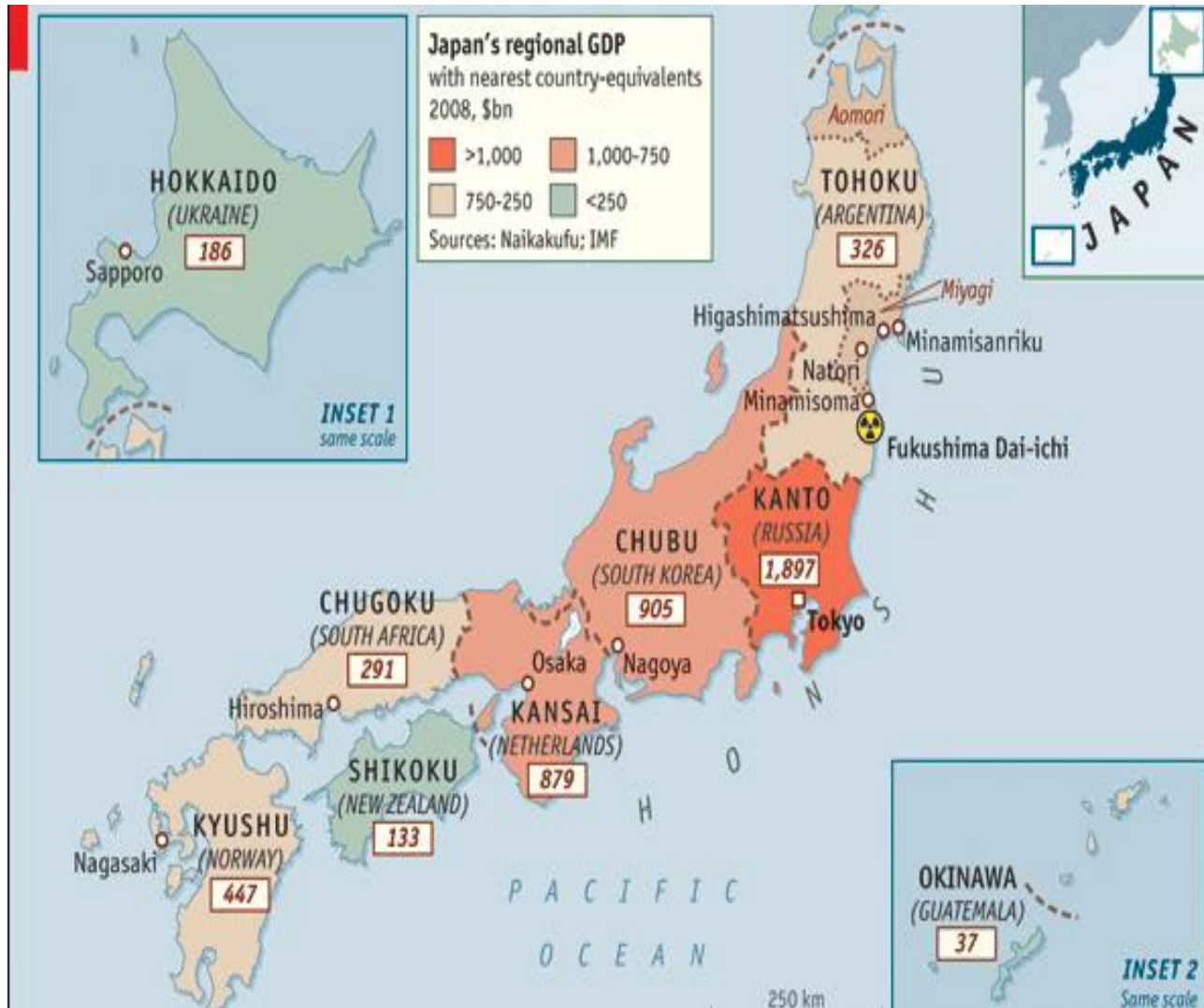


Lecture 3a

The Japanese Economy

The Economic Geography of Japan



A Brief Economic History of Japan I

- Tokugawa/Edo Period (1603–1868)
 - Preceded by a feudalist period, where local warlords (*daimyōs*) had assumed functions of government/development over their domains (*han*)
 - Tokugawa Ieyasu eventually emerged as overlord and established the military dynasty (*shōgunate*) over a unified Japan, with the capital in Edo (modern-day Tokyo)
 - Edo period was characterized by policies of:
 - Isolation from foreign countries (*Sakoku*)
 - Caste social structures including warriors (*samurai*), peasants, artisans, and merchants (*Shinō-Kōshō*)
 - Tributary service of *daimyōs* to the *shogun* (*Sankin-Kōtai*)

A Brief Economic History of Japan II

- Many features of the political economy from the Edo period persisted in some form to define the economic structure of premodern and modern Japan
 - *Sakoku* ↪ controlled exposure to Western knowledge (Dutch studies, or *rangaku*) + neo-Mercantilist trade policy
 - *Shinō-Kōshō* ↪ development of local state capacity for tax collection + samurai-origin bureaucracy led industrialization efforts, with *zaibatsu* emergence
 - *Sankin-Kōtai* ↪ Urban development (Osaka as internal entrepôt, Edo as consumption center) + indigenous institutional development (e.g. fractional reserve banking, commodity futures markets, wholesale/retail networks)

A Brief Economic History of Japan III

- Meiji Restoration (1868–1912)
 - American Commodore Matthew Perry reached Japanese shores in 1853, demanding an opening to trade
 - Perry's interventions ultimately triggered a political crisis, culminating in an opening of (unequal) treaty ports and the replacement ("restoration") of the *shōgun* with the 15-year-old Meiji emperor
 - Initial stages of the Meiji government retained business-as-usual, with inflationary consequences

Commodore Matthew Perry and Japanese depiction of his Black Ships

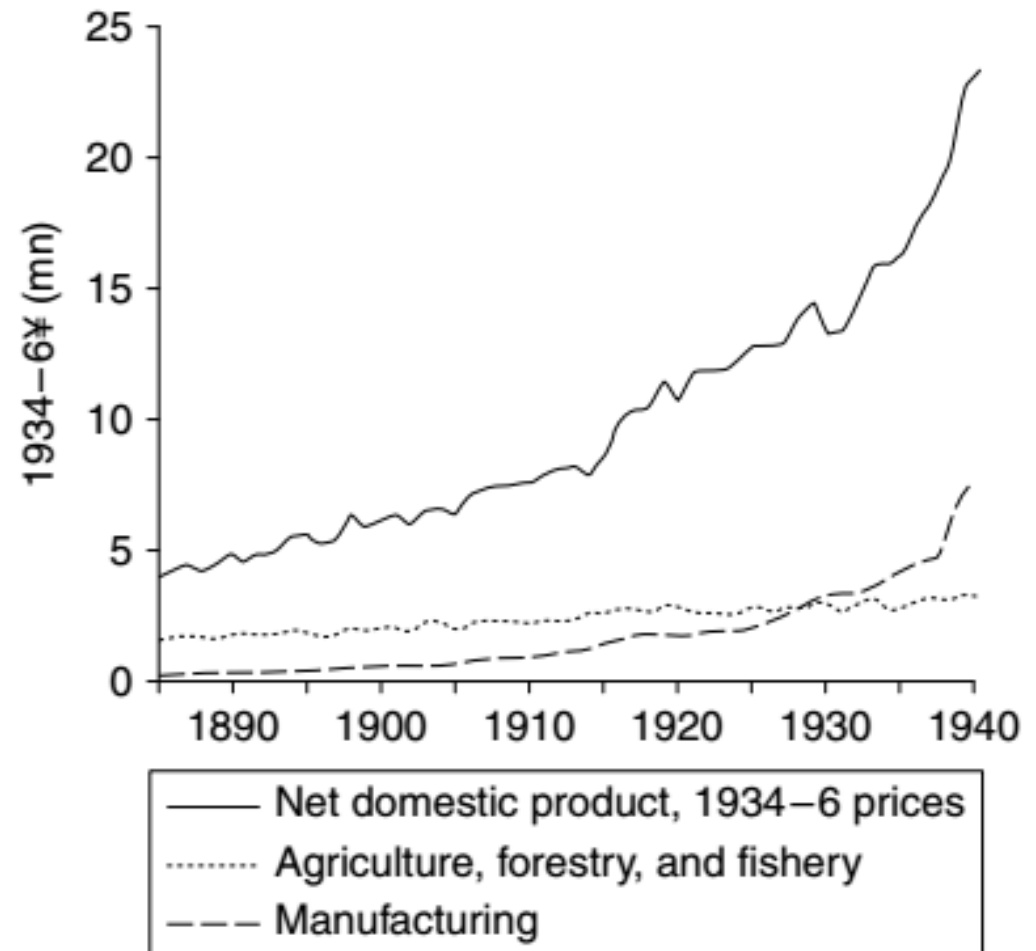


A Brief Economic History of Japan IV

- The Meiji era eventually led to widespread economic reform
 - Initial key public finance reforms
 - Land tax reform (*chiso kaisei*), which established private ownership of agricultural land and encouraged share tenancy
 - Dispossession of samurai (*chitsuroku shobun*), which placed public finances on more sustainable footing
 - Introduction of full currency convertibility and formation of BoJ raised credibility and restored fiscal balance, reversing runaway inflation
 - Westernization and industrialization
 - Adoption of compulsory Western-style educational system led to growth in human capital
 - Abolition of caste system and improved transportation systems improved vertical and horizontal mobility
 - Opening to trade led to gains from trade and new foreign technology
 - Government established *conditions* for industrialization to take off

Japan's value added in manufacturing vs agriculture, 1885–1940

- From a miniscule base, Japanese manufacturing grew to overtake the agriculture by the late 1920s
- The rapid growth of the Japanese economy in general was driven by the rise of manufacturing



Japan's Takeoff in Comparative Perspective I

- Japan's takeoff likely began around 1880, not long after second-wave industrializers such as Canada and Scandinavia, and started from a much lower per-capita income position

	First 50 years of modern economic growth ^a	Per capita GNP in first year of modern economic growth (1985 US\$) ^b	Adult illiteracy near the start of modern economic growth (%)		Urbanization near the start of modern economic growth ^c (%)		Annual average growth rate in real per capita GNP in first 50 years of modern economic growth (%)
Japan	1886–1936	738	50 ^c	1890	13.1	1887/90	1.8
Canada	1870–1920	1347	n.a.		18.8	1871	1.7
Denmark	1865–1915	1461	<30 ^d	1850	13.8	1860	1.2
Norway	1865–1915	1148	<30 ^d	1850	5.3	1845	1.3
Australia	1861–1911	2954	n.a.		22.1	1861	0.8
Italy	1861–1911	1153	75–80 ^d	1886	25.2	1861	1.1
Sweden	1861–1911	1110	10 ^d	1850	7.6	1860	1.5
Germany	1850–1990	1050	<30 ^d	1850	26.8	1849	1.4
USA	1840–1890	1461	n.a.		8.5	1840	1.5
Belgium	1830–1880	1053	51 ^d	1843	5.4	1846	1.6
France	1830–1880	1077	53 ^d	1832	11.2	1836	1.0
Great Britain	1780–1830	1210	46 ^d	1800	21.3	1801	0.4

Japan's Takeoff in Comparative Perspective II

- But the phase of modern economic growth both lasted shorter and entailed a more rapid growth of per-capita incomes

	Start of MEG	Duration (years)	Growth rate of		
			Income (A)	Population (B)	Per-capita income (C)
Britain	1765–85	180.5	2.2	1.0	1.2
France	1831–40	128.5	2.0	0.3	1.7
United States	1834–43	125.5	3.6	2.0	1.6
Germany	1850–59	110.5	2.7	1.0	1.7
Netherlands	1860–70	100.5	2.5	1.3	1.2
Australia	1861–69	100.5	3.2	2.2	1.0
Sweden	1861–69	100	3.2	0.6	2.6
Denmark	1865–69	98	2.9	1.0	1.9
Norway	1865–69	98	2.8	0.8	2.0
Canada	1870–74	93	3.5	1.8	1.7
Japan (Kuznets)	1874–79	88.5	4.0	1.1	2.9
Japan (Ohkawa)	1885–89	78	3.6	1.1	2.5
Italy	1895–99	68	2.8	0.7	2.1
Belgium	1900–04	63	1.9	0.5	1.4

A Brief Economic History of Japan V

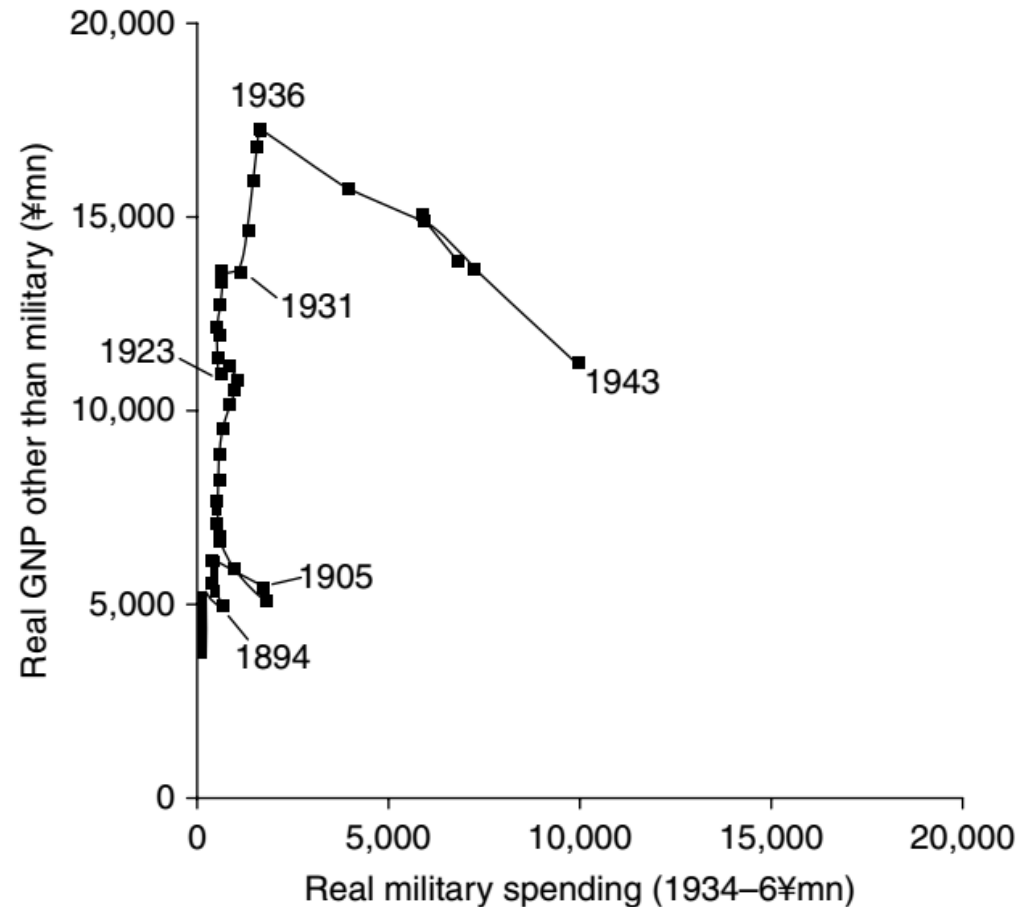
- Prewar Militarism (1912–1945)
 - Emergence of *zaibatsu* industrial conglomerates
 - Four principal *zaibatsu* were Mitsui (banking/trade finance), Mitsubishi (shipping), Yasuda (banking/insurance) and Sumitomo (mining)
 - Shallow slowdown during Great Depression due to relatively rapid abandonment of prewar Gold Standard parity, alongside expansionary stabilization policy
 - Gradual evolution toward parliamentary democracy, albeit with Meiji oligarchs still holding substantial power
 - Messy parliamentary democracy eventually gave way to ever-increasing military influence, with acquisition of colonies (Taiwan, Manchukuo, Korea)

A Brief Economic History of Japan VI

- The prewar period saw increasing government involvement in the economy
 - *Zaibatsu* eventually expanded to encompass multiple lines of business, although small firms continued to thrive
 - As militarism increased, Japan restructured its economy around central planning
 - Major Industrial Control Law (1931) through National General Mobilization Law (1938) brought increasing elements of the Japanese economy under national control

Changes in military vs other expenditures, 1894–1943

- Military spending remained small as share of a rapidly growing Japanese economy up till 1936
- Production shifted to about 50/50 military vs. civilian expenditure



A Brief Economic History of Japan VII

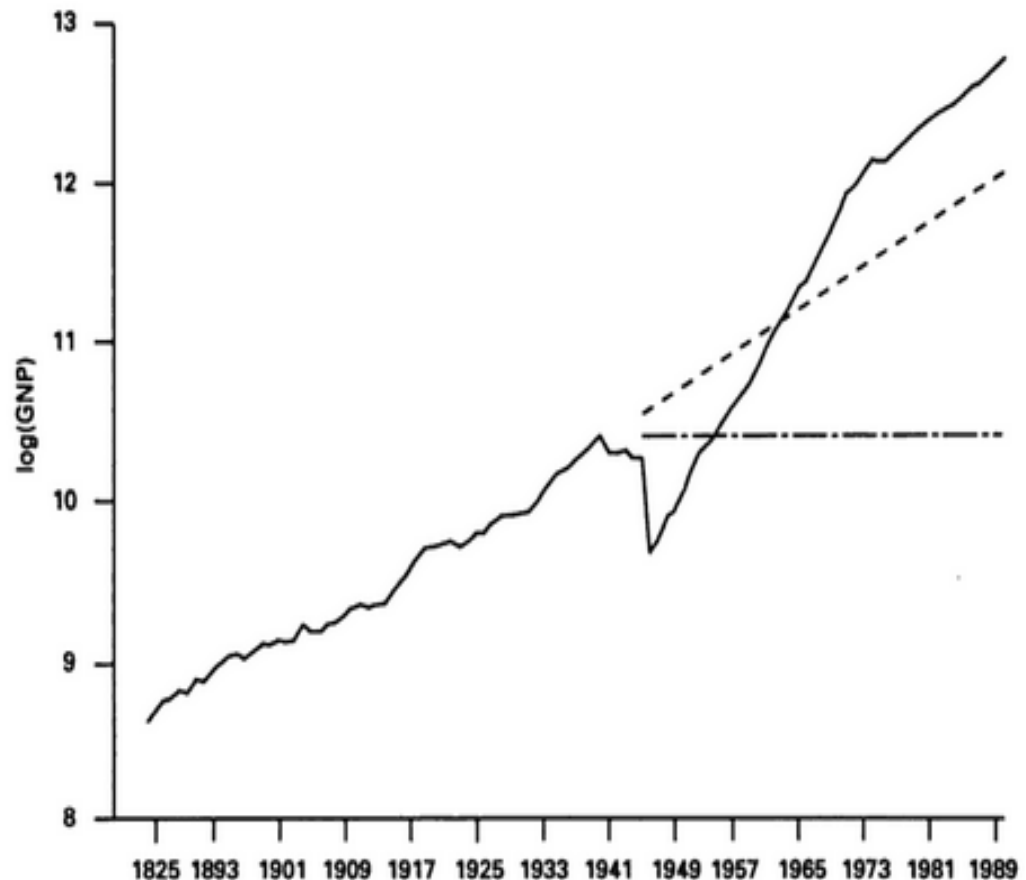
- Postwar Recovery (1946–1964)
 - Following Japan's acceptance of the Potsdam Declaration via the San Francisco Treaty, Japan effectively became a client state of America
 - Allied occupation (1945–1952) led to disarmament and a rollout of new economic policies
 - As the Cold War began to take shape, the U.S.-Japan Alliance stressed deregulation, price stability, and aid support, which unleashed a postwar boom sometimes known as the “Japanese Economic Miracle”

A Brief Economic History of Japan VIII

- The postwar recovery was accompanied by a dramatic return to nonmilitary activity
 - Economic policies enacted by the Allied administration sought to promote economic participation
 - *Land reform* institutionalized changes in agricultural land rental
 - *Zaibatsu dissolution* with breakup and divestiture of holding companies
 - *Labor legislation* that legitimized union membership
 - Rebuilding without military priorities and excess government regulation allowed economy to fully harness the dynamics of growth
 - In addition to economic reforms, political-economic changes included a new (pacifist) constitution, enfranchisement of women, and a reduction in the voting age

Real GNP in Japan, 1825–1989

- After the sharp contraction following the war, Japan's GNP growth shifted to a much higher rate
- Average growth rates were 10% per annum between 1950 and 1973, when the first oil shock occurred



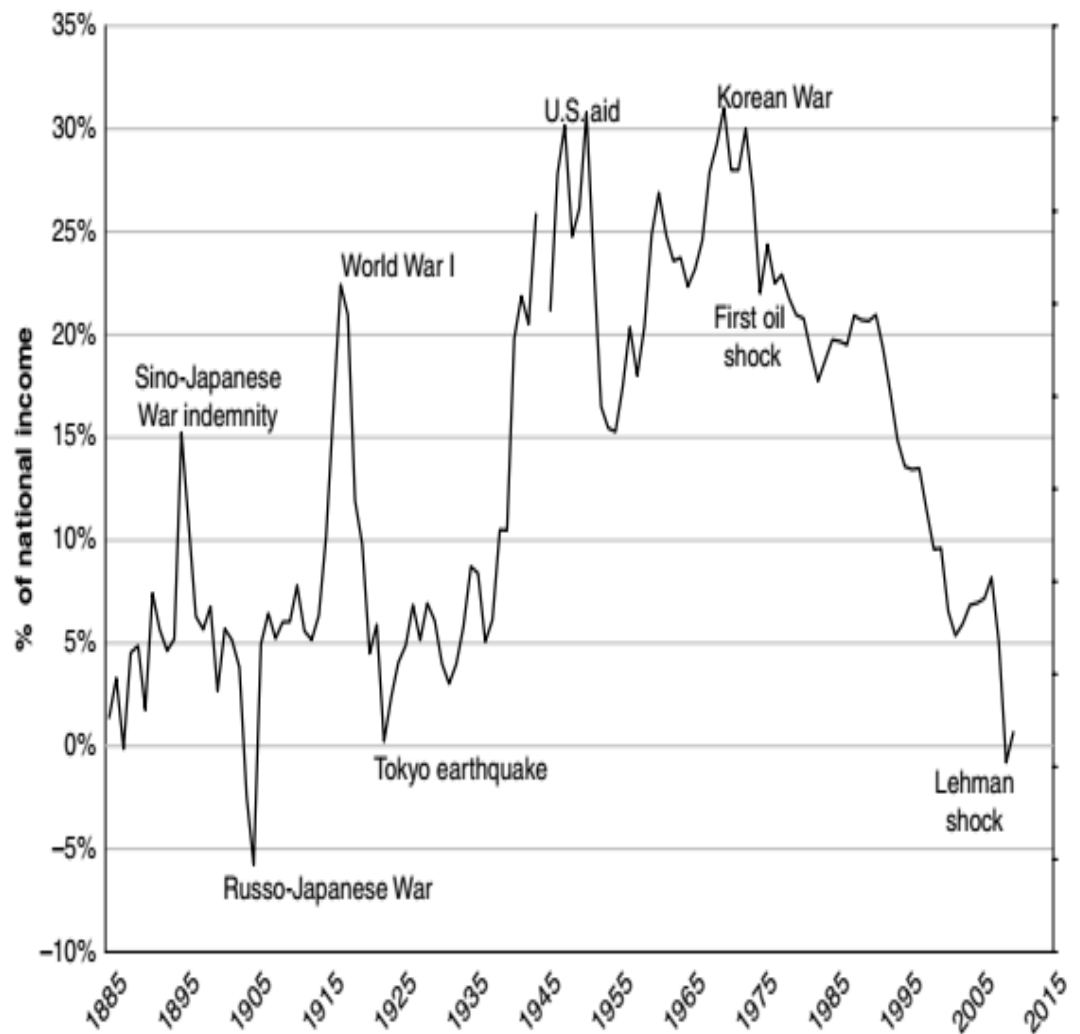
Notes: Dashed and dashed-dotted lines are extrapolated trends of from prewar GNP and peak prewar GNP, respectively.

The Modern Japanese Economy I

- The Japanese Miracle (1965–1990)
 - Japan underwent a remarkable period of economic growth and development after the war
 - Growth was led by increases in all drivers of growth
 - High saving, due to life-cycle and consumption-smoothing motivations, induced rapid capital accumulation
 - During this period, business cycles were extremely contained
 - To the extent that recessions occurred, they were growth recessions
 - The asset price bubble between 1986 and 1991 led to a “lost decade” (*ushinawareta jūnen*) or two of economic decline

Net national saving in Japan, 1885–2015

- Saving rates in Japan have always been relatively high relative to other high-income countries, but the postwar period saw an extended period of elevated saving rates
- The two peaks coincided with postwar reconstruction and the baby boom generation



The Modern Japanese Economy II

- Even compared to its own history, Miracle-era growth was both rapid and extremely stable

Peak		Contraction (months from peak to next trough)		Trough		Expansion (months from trough to next peak)	
March	1888	13		April	1889	15	
July	1890	15		October	1891	27	
January	1893	5		June	1893	23	Sino-Japanese War
May	1895	11		April	1896	18	
November	1897	12		November	1898	13	
December	1899	19		June	1901	23	
April	1903	8		December	1903	18	Russo-Japanese War
June	1905	13		July	1906	10	
May	1907	20		January	1909	21	
December	1910	5		May	1911	13	
April	1912	12		April	1913	5	
September	1913	15		December	1914	24	World War I boom
December	1916	3		March	1917	12	World War I boom
March	1918	13		April	1919	12	
April	1920	12		April	1921	12	
April	1922	9		November	1922	14	
January	1924	25	Kanto earthquake	December	1926	27	
March	1929	19	Worldwide depression	November	1930	20	
July	1933	2		September	1933	48	Takahashi finance
September	1937	7		April	1938	20	
December	1939	17		May	1941		
June	1951	4	Post-Korean-war recession	October	1951	27	Consumption boom
January	1954	10	1954 recession	November	1954	31	Jimmu boom
June	1957	12	Bottom-of-the-pot recession	June	1958	42	Iwato boom
December	1961	10		October	1962	24	Olympic boom
October	1964	12	1965 recession	October	1965	57	Izanagi boom
July	1970	17		December	1971	23	Retto kaizo boom
November	1973	16	First oil shock	March	1975	22	
January	1977	9	1977 recession	October	1977	28	
February	1980	36	Second oil shock	February	1983	28	
June	1985	17		November	1986	51	Bubble economy
February	1991	32	Heisei recession	October	1993	43	
May	1997	20	Asian financial crisis	January	1999	22	
November	2000	14		January	2002	73	
February	2008	13	Lehman shock	March	2009	?	

Tokyo before and after the Japanese miracle

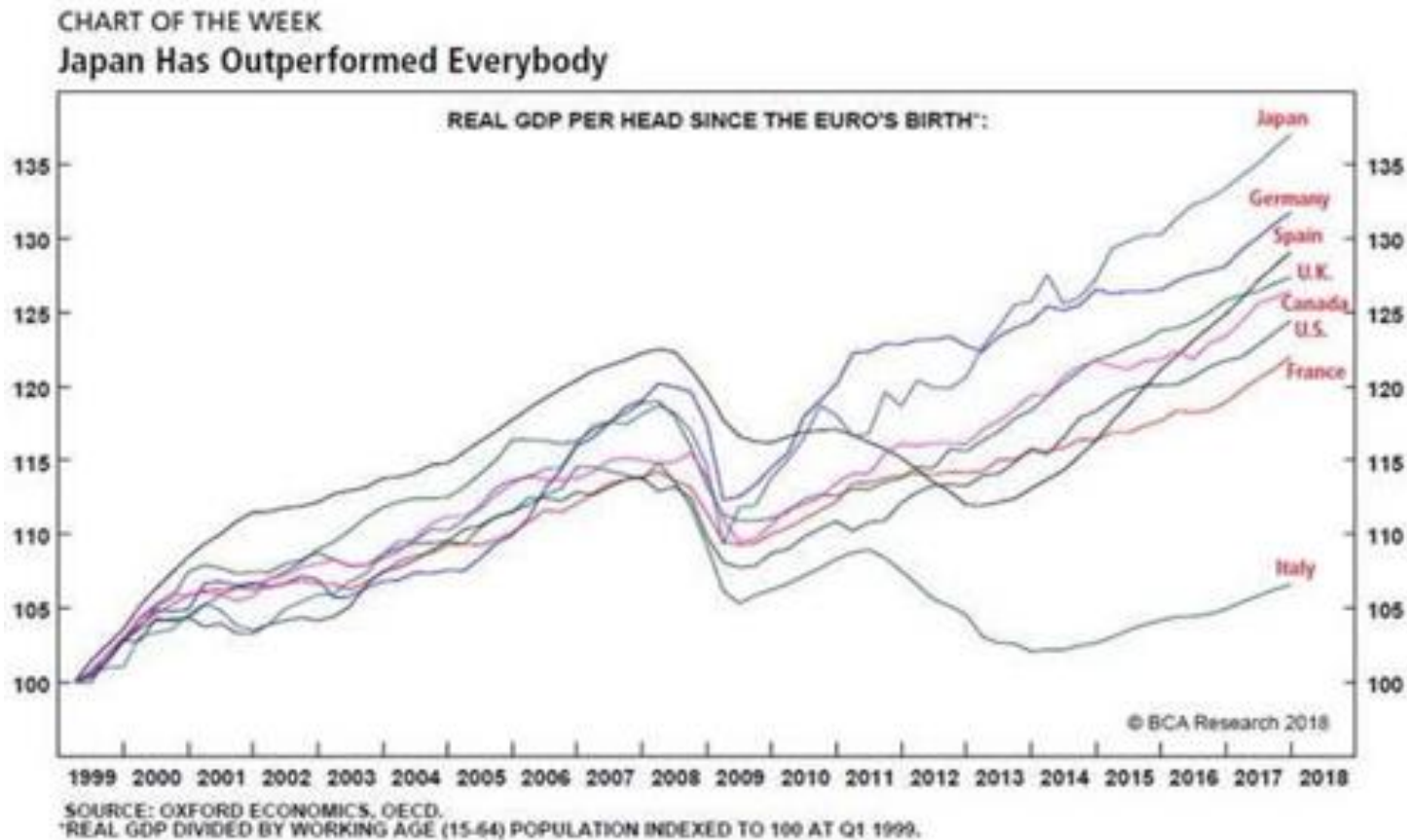


The Modern Japanese Economy III

- The contemporary Japanese economy is unique among large high-income countries
 - Demography-adjusted growth in Japan remains impressive
 - High capital intensity due to historically-high saving
 - Bank-centric, relationship-oriented financial system
 - Low adult unemployment rates due to lifetime employment schemes
 - Highly educated labor force confronted with demographic pressure
 - *Keiretsu*-centered industrial structure and MITI/METI-led industrial policy
 - Trade openness and export orientation, with “flying geese” paradigm of production networks with dynamic comparative advantage
 - Infrastructure-focused fiscal policy with large public debt burden
 - Monetary policy threatened by legacy of bubble and deflationary landscape

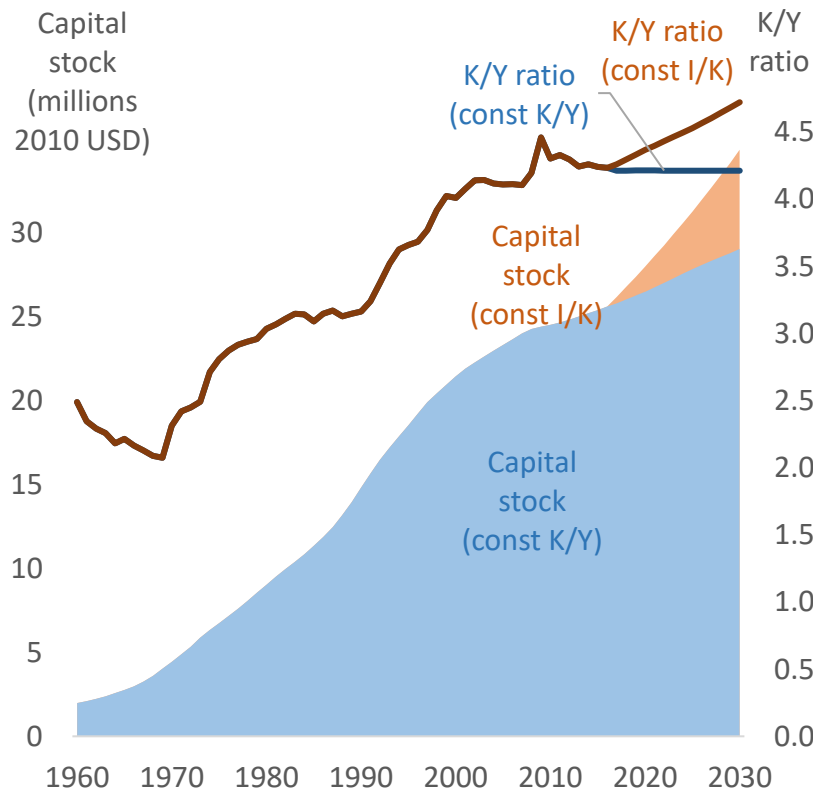
Modern Japan in Comparative Perspective I

- Although total GDP growth has slowed considerably over the lost decades, Japan's *per capita* growth remains impressive



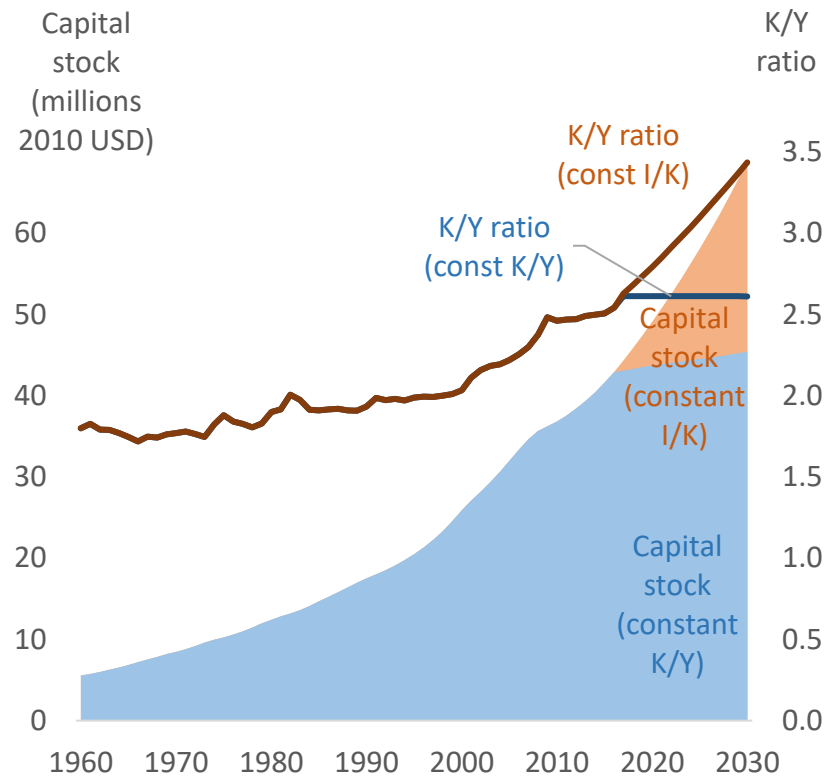
Modern Japan in Comparative Perspective II

Physical capital evolution, Japan, 1960–2030 (projected)



Source: Author's calculations, from World Bank (2017)

Physical capital evolution, USA, 1960–2030 (projected)



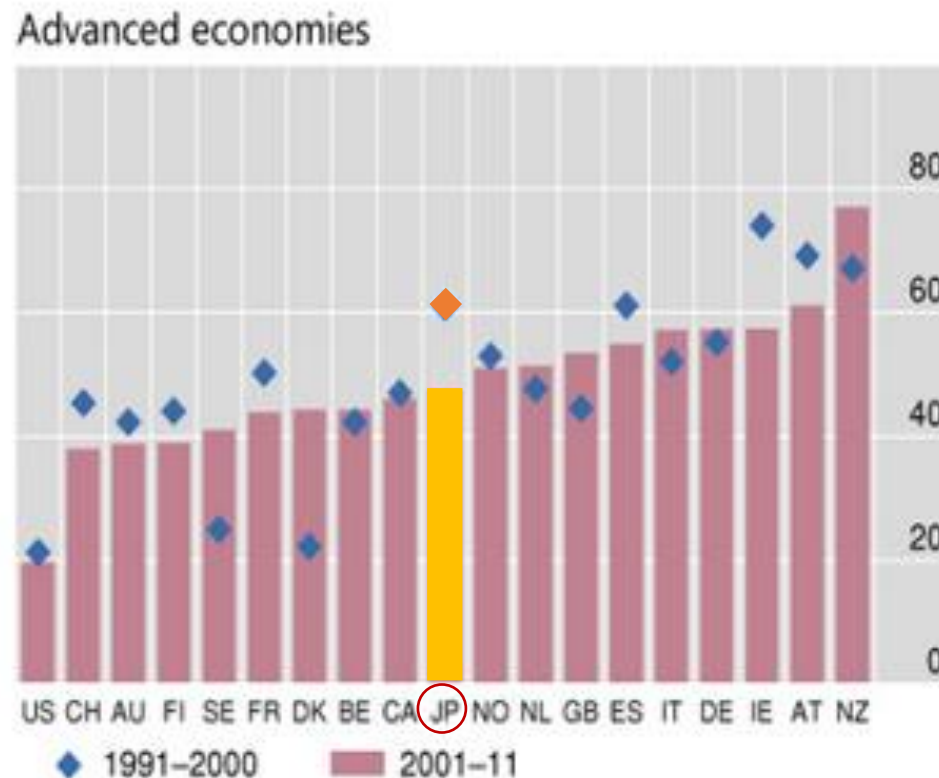
Source: Author's calculations, from World Bank (2017)

Tokyo's fully-automated vending machine stores



Modern Japan in Comparative Perspective III

- Japan's high shares of bank credit to total private sector funding is uncommon among DMs, although that has moderated since 2000



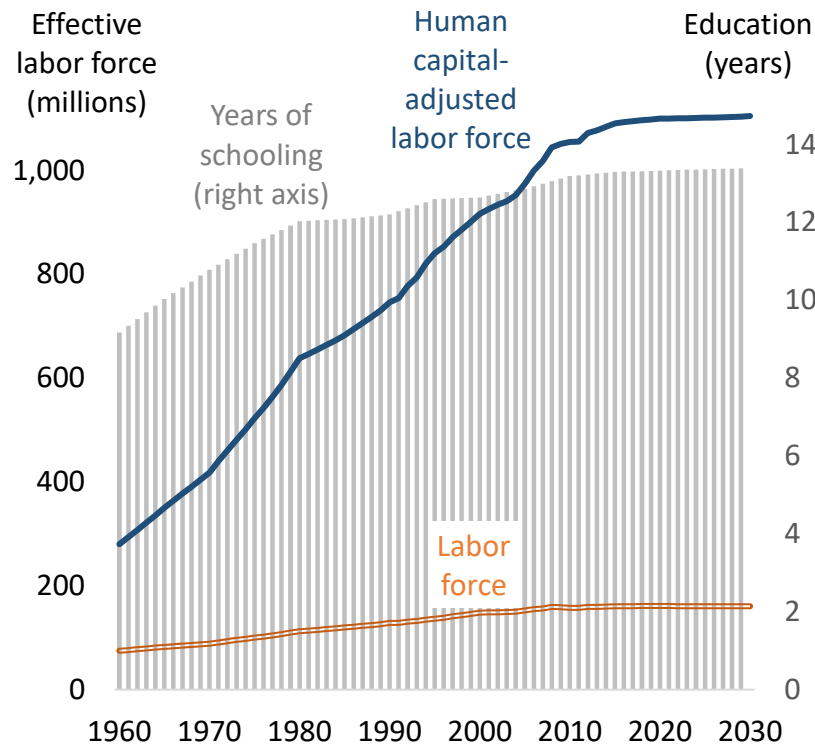
Modern Japan in Comparative Perspective IV

- Unemployment rates in Japan are typically extremely low relative to other industrialized economies

		Range			Average
		1965–1990	1991–2000	2001–2010	Unemployment (%)
Canada France Germany Italy Japan U.K. U.S.A.	Canada	3.3 – 11.8	7.2 – 11.4	6.0 – 8.3	
	France	1.5 – 10.5	8.5 – 12.3	7.4 – 9.4	
	Germany	0.2 – 7.7	5.6 – 9.9	6.8 – 10.7	
	Italy	5.3 – 11.0	8.6 – 11.9	6.1 – 9.1	
	JAPAN	1.1 – 2.8	2.1 – 5.4	3.8 – 5.4	
	UK	2.3 – 12.4	4.8 – 10.4	4.8 – 7.9	
	US	3.4 – 9.5	4.0 – 7.5	4.6 – 9.6	
	OECD	2.5 – 8.5	6.1 – 7.4	5.7 – 8.3	

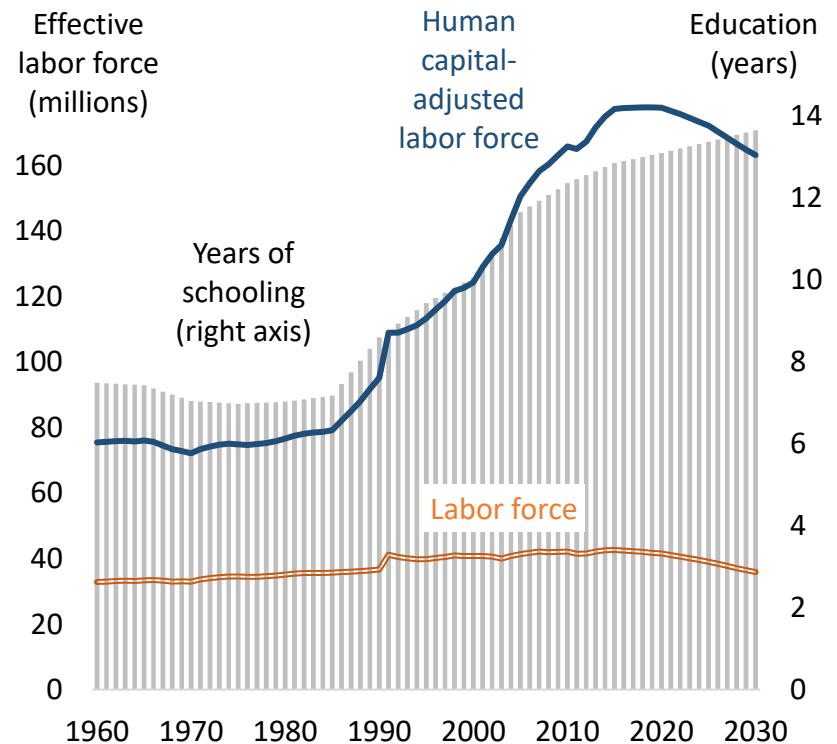
Modern Japan in Comparative Perspective V

Human capital evolution, Japan, 1960–2030 (projected)



Source: Author's calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)

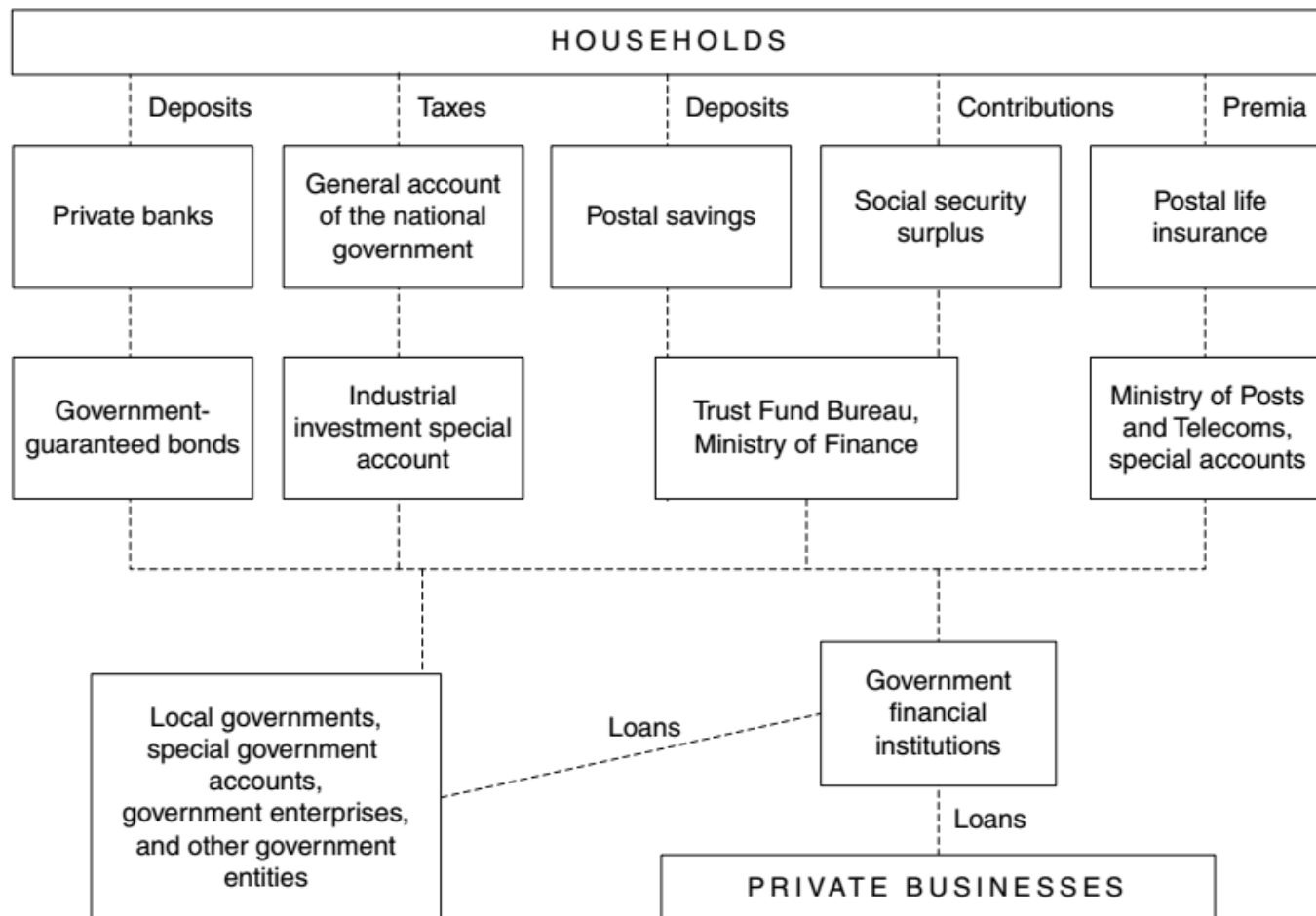
Physical capital evolution, Germany, 1960–2030 (projected)



Source: Author's calculations, from Barro & Lee (2015, 2016), IIASA (2010), UN (2013, 2015), World Bank (2017)

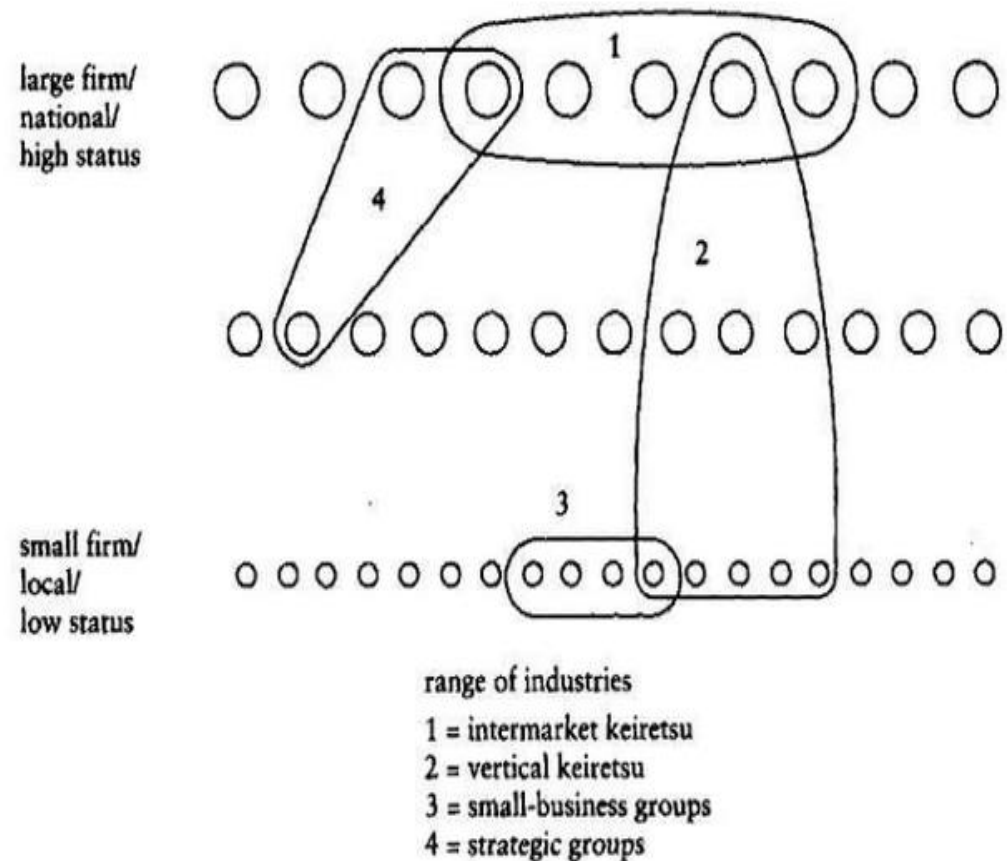
Modern Japan in Comparative Perspective VI

- Industrial policy through the fiscal investment and loans program channeled substantial funds from households



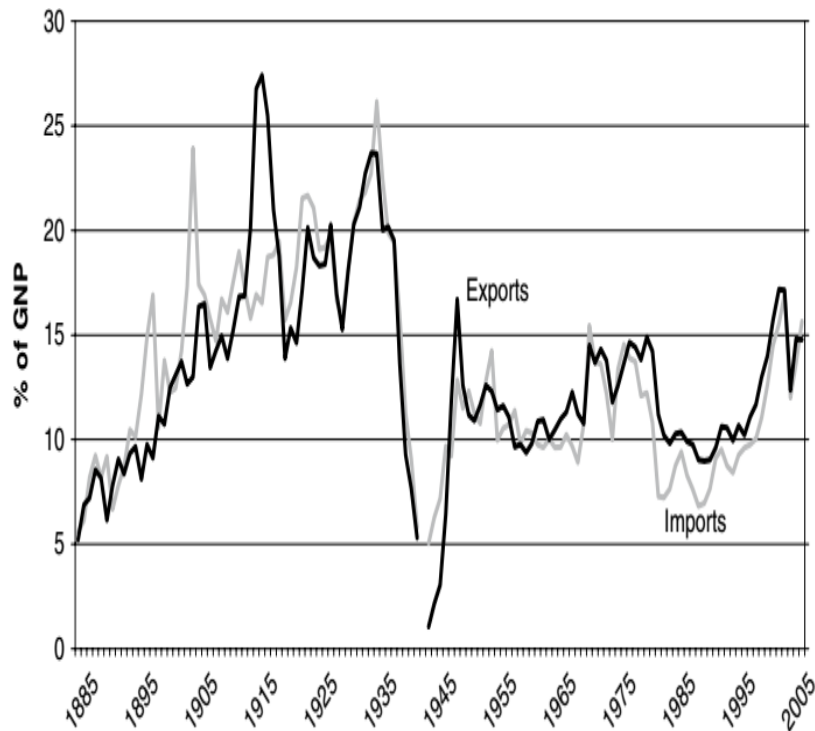
Interlocking business relationships and cross-shareholdings

- *Keiretsu* grew out of original *zaibatsu*
- Includes both (1) horizontally and (2) vertically-integrated conglomerates, as well as other enterprise groups (*kigyō shūdan*)
- Cross-shareholdings, mostly held in financial firm/holding company



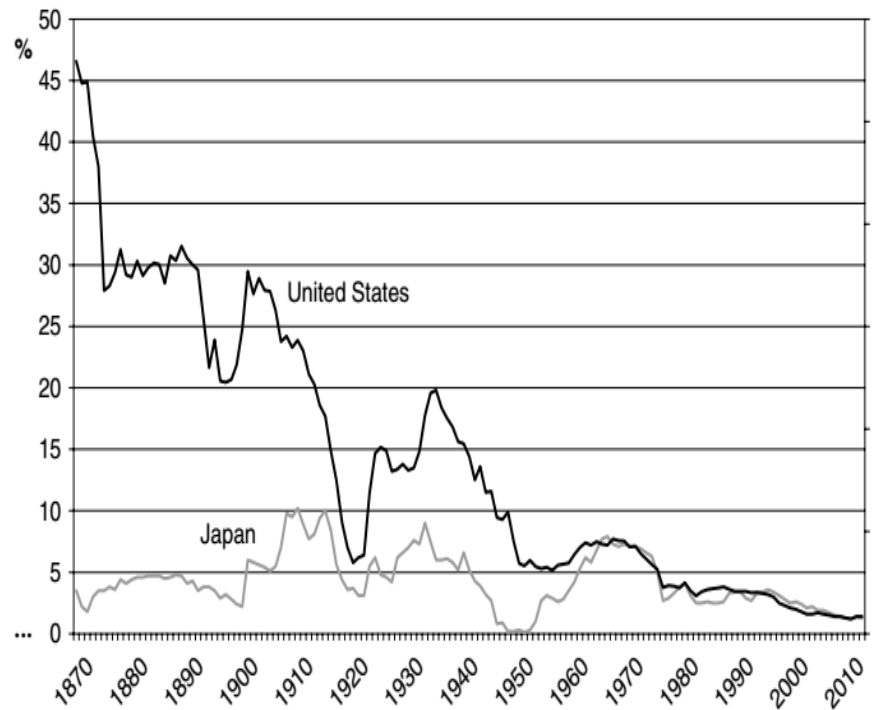
Modern Japan in Comparative Perspective VII

**Imports and exports as share of GNP,
Japan, 1885–2011**



Source: Flath (2013), p. 172

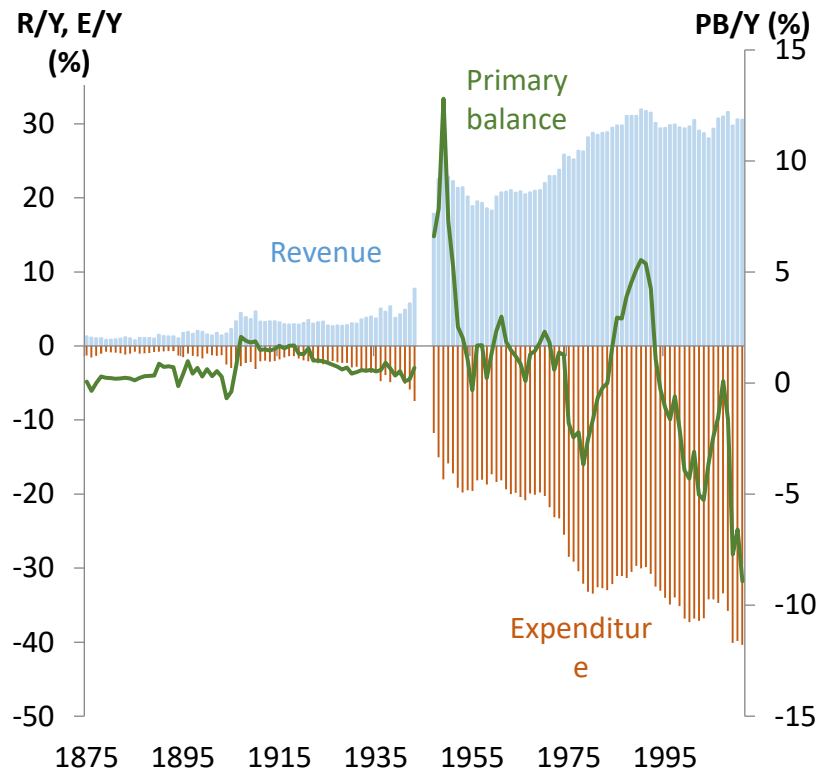
**Average annual tariff rates, Japan vs
United States, 1868–2010**



Source: Flath (2013), p. 188

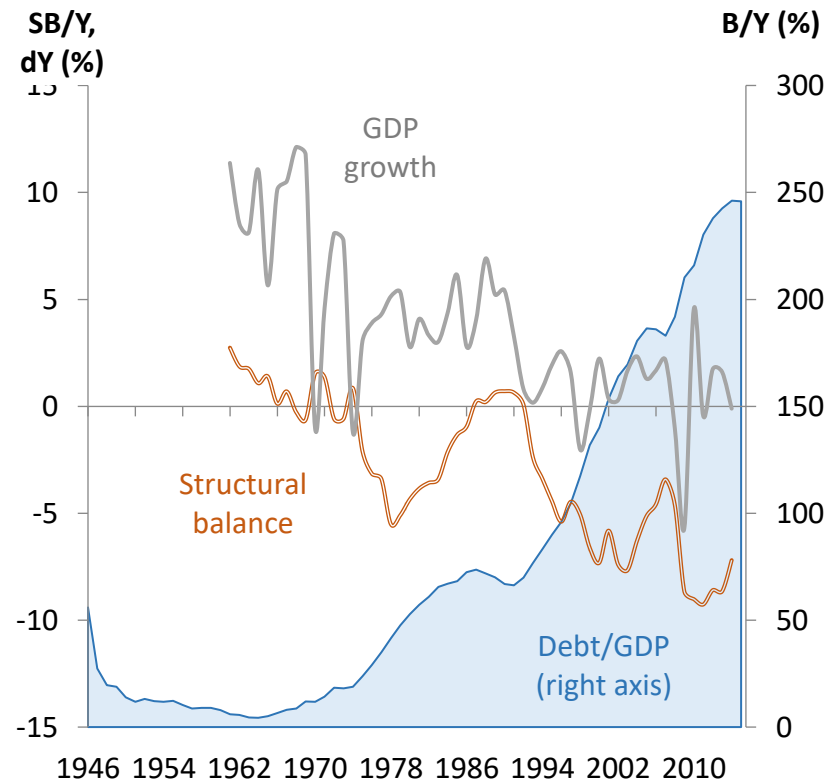
Modern Japan in Comparative Perspective VIII

Fiscal record, Japan, 1875–2011



Source: Author's calculations, from Mauro et al (2013)

Fiscal policy, fiscal space, and growth, Japan, 1946–2015



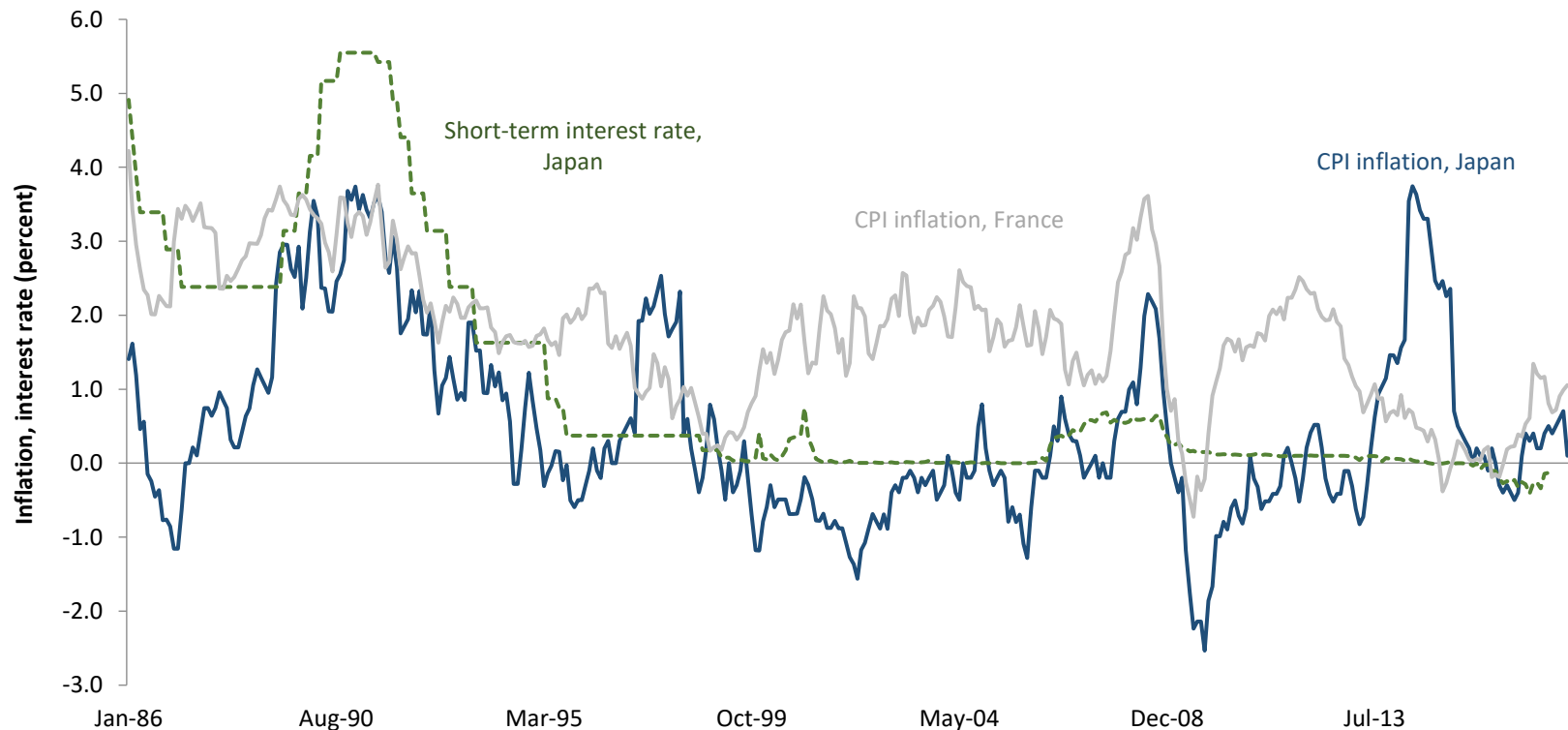
Source: Author's calculations, from Abbas et al (2013), Mauro et al (2013),

Infrastructure spending that does not satisfy cost-benefit tests in Japan



Modern Japan in Comparative Perspective IX

- After the bursting of the bubble in 1989, monetary policy has been battling deflationary forces



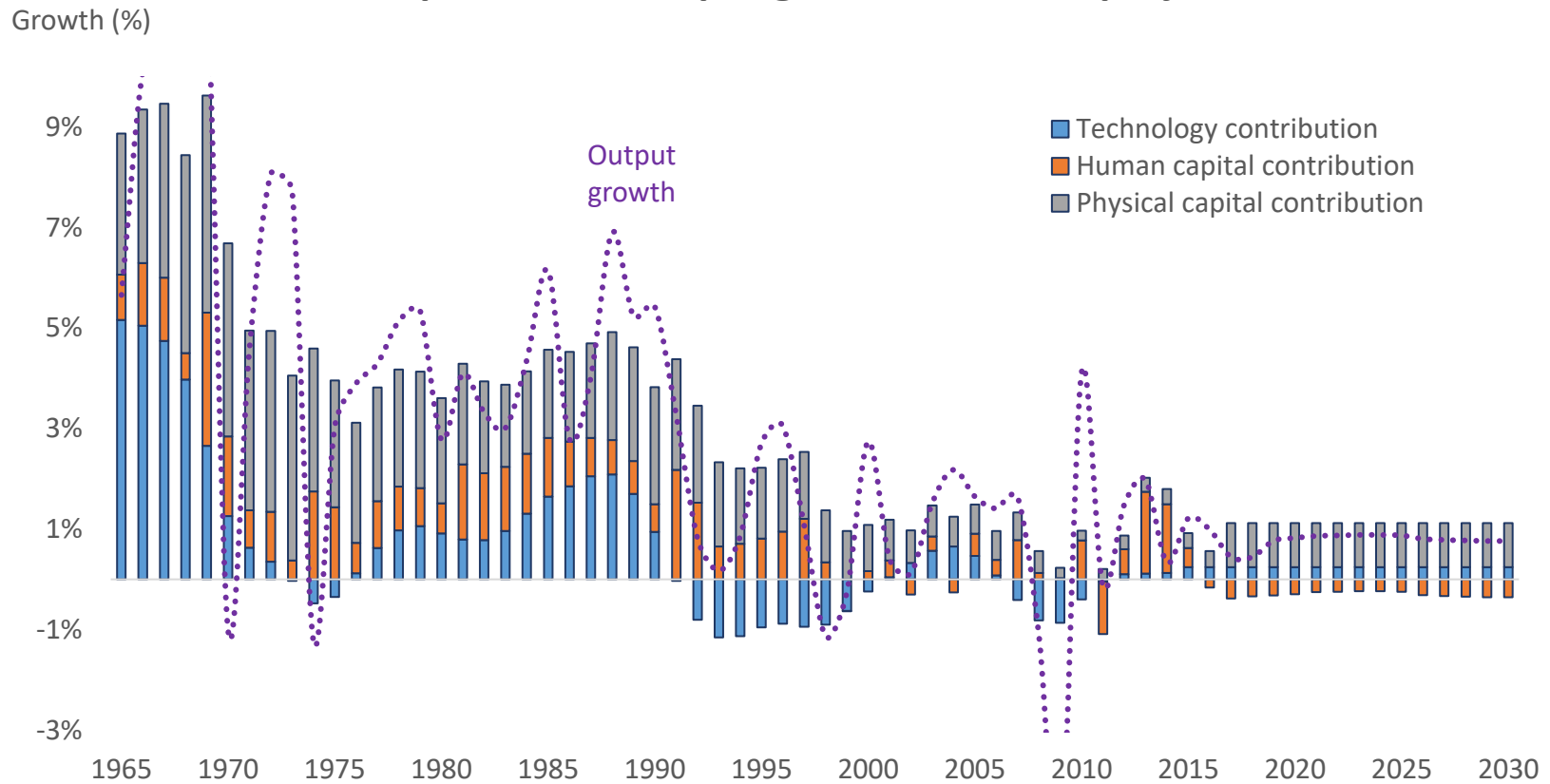
Source: Organization for Economic Co-operation and Development/International Monetary Fund/International Monetary Fund/FRED

At the height of the bubble, Tokyo's Imperial Palace land was worth more than the state of California



The Future of Japan's Economy I

Decomposition of output growth, baseline projection



Source: Authors' calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)

The Future of Japan's Economy II

- Challenges to Japan's Economic Future
 1. The Lost Decade(s) of the 1990s/2000s
 2. Demographic pressures on labor force with little appetite for immigration and low female labor force participation
 3. Limited marginal gains available from education
 4. Difficulty in maintaining saving for investment given low real interest rates and dissaving from aging population
 5. Innovative capacity constrained by weak adoption and diffusion of ICT

Lecture 3b

The Babysitting Coop and the BBNN Model

A Parable of the Babysitting Coop I

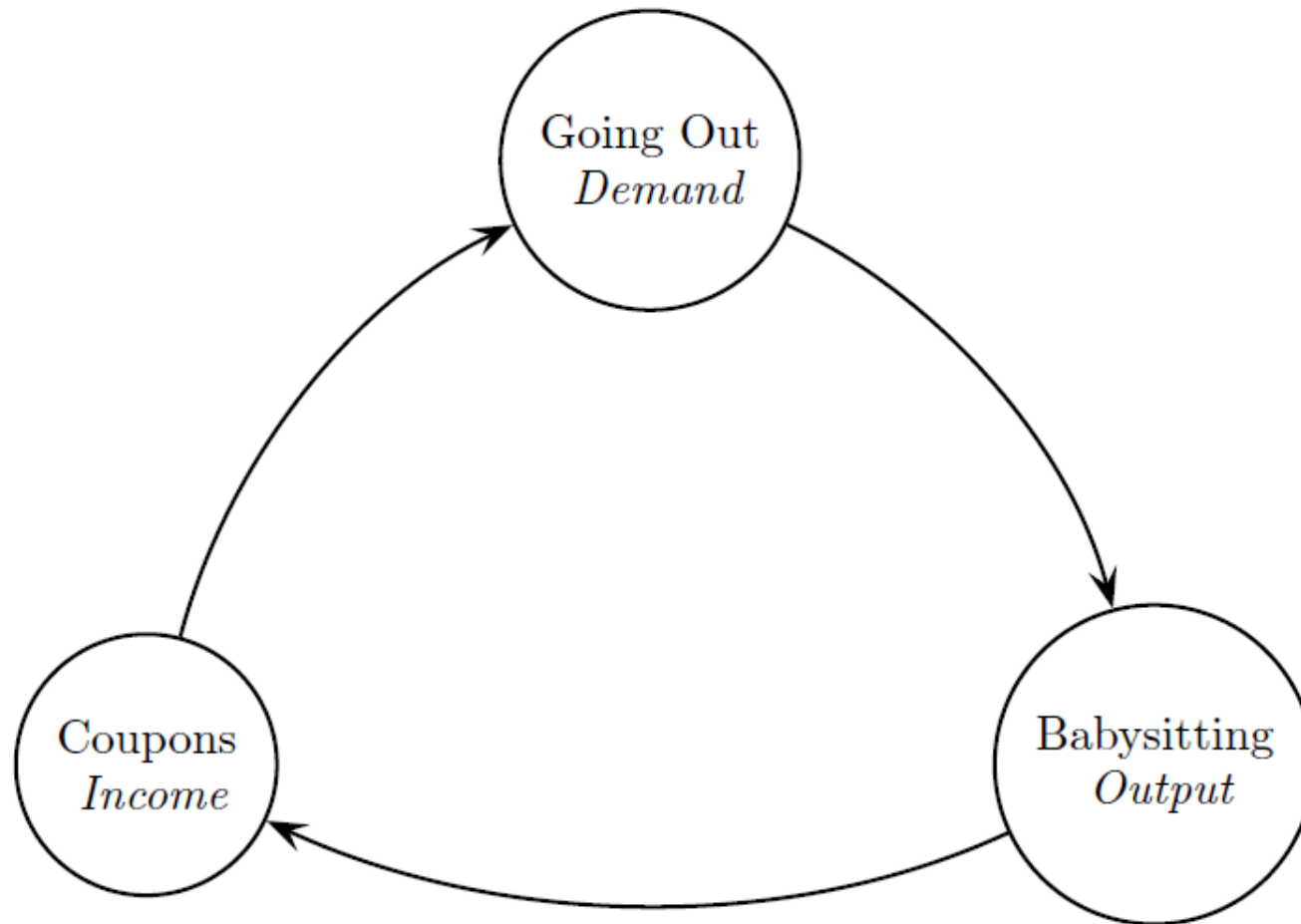
- Couples in the DC area had a need for babysitting services
 - A cooperative was created, so instead of cash, they exchanged coupons worth hours of babysitting services
 - Things worked well until one day, one couple (say, a German couple) decided (for some reason) they wanted to accumulate coupons
 - So they babysat repeatedly, and the number of coupons in circulation started to fall rapidly
 - Without coupons, some couples could not go out, and so had to babysit
 - To babysit, they needed *other* couples to go out, but when those couples ran out of coupons, they had to stop going out...
 - So the cooperative collapsed
- What are some possible solutions to this problem?

A Parable of the Babysitting Coop II

- Possible solutions:

1. Kill the Germans/kick them out of the coop
2. Create another coop without the Germans
3. Print more coupons
4. Make the coupons expire
5. Cap the number of coupons
6. Pay for babysitting with other currency
7. Offer other services other than babysitting
8. Create credit/IOUs
9. Force the Germans to go out to a party
10. Change the ratio between coupons and babysitting hours

A Parable of the Babysitting Coop III



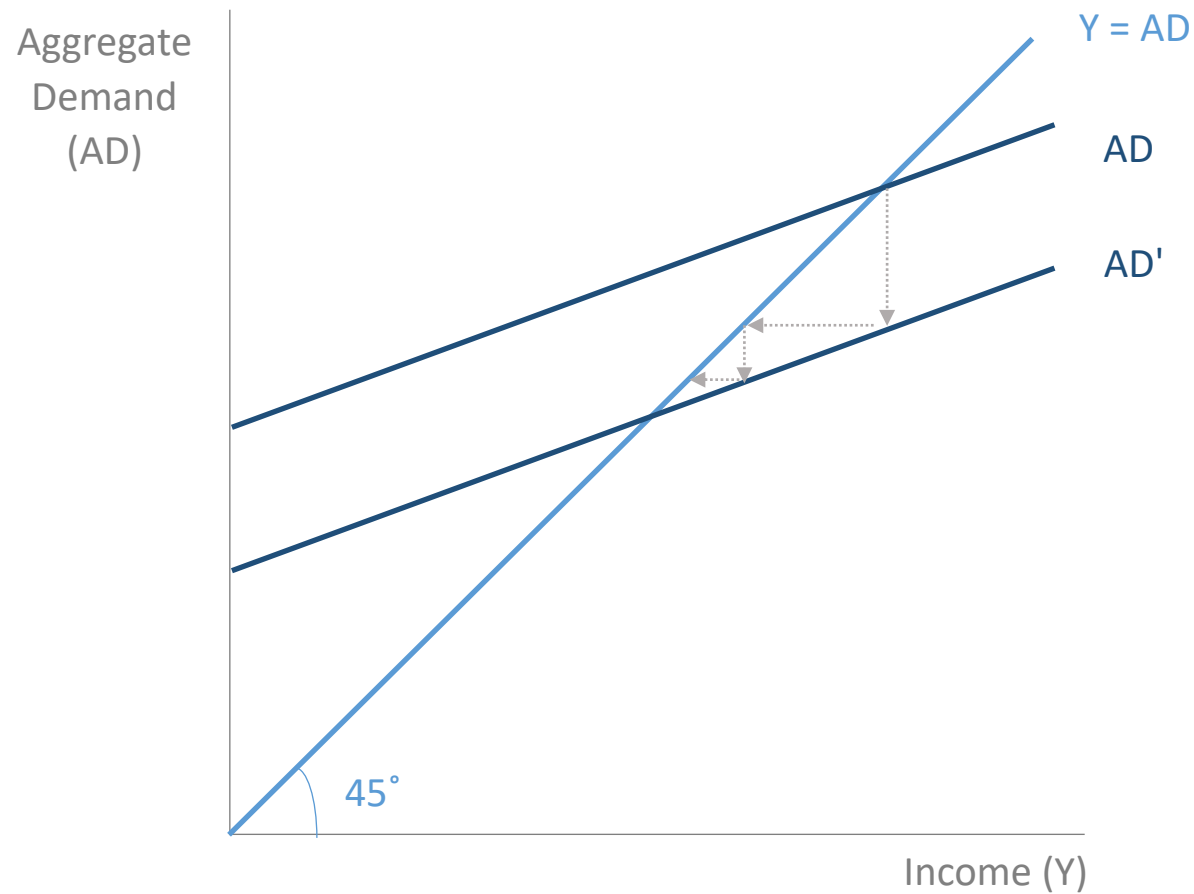
A Parable of the Babysitting Coop IV

- Possible solutions:

- | | | |
|------------------------------------------------|---|---------------------------------------------|
| 1. Kill the Germans/kick them out of the coop | } | Redefine membership:
Immigration |
| 2. Create another coop without the Germans | | |
| 3. Print more coupons | } | Expansionary policy:
Monetary |
| 4. Force the Germans to go out to a party | | |
| 5. Make the coupons expire | } | Fiscal |
| 6. Cap the number of coupons that can be held | | |
| 7. Offer other services other than babysitting | } | Alternative exchange:
Finance |
| 8. Create credit/IOUs | | |
| 9. Pay for babysitting with currency | } | Dollarization |
| 10. Change the coupon:hour ratio | | |
| | } | Inflation |
| | | |

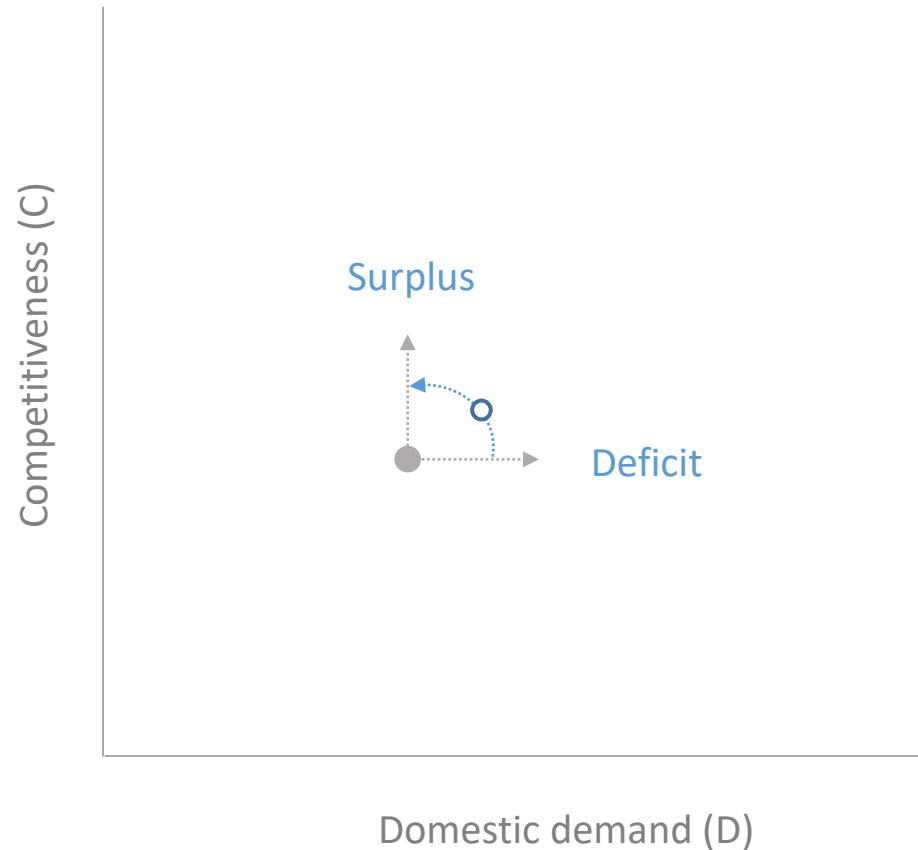
Aggregate Demand

- The multiplier process



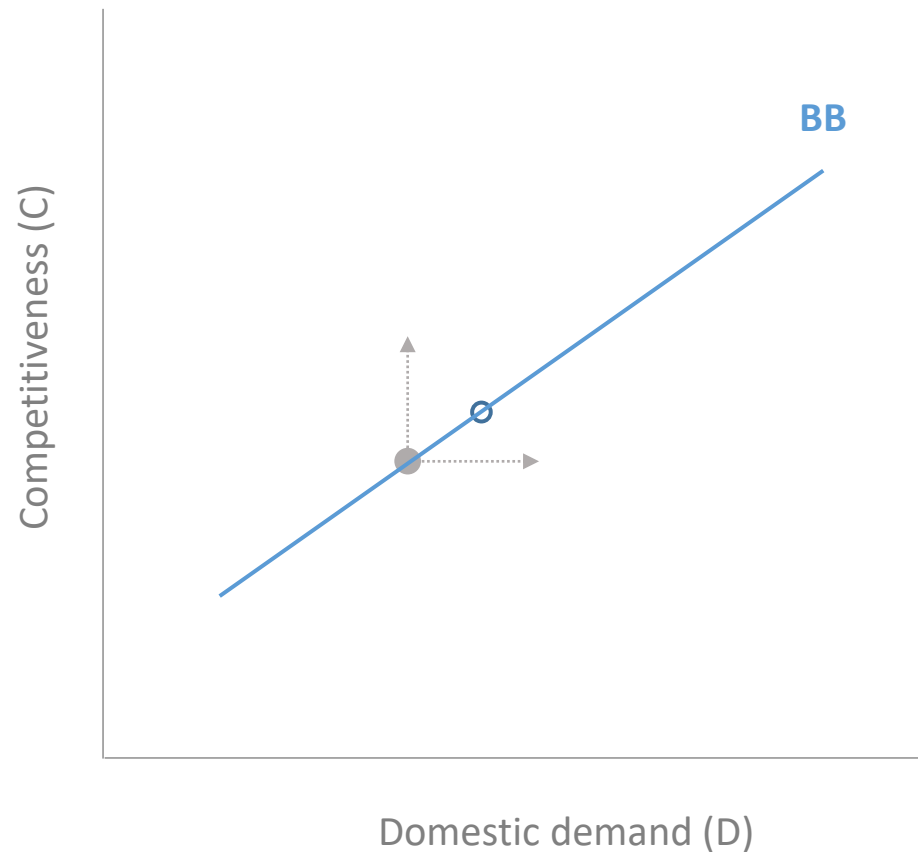
The BBNN Model I

- BB: Equilibrium in the balance of payments



The BBNN Model II

- The BB schedule traces external equilibrium



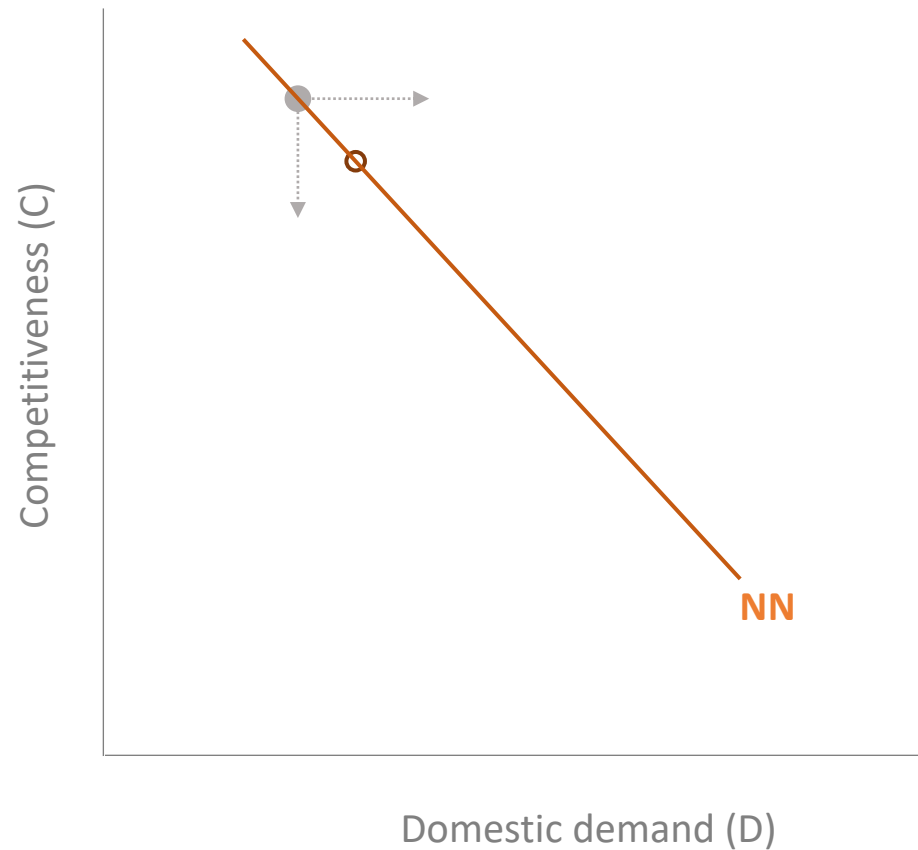
The BBNN Model III

- NN: Equilibrium in the labor market



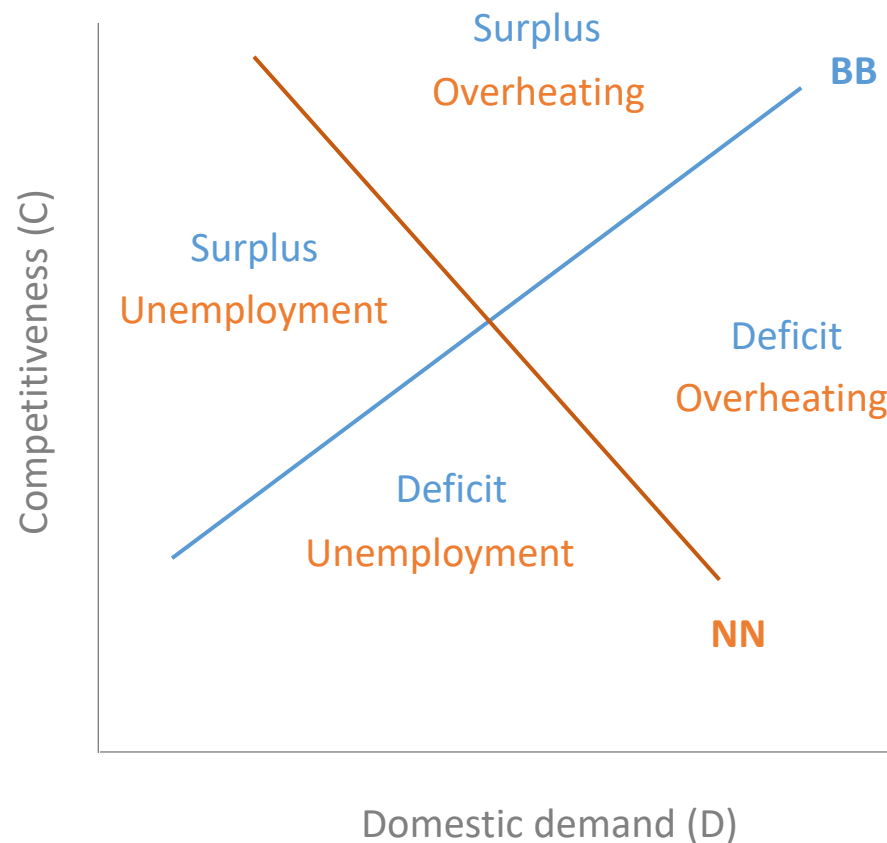
The BBNN Model IV

- The NN schedule traces internal equilibrium



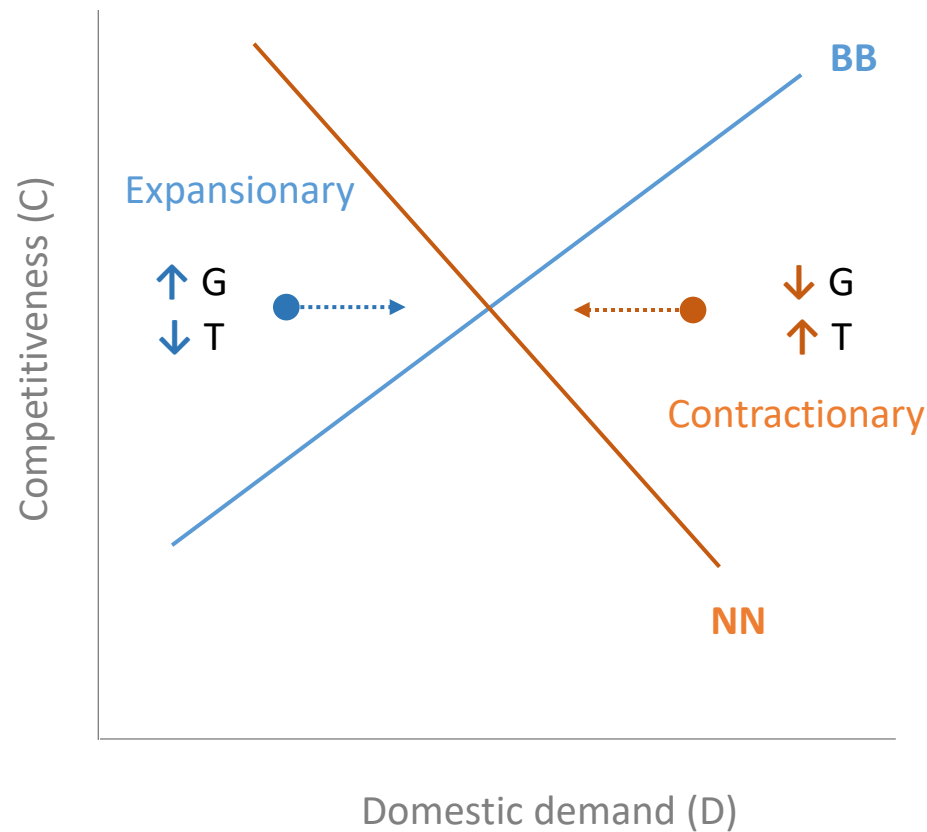
The BBNN Model V

- Diagnosing disequilibria using the BBNN model



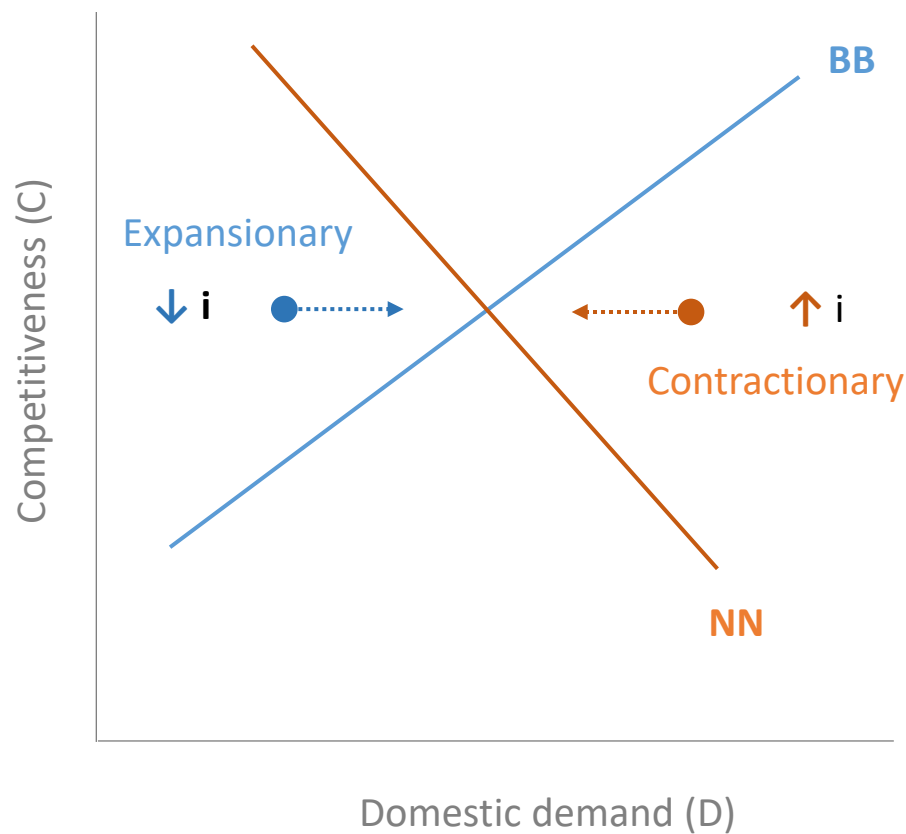
Policy Adjustment in the BBNN Model I

- Effect of fiscal policy



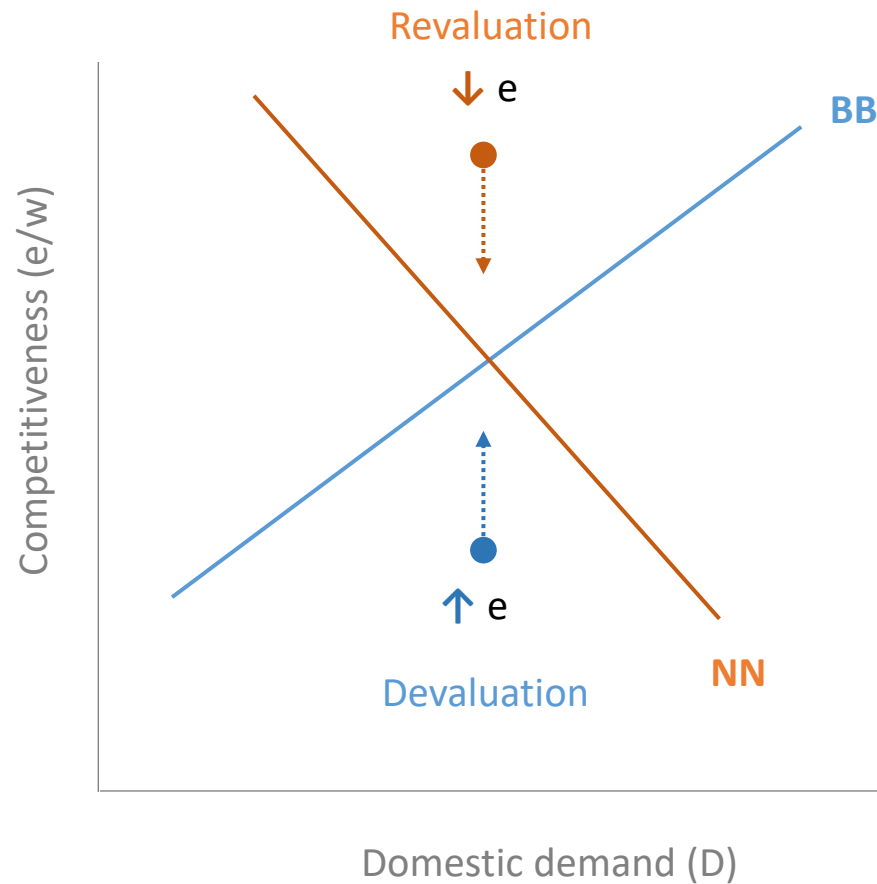
Policy Adjustment in the BBNN Model II

- Effect of monetary policy



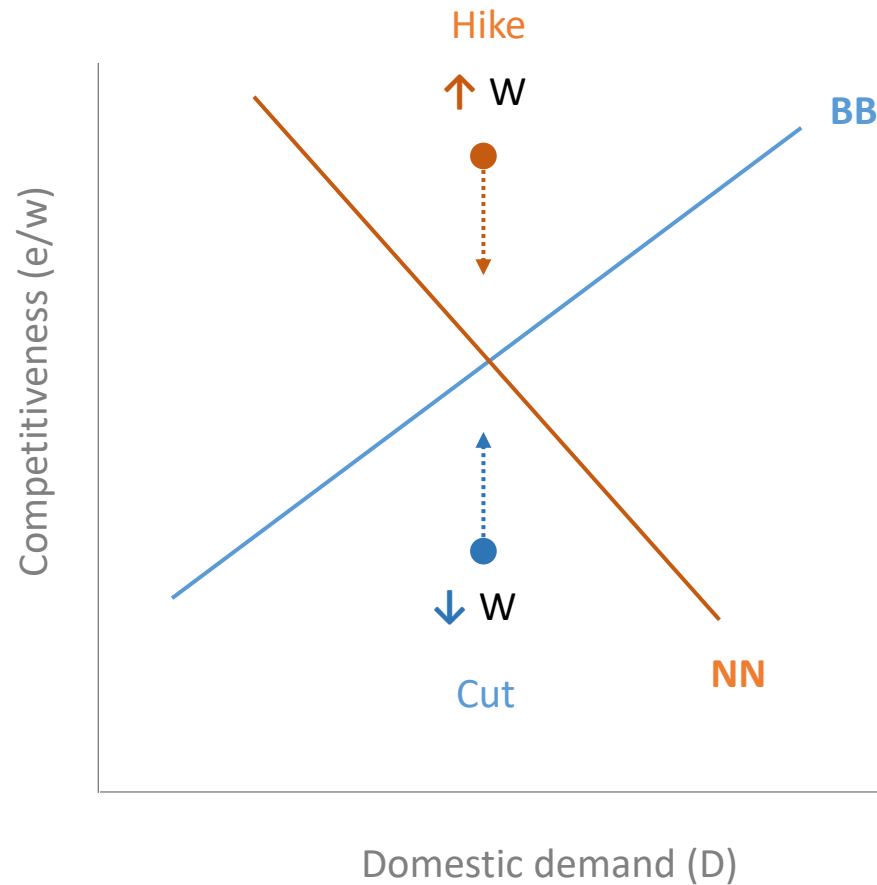
Policy Adjustment in the BBNN Model III

- Effect of exchange rate policy



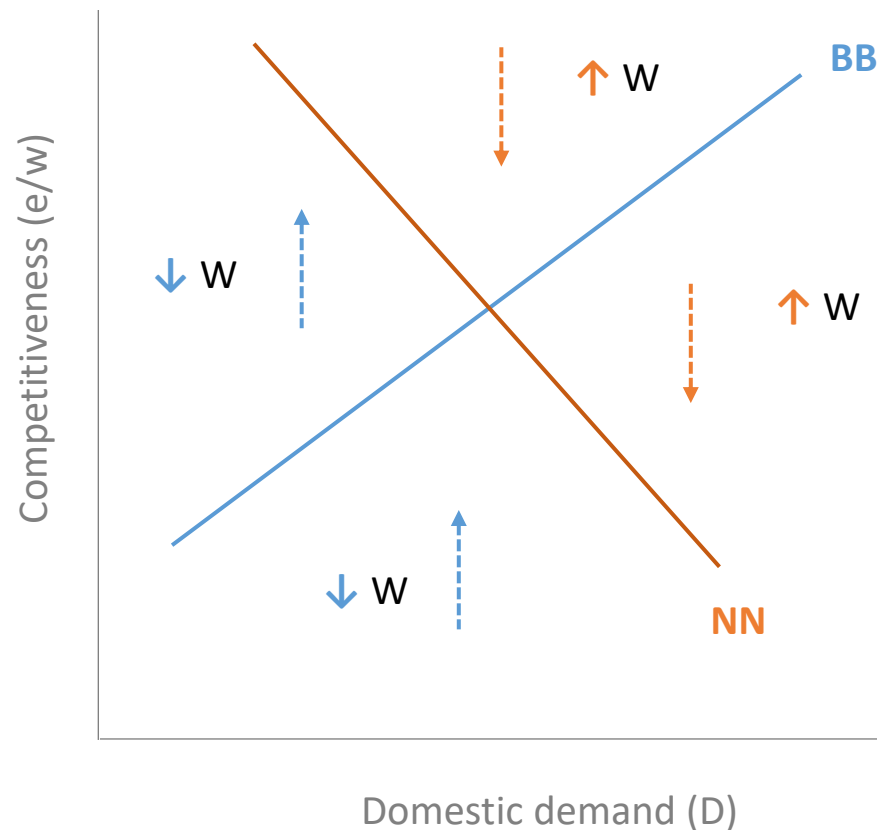
Policy Adjustment in the BBNN Model IV

- Effect of wage policy



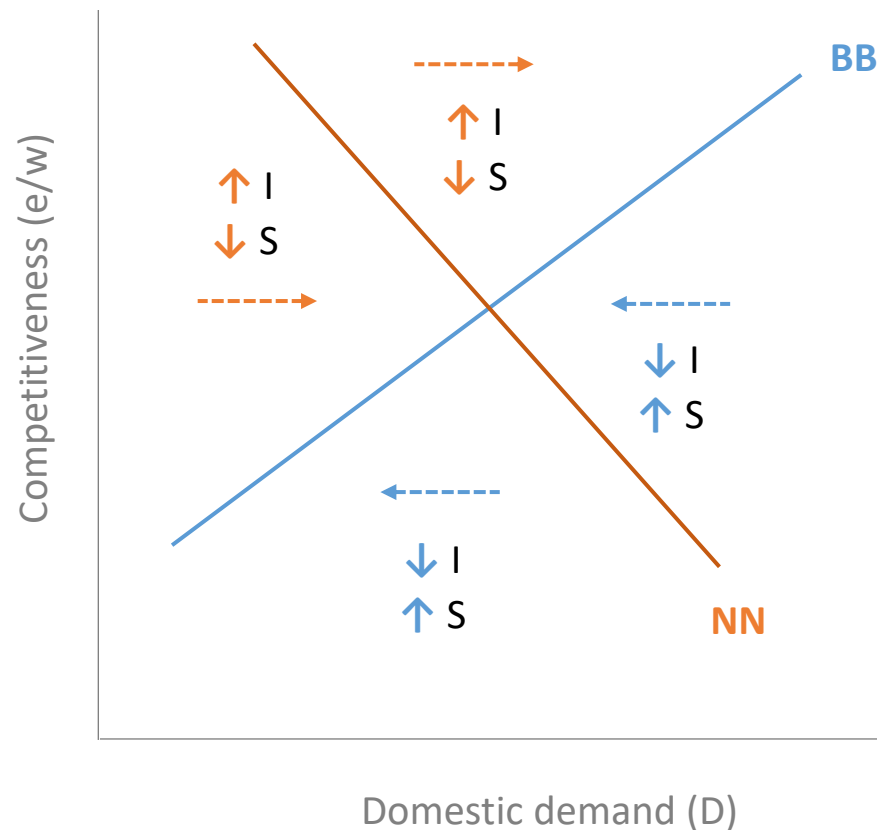
Automatic Adjustment in the BBNN Model I

- Effect of overheating and unemployment on wages



Automatic Adjustment in the BBNN Model II

- Effect of chronic surpluses and deficits on saving/investment

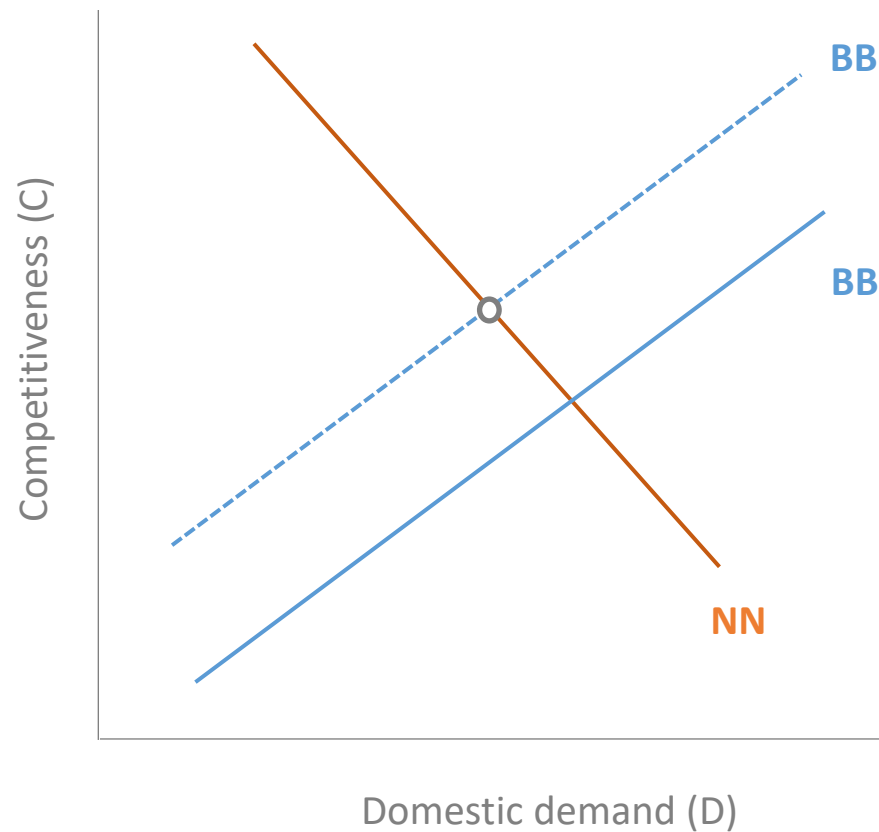


Types of Shocks in the BBNN Model

- In contrast to automatic or policy-induced adjustment (which involves *temporary* movements), shocks generate *permanent* shifts in the BB/NN curves
 - Shocks to competitiveness or demand move the economy *within* BB-NN space
 - All other shocks move the BB/NN schedules
- These other shocks could be:
 1. Internal or external
 2. Affecting production (BB) or labor (NN)

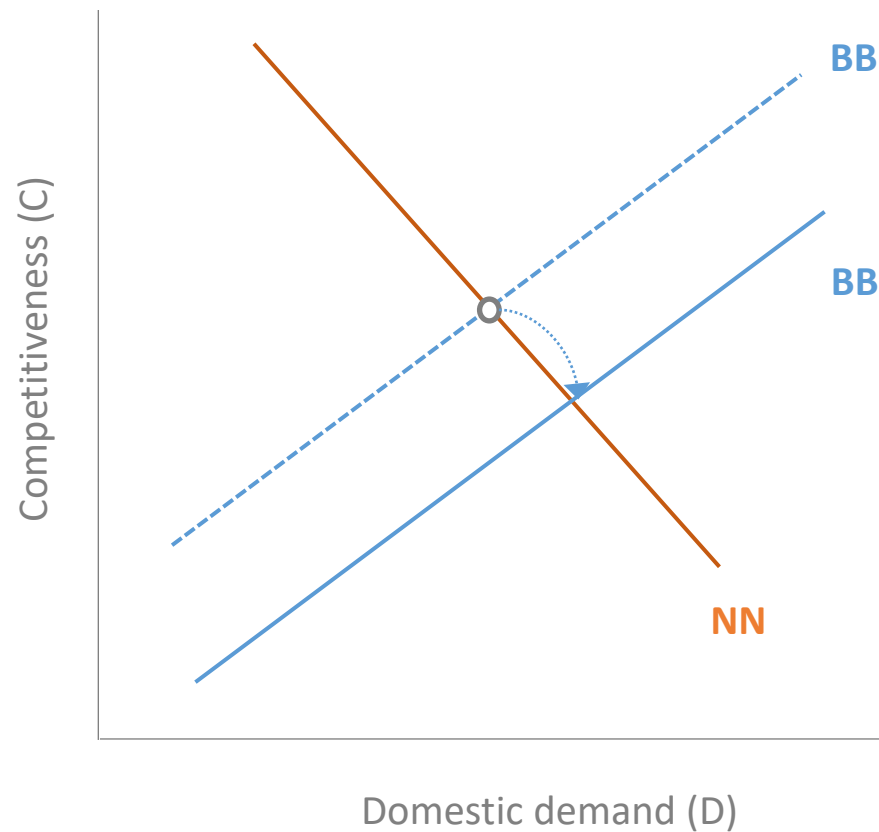
Shocks to the BB Schedule I

- Shock to the BB



Shocks to the BB Schedule II

- Post-shock adjustment

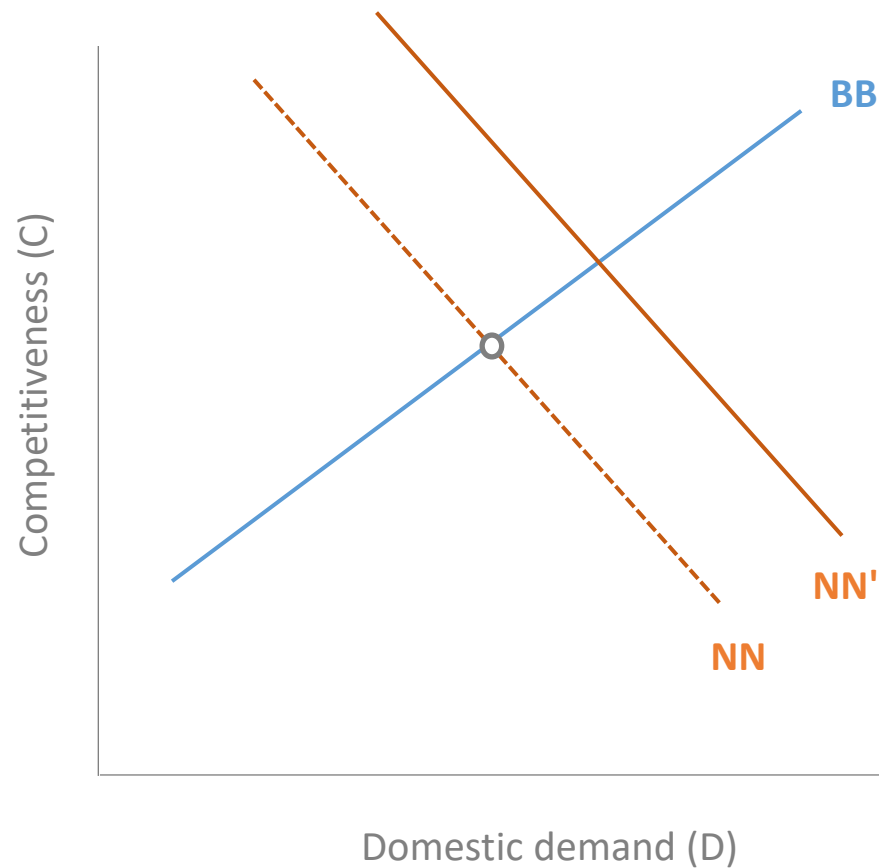


Shocks to the BB Schedule III

- Domestic shocks
 1. Technological improvements raise productivity
 2. (Circumscribed) natural disasters
- External shocks
 1. Terms of trade
 2. Foreign taste changes

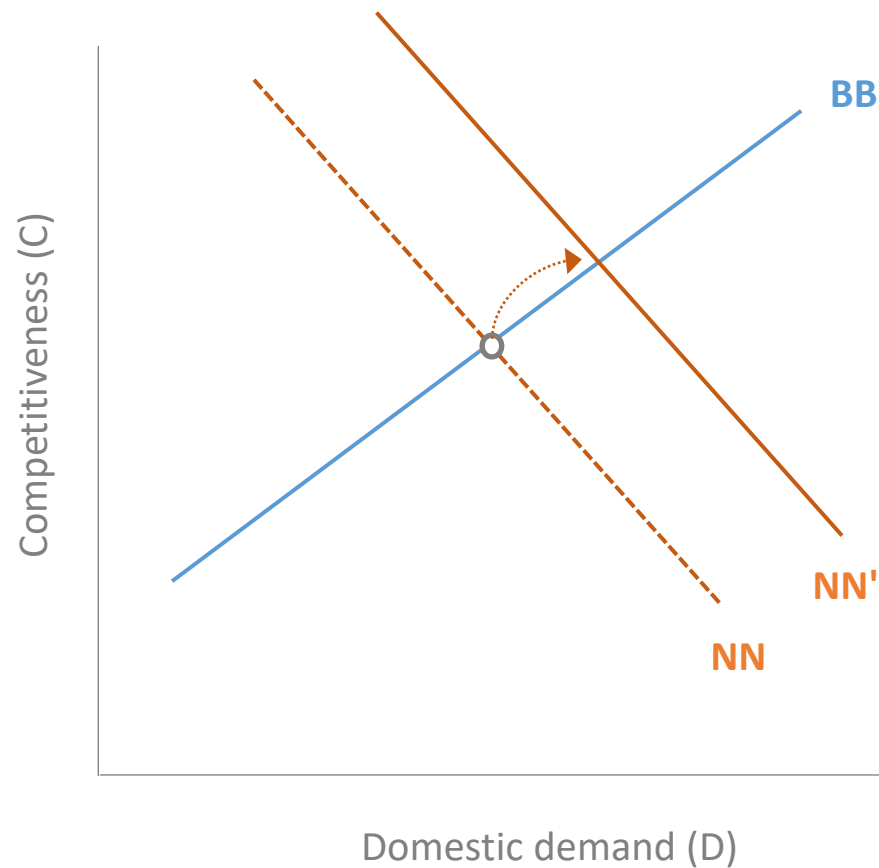
Shocks to the NN Schedule I

- Shock to the NN



Shocks to the NN Schedule I

- Post-shock adjustment



Shocks to the NN Schedule III

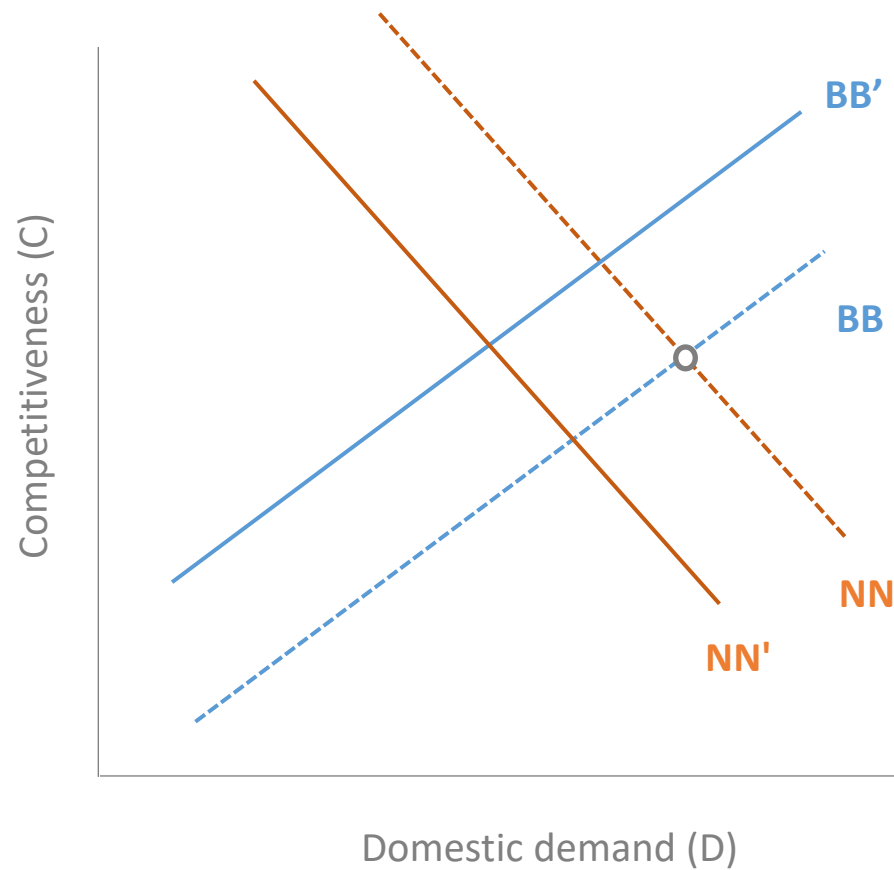
- Labor market shocks
 1. Participation
 2. Unemployment benefits
 3. Hiring and firing costs

Shocks to Both BB and NN Schedules II

- Complex shocks
 1. Full natural disasters
 2. Restrictions on international transactions

Complex Shocks I

- Shock to both BB and NN



Complex Shocks II

- Multiple shocks to BB

