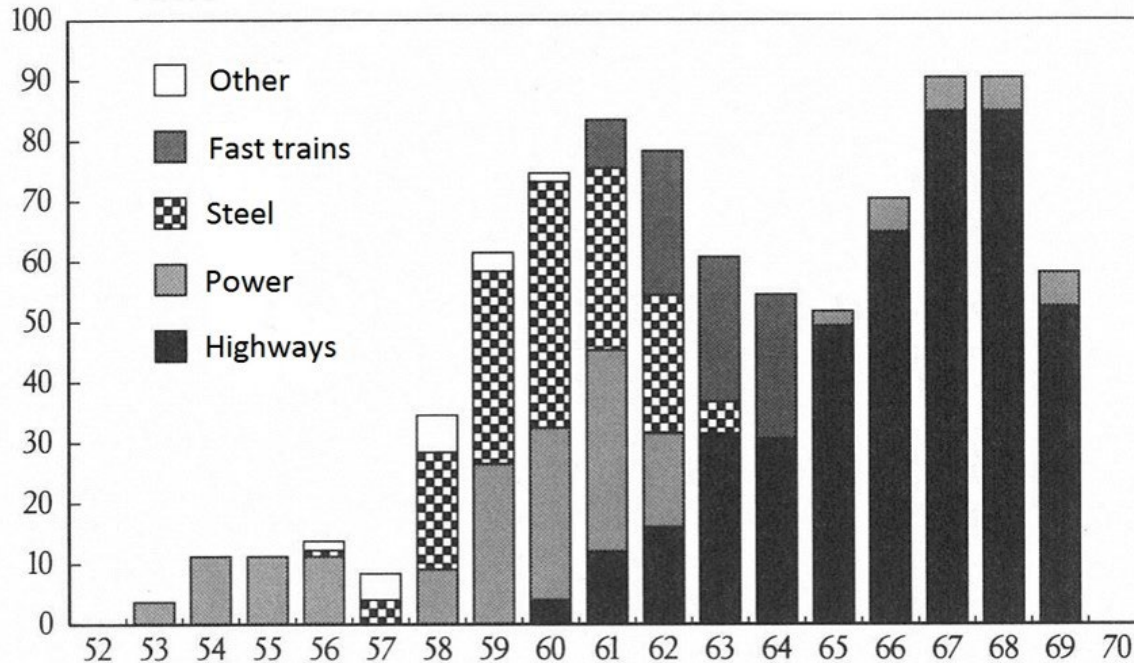


- ❑ In the 1960s, Japan liberalized trade gradually and in steps. Since internationally committed liberalization plans were non-negotiable, producers had to make efforts in improving efficiency rather than lobbying for an extension of protection.
- ❑ As tariffs were lowered, policy support was provided according to actual performance of individual firms, such as export, rather than political connection.
- ❑ In the process of trade liberalization, tariffs on finished products were kept higher than those on intermediate inputs, and those on raw materials were near zero. This structure incentivized domestic production of industrial goods and their components.

Note: the effective rate of protection shows the extent to which domestic value creation, rather than total production value (which includes the value of imported inputs), is protected.

Borrowing from the World Bank

(Disbursement in USD million)



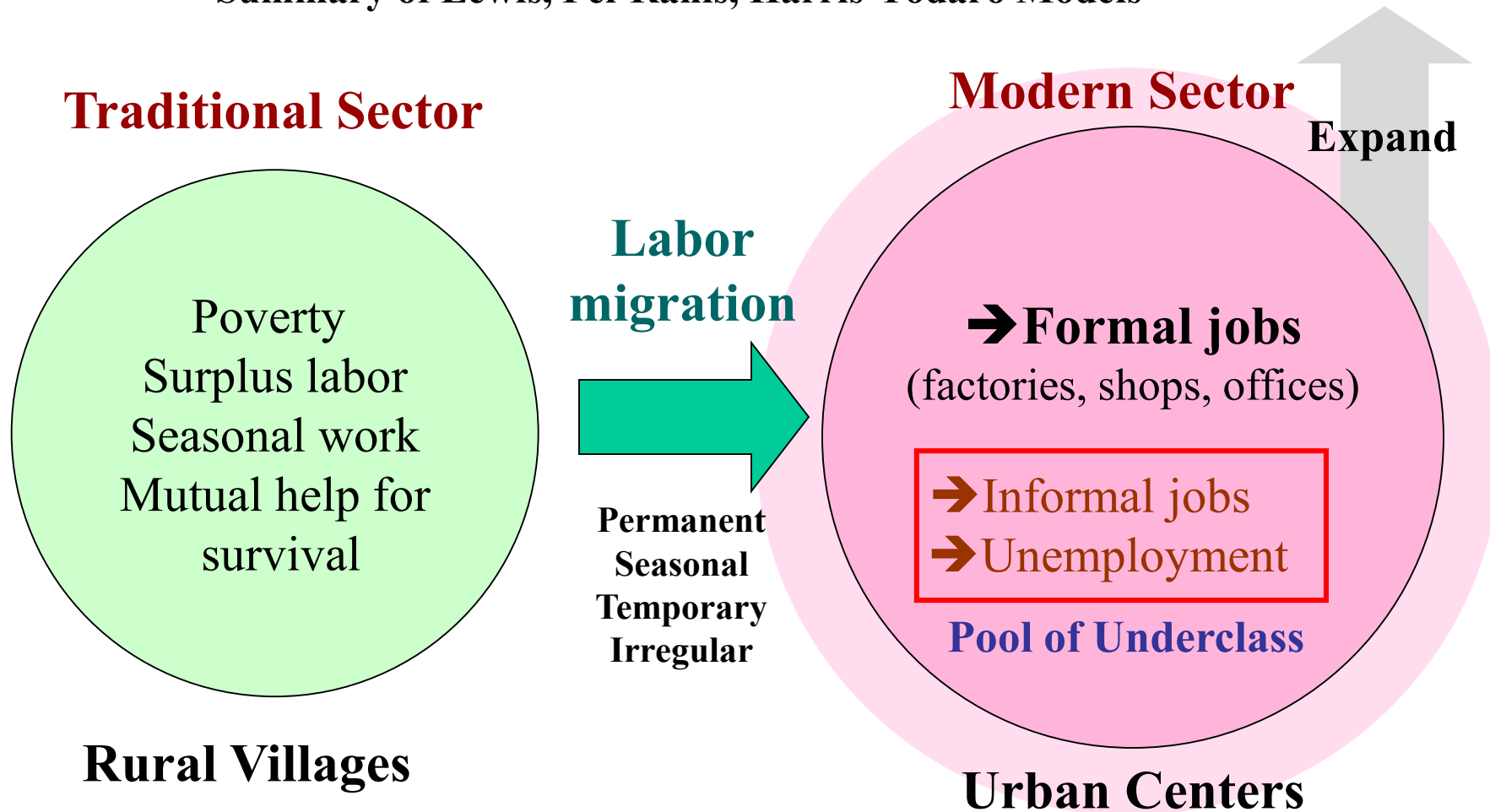
World Bank Loans to Japan (Estimated)

Source: annual disbursement profile estimated by the author from the World Bank's loan contract and settlement tables.

- ❑ Japan borrowed from the World Bank from 1953 to 1969. All WB loans were used for building industrial projects or infrastructure. WB funds were made available to the Japan Development Bank which were on-lent to proposed projects.
- ❑ WB loans covered at most 0.7 percent of total domestic investment demand in any year. Japan financed high growth almost entirely with domestic savings.
- ❑ Japan completed repayment of all WB loans in 1990 and emerged as the largest aid donor in the 1990s.

Internal Labor Migration Model

Summary of Lewis, Fei-Ranis, Harris-Todaro Models

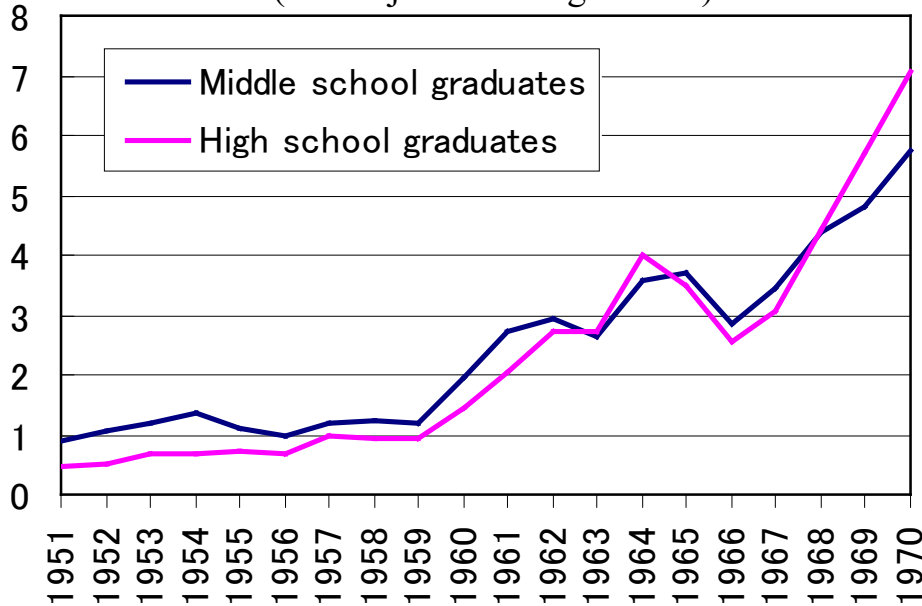


In general, not all migrants can find formal jobs in large cities. Many of them go to the unstable informal sector or join the pool of the unemployed. In Japan's high growth era, however, labor demand in the urban industrial sector was so strong that most workers could find regular jobs.

Labor Surplus Ends around 1960

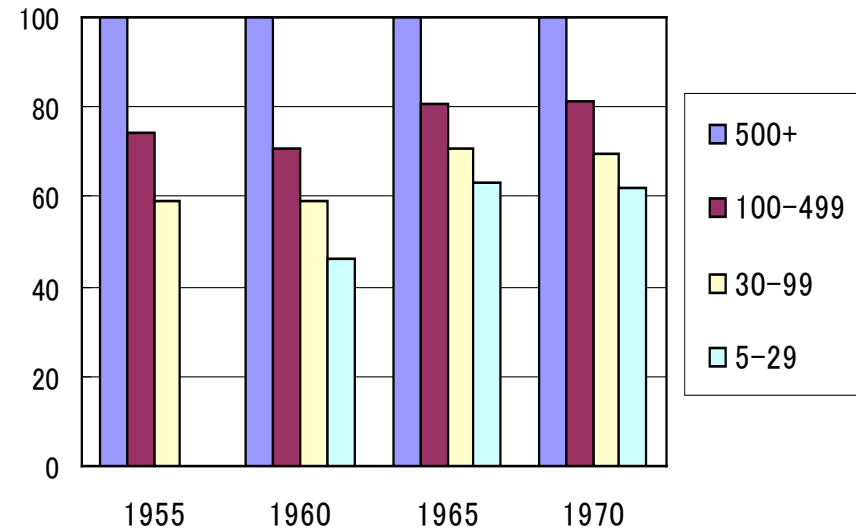
Job offer/job seeker ratio

(Public job matching service)



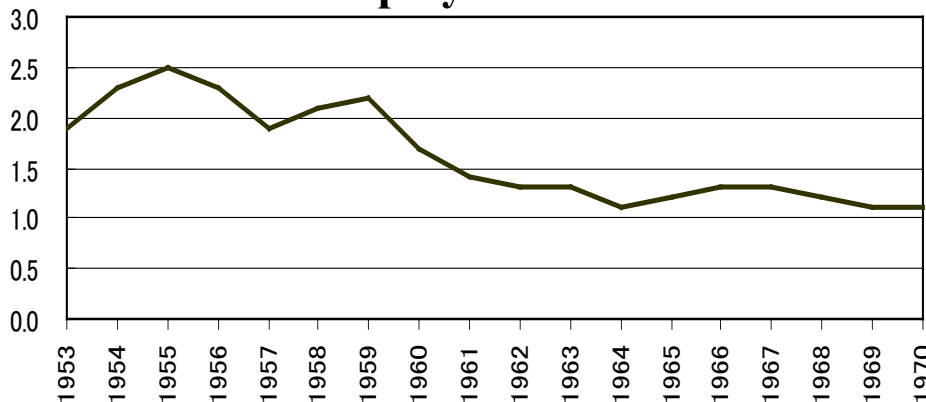
Wage Gap by Employment Size

(Large firms' wage=100)



Unemployment Ratio

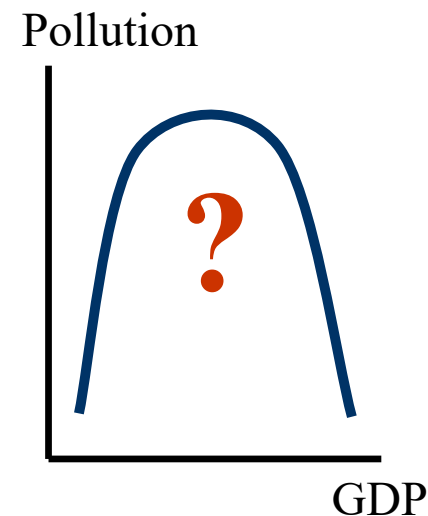
Percent



"Golden Eggs" (highly demanded high school graduates); some migrated to cities, others stayed home.

Environmental Policy Shift

- ❑ High growth caused serious environmental problems—especially air and water pollution by factory emissions.
- ❑ Motorization also caused urban air pollution, noise problems and traffic accidents.
- ❑ Growth orientation was criticized (“Down with GNP!”) leading to anti-pollution lawsuits and civil movements.
- ❑ 1967 Basic Law on Environment; 1971 establishment of the Environment Protection Agency.
- ❑ Japan in its ODA policy now asserts that environment should not be sacrificed for growth, and that the cost of preventing pollution is smaller than the cost of cleaning it up later.
➔ The inverted U curve for environment is neither desirable nor necessary.



Four Major Pollution Lawsuits

Case	Accused	Ruling
Minamata Disease (organic mercury in sea water)	Chisso Corp.	Plaintiff wins in 1973
Itai-itai Disease (cadmium in river water)	Mitsui Kinzoku	Plaintiff wins in 1972
Niigata Minamata Disease (organic mercury in river water)	Showa Denko	Plaintiff wins in 1971
Yokkaichi Asthma (air pollution by petrochemicals)	Mitsubishi Petrochemicals etc.	Plaintiff wins in 1972

Anti-high growth civil movements arose and won all major lawsuits against polluters. This forced government to introduce serious environment policy.

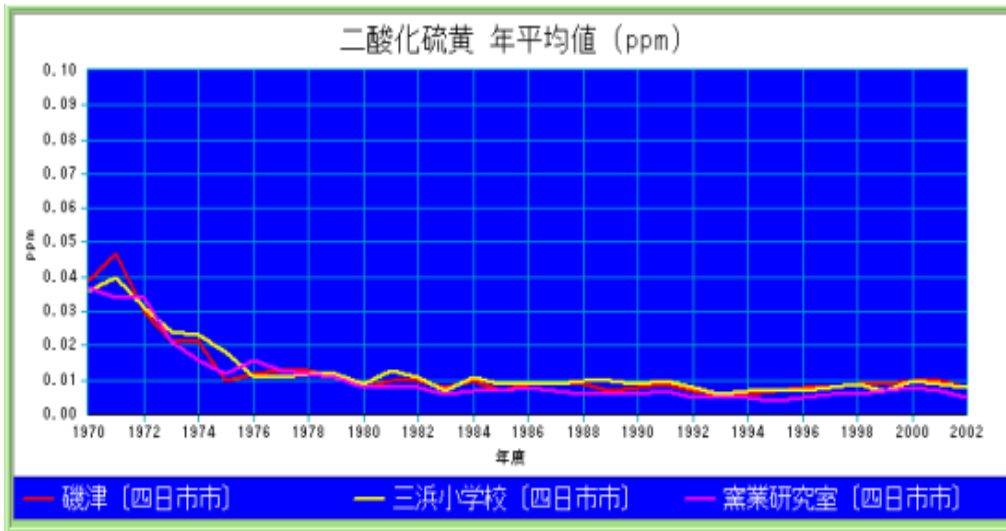


Yokkaichi in 1961

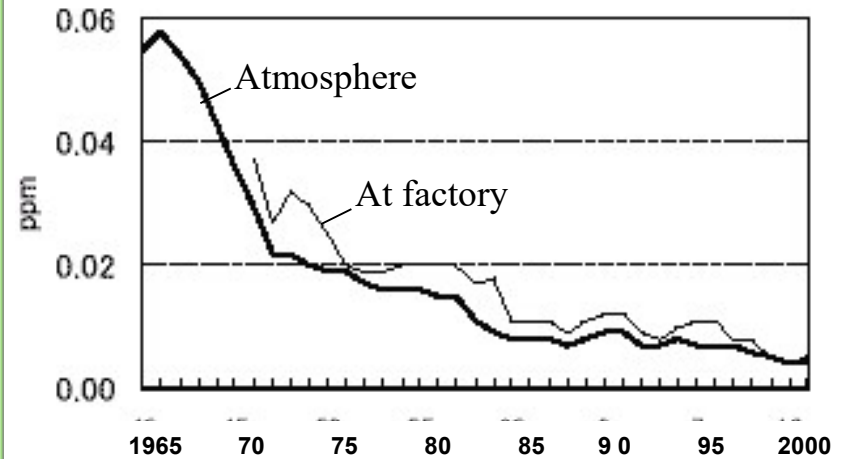


Yokkaichi today

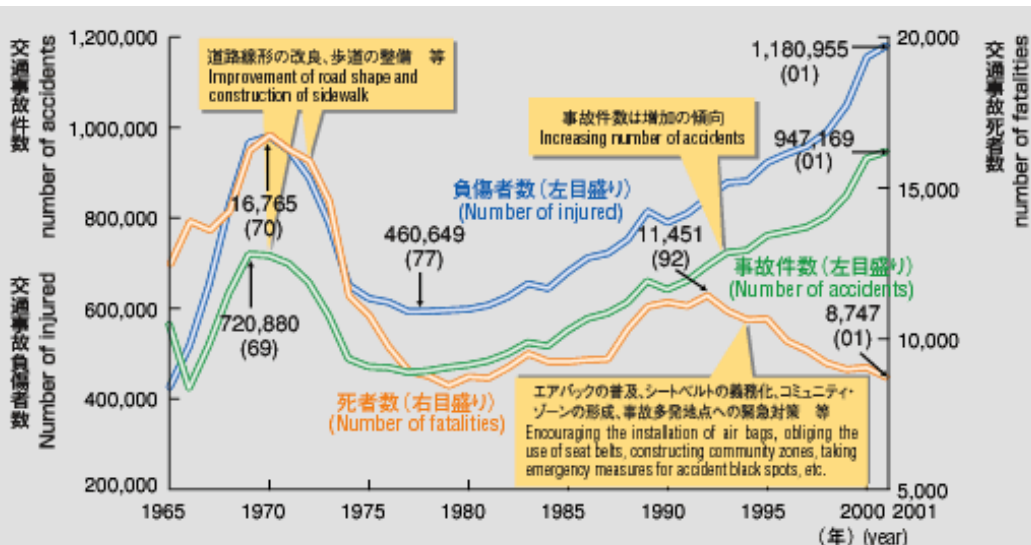
SO₂ Levels in Yokkaichi City



CO Levels in Tokyo

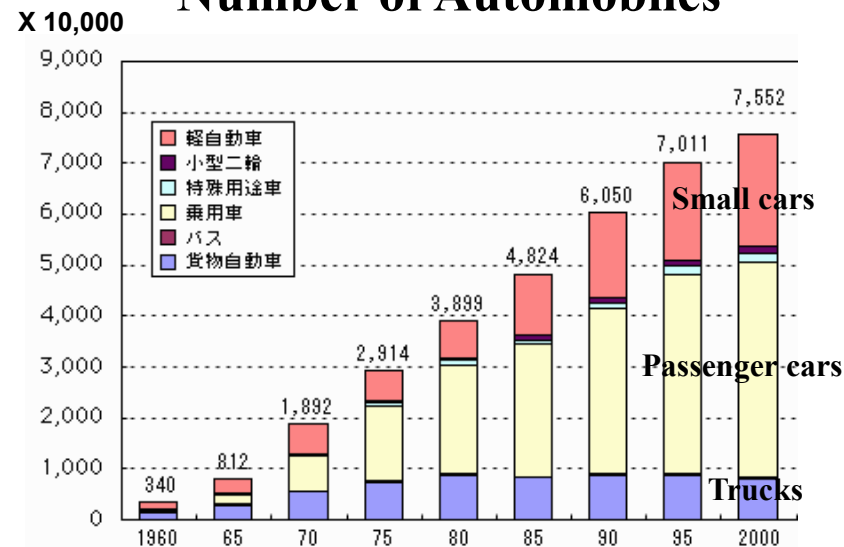


Traffic Accidents, Injuries, Deaths



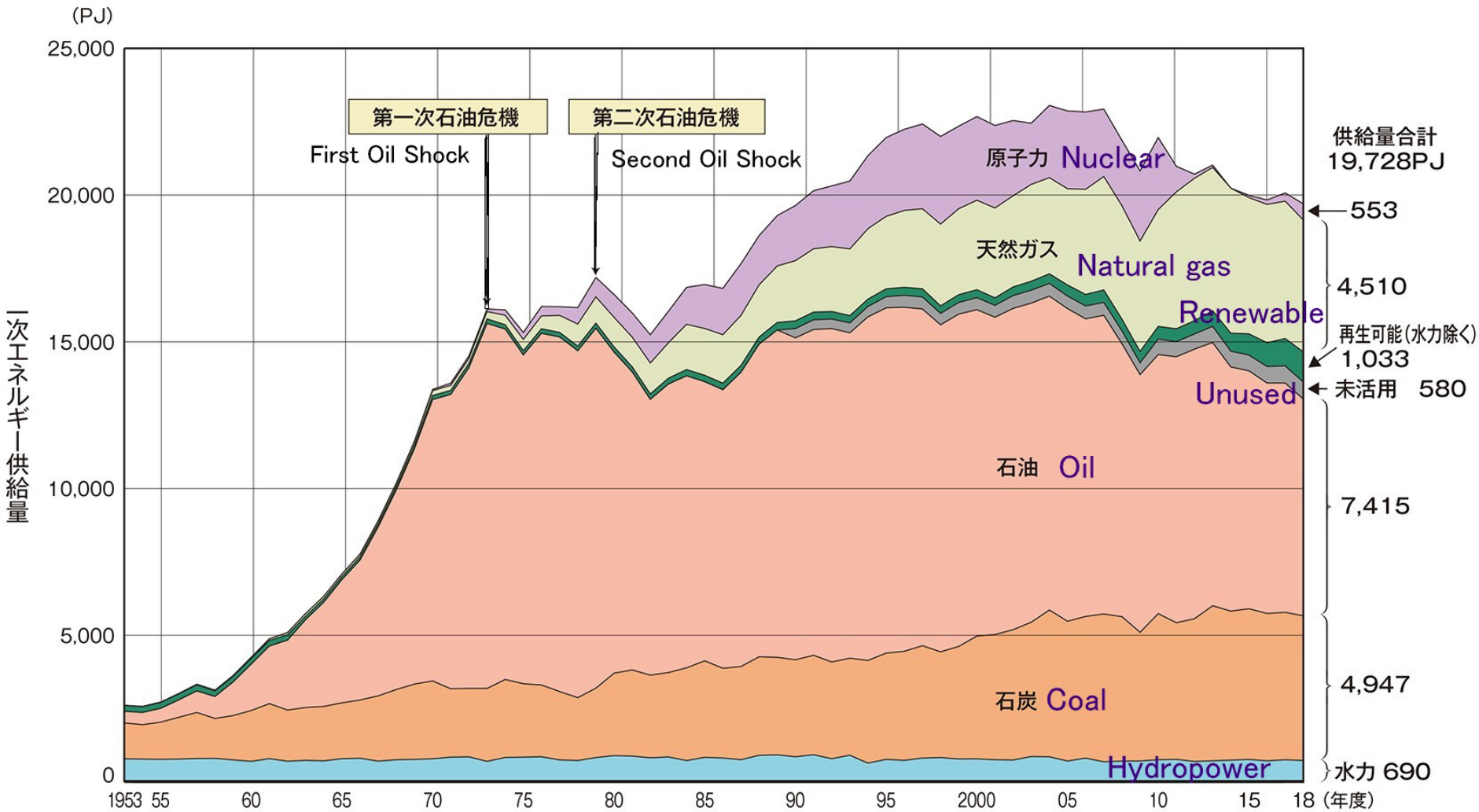
注) 1 警察庁資料による。 [交通安全白書2002年版] 等より作成
 2 1966年以降の件数には、物損事故を含まない。 Reference: White Paper on Traffic Safety in Japan, 2002 version
 3 1971年までは、沖縄県分を含まない。
 Notes: 1. Based on statistics from the National Police Agency
 2. The number of accidents after 1966 does not include property damage
 3. The number of accidents before 1971 does not include those that occurred in Okinawa Prefecture

Number of Automobiles



Cars, accidents & injuries all rose but traffic deaths declined thanks to safety technology and policy.

Primary Energy Sources 1953-2018



(注) 1PJ(=10¹⁵J)は原油約25,800kℓの熱量に相当(PJ:ペタジュール)
 「総合エネルギー統計」は、1990年度以降の数値について算出方法が変更されている

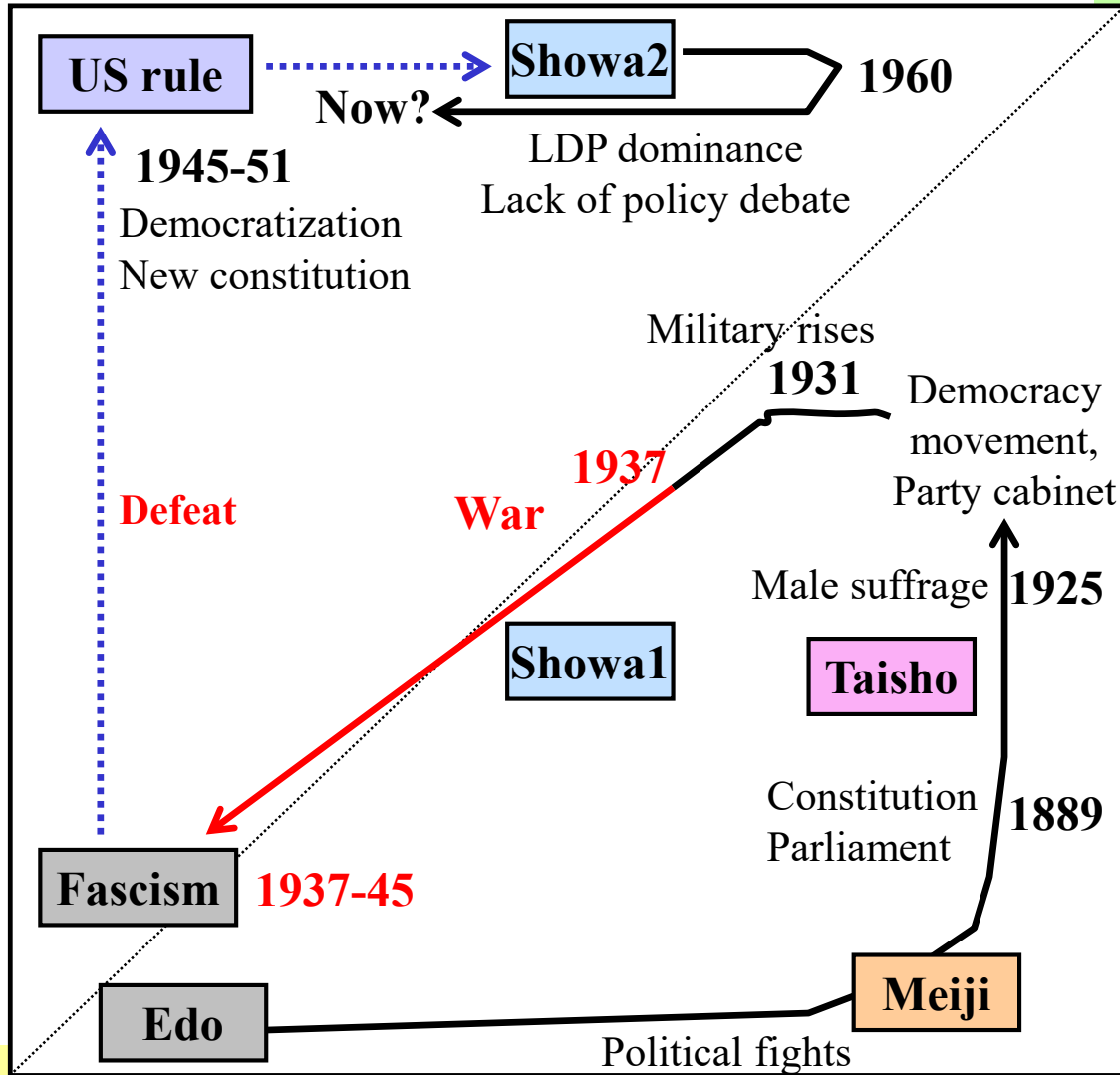
Unit: Peta Joule (=equivalent to 25,800kl of crude oil)
 Source: Nuclear Power and Energy Databook, 2015.

Democratic institution (Form)



Constitution
Laws
Parliament
Election
Court

Full democracy



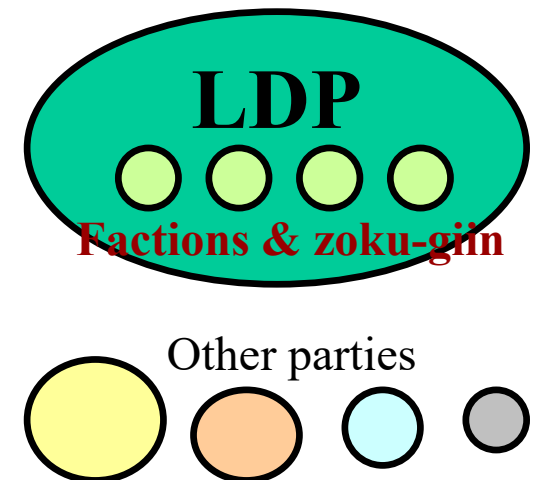
Pure dictatorship

Reform vs conservatism, big vs small government, other policy debates

(Content)
Political competition

The 1955 Regime (LDP political dominance)

- ❑ The Liberal Democratic Party (LDP) was formed in 1955 by merging two conservative parties, and held power until now (except 1993-96, 2009-12)
- ❑ Securing rural votes by subsidizing agriculture and building rural infrastructure (a strategy firmly established by Prime Minister Kakuei Tanaka, in office 1972-74).
- ❑ LDP had many factions and *zoku-giin* groups (politicians promoting subsidies in particular sectors)
- ❑ Opposition parties were too weak to challenge LDP's rule.
- ❑ Reform movement inside LDP was weak:
Koizumi reform (2001-06)—not very successful
- ❑ Second Abe government (2012-2020) and Suga government (2020-) rule with top down decision making



Additional Topics for Discussion

- ❑ What is the main cause(s) of postwar high growth?
- ❑ List positive achievements and negative lessons of this period.
- ❑ Why did (could) Japan finance investment for high growth mostly with domestic savings?
- ❑ Evaluate labor policy and SME policy of the high growth period. Can they be models for today's developing countries?
- ❑ Evaluate Japan's energy and environmental policies during and after the high growth period.