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Exchange Rates, Wages, and International Adjustment: Japan and China versus the United States

Ronald McKinnon[1]
Stanford University

Seldom have the pages of the financial press in Europe and America been so full of grave editorializing on the need for a major depreciation of the dollar to correct the "unsustainable" current account and trade deficits of the United States. Much of this international moralizing directs the East Asian countries to stop pegging their currencies to the dollar—or, in China's case, to allow a large appreciation of the renminbi before moving to unrestricted floating. The message is that, in order to reduce their trade surpluses and thereby reduce America's trade deficit, the East Asian economies and many European ones should let their currencies appreciate against the dollar.

The Exchange Rate and the Trade Balance

Unfortunately, this conventional wisdom is wrong. The common presumption that an exchange rate change by itself has a predictable effect on a country's trade balance is incorrect. In particular, a deep devaluation of the dollar would have (is having) unacceptable worldwide macroeconomic consequences *without* correcting the U.S. trade and current account deficits. Among financially open economies, sustained exchange rate changes must reflect relative monetary policies expected in the future: relatively tight money and deflation in the appreciating countries, and relatively easy money with inflation in the country whose currency depreciates.

The high-saving countries in Asia and Europe (and including Canada), all creditors of the low-saving United States, face the specter of a growth slowdown or outright deflation should their currencies appreciate. For example, the repeated appreciations of the yen from 1985 to 1995 created the bubble in Japanese land and equity values from 1987 to 1990 and then, with the inevitable collapse of the bubble, threw Japan into a deflationary slump in the 1990s. In 2003 and 2004, the Japanese economy staged a partial recovery on the back of the China boom. But the current rise of the yen toward 100 to the dollar could well throw Japan into a renewed deflationary slump in 2005. Similarly, with the 60 percent appreciation of the euro against the dollar in 2002-2004, continental Europe is facing slower economic growth—although not yet as protracted as the earlier Japanese experience.

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These exchange-rate induced growth slowdowns or slumps in the appreciating economies sharply reduce their demand for imports. At the same time, their exports become more expensive in world markets. Because the fall in exports is coupled with a fall in imports, the net effect on their trade balances is unpredictable (McKinnon and Ohno 1997, chs 6 and 7). The ever-higher yen from 1971 to 1995 led to even bigger Japanese trade surpluses. All that is predictable is that the appreciating country will suffer deflationary pressure. However, if outside commentators and government officials persist in the mistaken belief that appreciation will reduce the trade surpluses of America's creditor countries, their "talk" encourages hot money flows out of dollars into the currencies of creditor countries in Asia and Europe. These countries then find it more difficult to avoid actual appreciation and unwanted deflation.

Conversely, if deflationary pressure in creditor countries is muted because of orchestrated joint appreciations of their currencies against the dollar, this would induce an outburst of unacceptably high inflation in the United States. For example, President Nixon's well-telegraphed depreciation of the dollar in August 1971 touched off a flight from dollar assets and also the high and volatile U.S. inflation of the 1970s.

Exchange rate changes are not the answer to American trade deficits and Asian trade surpluses. Today's major distortion in the world's financial system is America's saving deficiency, large fiscal deficits by the Federal Government and meager household saving, coupled with a virtually unlimited dollar line of credit on which to borrow from the rest of the world. Heavy U.S. borrowing in international markets is then transferred in terms of real resources by foreign countries running trade surpluses with the United States. The U.S. current-account deficit forces Canada and countries in Asia, Europe, and now even in Latin America, into current account surpluses.

The Exchange Rate and International Competitiveness

At least some of the critics of Asian countries' pegging to the dollar would agree that low saving in the United States, rather than misaligned exchange rates, is the root cause of the trade imbalance. However, suppose a country with very high productivity growth such as China trades with countries with much lower productivity growth. Japan and Europe have overall trade surpluses, and the United States has an overall trade deficit. But all of these more mature industrial countries have much lower productivity growth than China's. Isn't exchange rate flexibility with ongoing appreciation of the renminbi more or less necessary to balance international competitiveness by offsetting the productivity differential between China and its slower growing trading partners? Indeed, because of foreign unease, China has promised that the yuan/dollar exchange rate will become more flexible in the future.

It is important to pin down what the Chinese government should mean by greater exchange rate "flexibility". Allowing a slightly wider band around the central rate of 8.28 yuan per dollar, within which the market rate could fluctuate freely daily or weekly, would efficiently decentralize the foreign exchange market. Indeed, as capital controls are replaced by careful prudential regulation over net foreign exchange exposures of

Chinese commercial banks, widening the band to, say, 1 percent on either side of the "parity" rate of 8.28 yuan per dollar—a 2 percent band—would make the foreign exchange market more flexible. (The current margins are only about 0.3 percent on either side of 8.28.) The clearing of most international payments would devolve from the People's Bank of China (PBC) to the commercial banks, which could then create hedging markets in foreign exchange futures and options. If the band is fully credible, the PBC need seldom intervene except in crises to maintain it. But changes in the market exchange rate within such a narrow band would not significantly affect—or be intended to affect—China's competitiveness in international markets for goods or services.

As long as the American price level remains stable, more flexibility in the *central* exchange rate of 8.28 yuan per dollar is neither necessary nor desirable for balancing international competitiveness with China's neighbors in the long run. International adjustment occurs by money wages naturally growing faster in the country with higher productivity growth. But this mechanism of differential wage adjustment, with more rapid wage growth in China than the United States, only works well when enterprises and workers in China are confident that the central rate will remain fixed indefinitely, and China's inflation remains more or less aligned with that in the United States. Then Chinese employers in the rapidly growing tradables sectors, largely manufacturing, will vigorously bid for workers subject to the constraint of having to remain internationally competitive at the fixed nominal exchange rate. Money wages, particularly for the increasingly skilled workers, then rise in line with the high-productivity growth.

In the 1950s and 1960s under the Bretton Woods system of fixed dollar exchange rates, this wage-adjustment phenomenon was first articulated for high-growth Scandinavia. But high productivity growth in postwar Japan provides an equally striking example.

Japan's Dollar Exchange Rate in Historical Perspective

When the yen was fixed at 360 to the dollar from 1950 to 1971, the importance of relative wage adjustment between Japan and the United States was pronounced. Table 1 gives the summary statistics for this remarkable era of very high Japanese growth in comparison to those of the wealthier, and consequently more slowly growing, United States. From 1950 to 1971, Japan's annual growth in real output was 9.45 percent while industrial production grew an even more astonishing 14.56 percent per year. Unsurprisingly, the annual growth in Japanese labor productivity of 8.92 percent was far in excess of the 2.55 percent in the United States. However, the balancing item was that average money wages grew at a robust rate of 10 percent per year in Japan and only 4.5 percent in the U.S. Figure 1 shows the dramatic rise of Japanese money wages relative to American wages under the Bretton Woods system of fixed dollar exchange rates.

Keeping the yen at 360 per dollar effectively anchored Japan's price level for tradable goods. In the 1950s and 1960s, the Japanese wholesale price index (WPI) rose less than 1 percent per year whereas the American WPI rose a bit more than 1 percent (Table 1). Because the bulk of world trade was invoiced in dollars, fixing an exchange

rate to the dollar was (is) a stronger anchor for the price level than the size of Japanese bilateral trade with the United States would suggest.

In Japan's high-growth era, fashioning a purely domestic monetary anchor would have been more difficult. As in China today, restrictions on domestic interest rates proliferated; and the rate of growth in narrow money was high and unpredictable—more than 16 percent per year from 1950 to 1971 as Japanese households rebuilt their financial assets after the war. Thus having the Bank of Japan simply key on the dollar exchange rate was the most convenient instrument for stabilizing Japan's price level.

By the end of the 1960s, however, American monetary policy became too inflationary. The loss of America's foreign competitiveness was too great for the Bretton Woods system of fixed dollar exchange parities to survive. President Nixon had to choose between disinflating at home and thus maintaining the fixed rate system, or forcing a devaluation of the dollar against other major currencies while continuing to inflate. He chose to devalue in August 1971, and the United States suffered the great inflation of the 1970s.

However, for two decades after August 1971, productivity growth in Japan remained high relative to that in the United States. Japanese exports made major inroads into American markets for steel, autos, machine tools, semi-conductors, and so on. In the midst of numerous trade disputes, the U.S. government reacted by continually trying to "talk" or force the yen up on the presumption that an appreciating yen would improve America's external competitiveness[2]. Indeed, the yen did rise all the way from 360 in 1971 to touch 80 to the dollar in April 1995 and threw Japan into a deflationary slump.

The deflation also reduced growth in Japanese money wages. It essentially destroyed the natural wage-adjustment mechanism for balancing international competitiveness that had held when the exchange rate was fixed. Once the yen began to appreciate, Figure 2 shows the breakdown in relative wage adjustment—albeit with a lag. Before 1975, money wage growth in Japan remained much higher than in the United States. Subsequently, as relative deflation in Japan set in (particularly from the sharp rise in the yen in 1977-78), Japan's money wage growth slowed sharply. From the 1980s into the new millennium, it became even lower than that in the United States. So, besides damaging the Japanese economy in a macroeconomic sense while failing to reduce its trade surplus, the erratically appreciating yen undermined the natural process of relative wage adjustment for balancing international competitiveness.

Although the yen has not appreciated on net balance since 1995, it has fluctuated widely against the dollar. Without the assurance of a fixed exchange rate anchor, re-establishing growth in Japanese money wages to accurately reflect (potential) productivity growth remains problematic. In 2004, annual money wage growth in Japan was only 1.4 percent whereas in the U.S. it was 2.4 percent.

[2] As discussed in detail in Chapter 4 of McKinnon and Ohno (1997).

Wage Adjustment in China under a Fixed Exchange Rate

Unlike Japan, China has kept its exchange rate stable since 1994—and did not have the earlier misfortune of being pushed into a deflationary slump from an appreciating currency. Table 2 provides the key summary statistics comparing China to the United States. From 1994 through 2003, money wages in manufacturing increased by about 13 percent in China and by just 3 percent in the United States. This 10 percentage-point wage-growth differential approximately reflected the differential growth of labor productivity: about 12.3 percent in China[3] versus 2.7 percent in the United States since 1994. Under the fixed yuan/dollar exchange rate, the appropriate wage-adjustment mechanism for balancing international competitiveness seems to be alive and well.

Figure 3 shows China's dramatically higher growth in money wages in manufacturing relative to the United States over the past decade. Within China, Figure 4 show that wages in all sectors were rising fast—with wage growth in manufacturing about the median for the economy as a whole. Much of this reflects the upgrading of skills and greater work experience of the labor force. True, at the margin, the wages of unskilled migrant workers may be lagging—and many of these seem to be absorbed into construction activities where average wages show the slowest rate of growth in Figure 4.

China's exchange rate stabilization in 1994 followed a major depreciation of the renminbi associated with the unification of the official exchange rate at the much higher "free-market" swap rate. Figure 5 shows that the official rate jumped from 5.5 to 8.7 yuan per dollar. Because much of China's trade—particularly in manufacturers—had been transacted at the higher swap rate, this jump in the official rate overstates the effective devaluation. Nevertheless, because of a temporary burst of domestic inflation from 1993 to 1996 as shown in figures 5 and 6, the "real" devaluation was negligible. But the nominal devaluation certainly exacerbated the inflation. By 1996, the renminbi had appreciated slightly to 8.28 to the dollar where it has remained ever since. Chinese price inflation then settled down after 1996 and seems have converged close to the American level. In 2004, the China's CPI rose 3.8 percent while that in the United States rose 3.3 percent. The fixed rate regime now serves China as a nominal anchor for its price level much like the fixed yen/dollar rate served Japan in the 1950s and 1960s.

One might argue that, in 2004, inflation was too high in *both* China and the United States. But under the international dollar standard, only the center country can exercise monetary policy independently. Thus the onus is on the United States to disinflate. Fortunately, in 2005, the Federal Reserve seems to be committed to steadily increasing short-term interest rates back to more normal levels after its unprecedented monetary easing (low federal funds rates) in 2003 and 2004. Thus, in 2005, inflation should calm down in both countries. China should have less trouble with inflows of "hot" money, and even less trouble if outside commentators and government officials stop talking about the "need" to appreciate the RMB.

[3] This estimate of productivity growth is not official, and was taken from Zhang and Tan (2004). In both countries, how best to measure labor productivity growth is controversial. Estimates for China can vary.

More generally for the increasingly integrated East Asian economies, China's fix at 8.28 yuan per dollar has become the key to intra East Asian exchange stability in the new millennium. All the others more or less peg to the dollar and thus to each other. If this fixed rate system continues, adjustment in relative wage growth in the other East Asian economies becomes the main vehicle for balancing international competitiveness.

Currently, the weakest link seems to be Japan. The yen/dollar rate has not been credibly fixed within a narrow range despite massive interventions by the Bank of Japan to prevent the yen from appreciating. The fear of future yen appreciation and further deflation is still rife—and money wages are not adjusting properly. So the first order of business is for the Bank of Japan is to come up with a more credible dollar fix for the yen that would better stabilize intra East Asian exchange rates while ameliorating deflationary fears in Japan itself. For more on that story, see my new book, *Exchange Rates under the East Asian Dollar Standard,* just out (2005) from the MIT Press.[4]

References

Fernholz, Ricardo, *China, Japan, and Maintaining International Competitive Balance under a Fixed Exchange Rate* Senior Honors Thesis, Stanford University.

McKinnon, Ronald and Kenichi Ohno, *Dollar and Yen: Resolving Economic Conflict between the United States and Japan* MIT Press, 1997 (Japanese translation 1998).

McKinnon, Ronald, *Exchange Rates under the East Asian Dollar Standard: Living with Conflicted Virtue* MIT Press, 2005. (Chinese and Japanese translations forthcoming).

Zhang, Xiaobo and Kong-Yam Tan, "Blunt to Sharpened Razor: Incremental Reform and Distortions in the Product and Capital Markets in China", International Food Policy Research Institute, DSGD Discussion Paper #13, August 2004.

[4] And the earlier book, McKinnon and Ohno (1997).

Figure 1: Nominal Manufacturing Wage Growth for US and Japan: 1950-1971

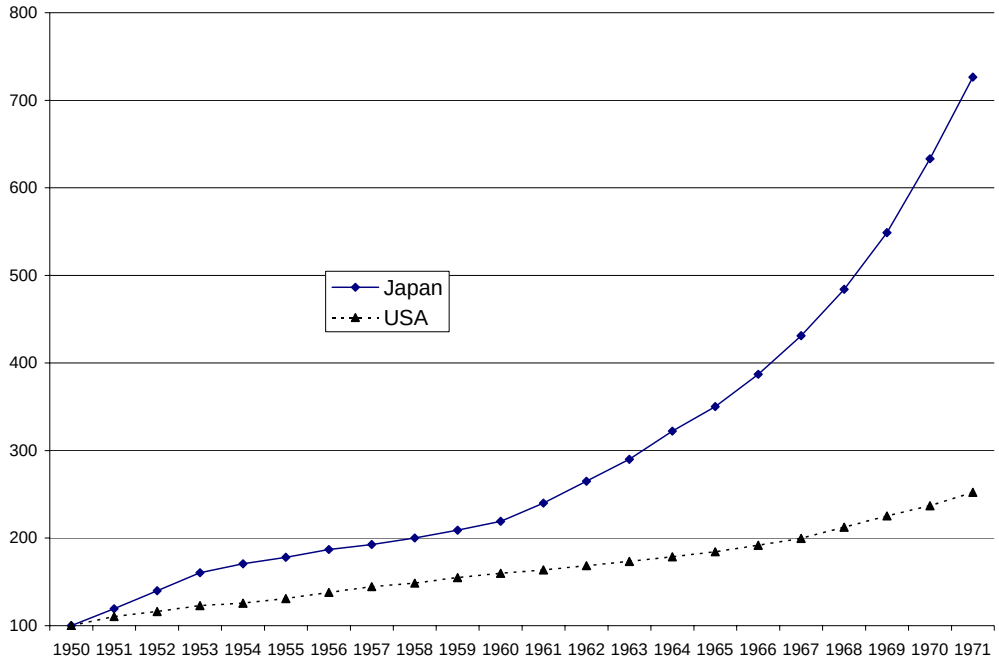
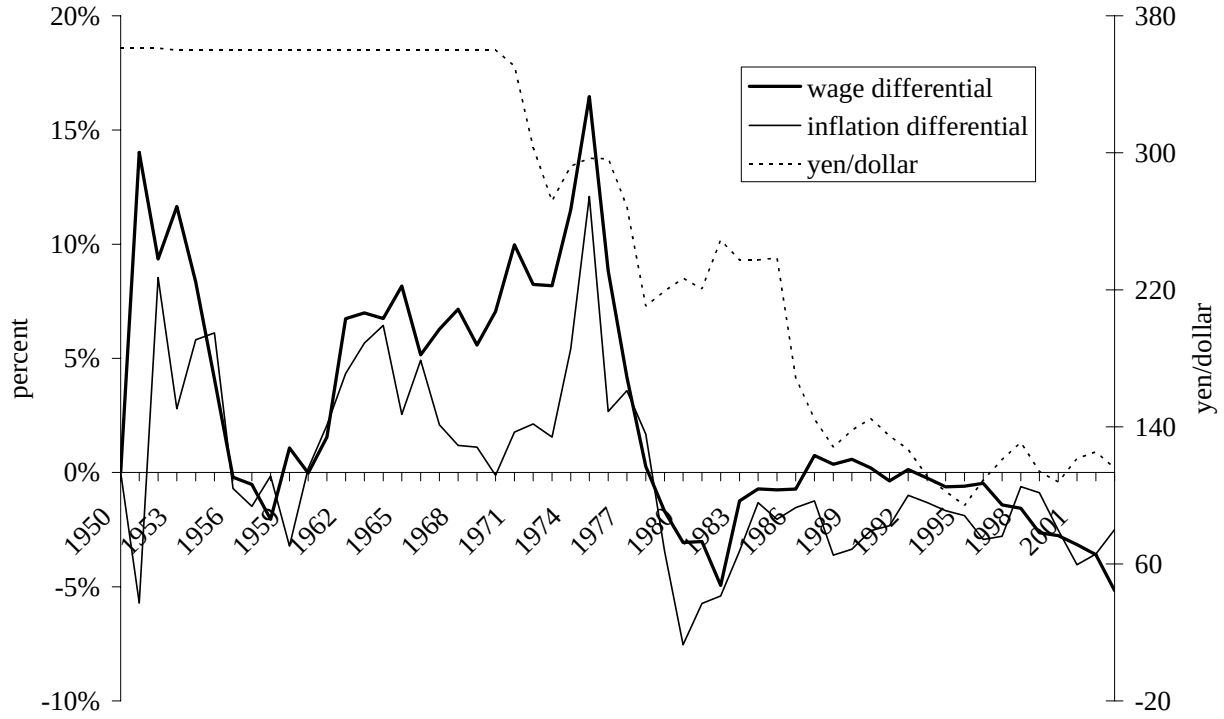


Figure 2: Inflation and Wage Differential between Japan and US, and Yen/Dollar Rate, 1950 to 2004



Source: IMF: IFS. Positive values indicate higher inflation and higher wage increases in Japan.

Figure 3: Nominal Manufacturing Wage Growth for US and China, 1994-2003 (Base Year 1994 = 100)

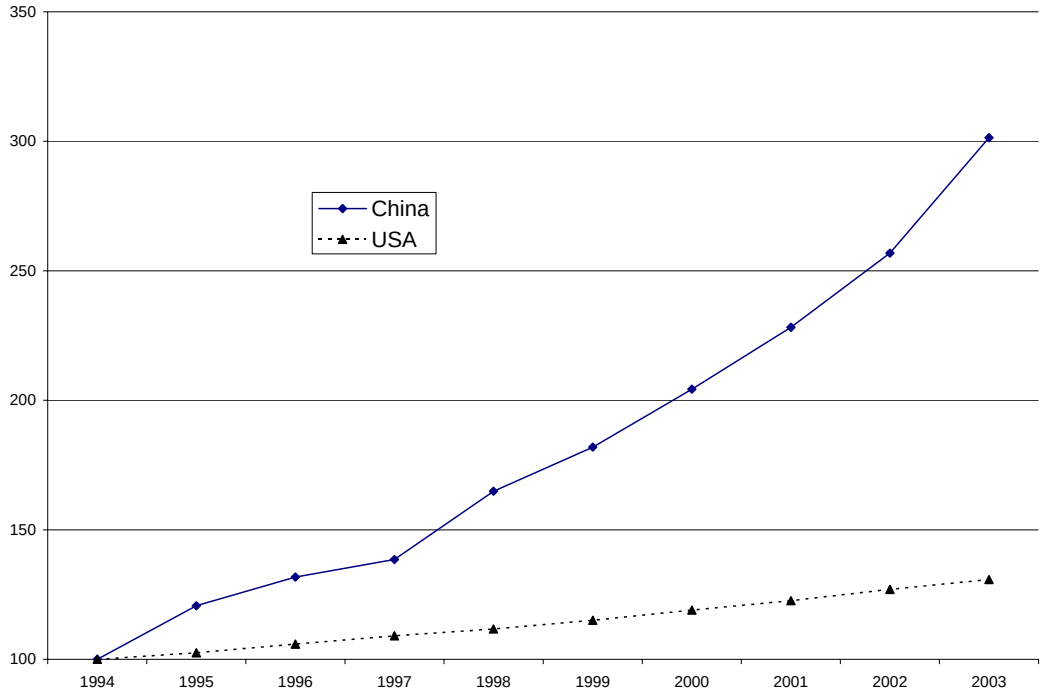


Figure 4: China: nominal Wages Across Different Sectors, 1994-2002

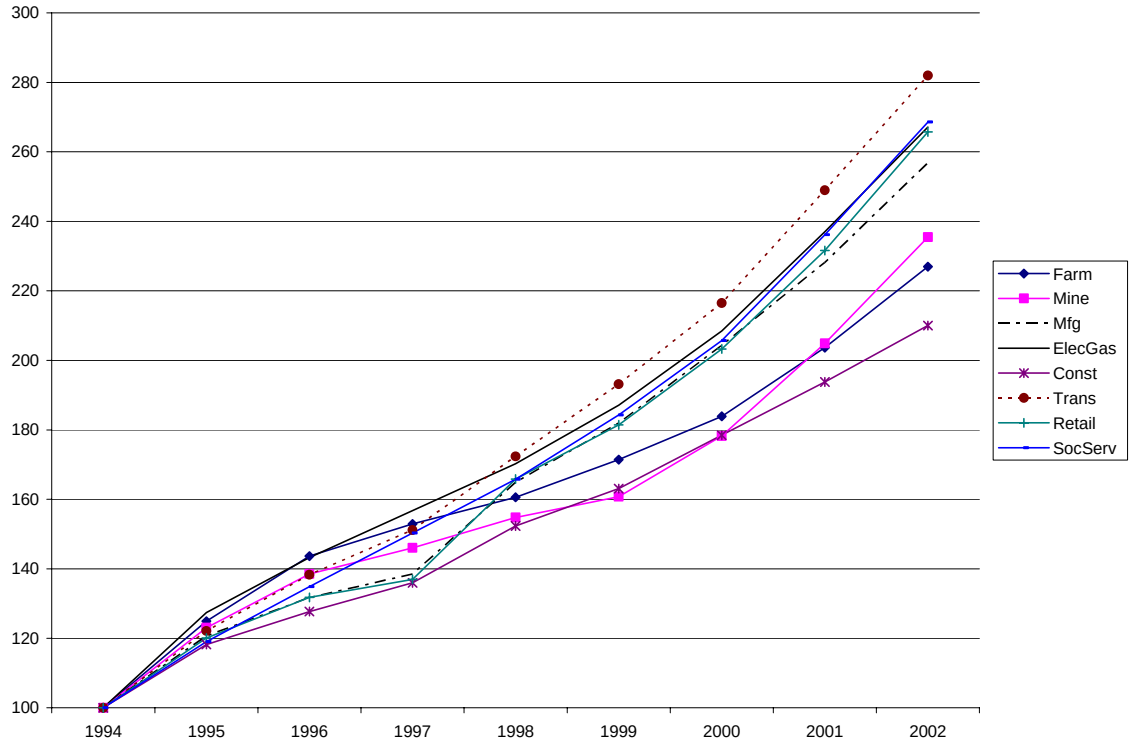


Figure 5: China, Dollar Exchange Rate and Consumer Price Inflation, 1990 t0 2004

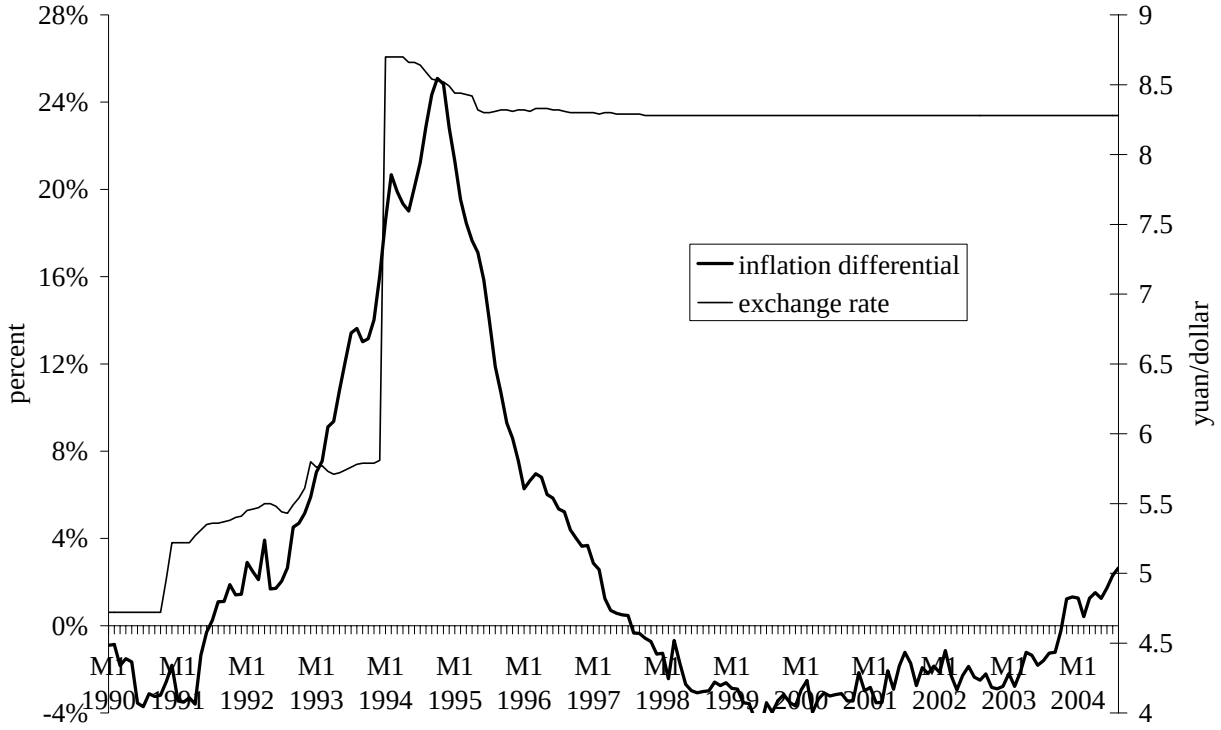


Figure 6 : CPI and WPI for US and China, 1994-2003

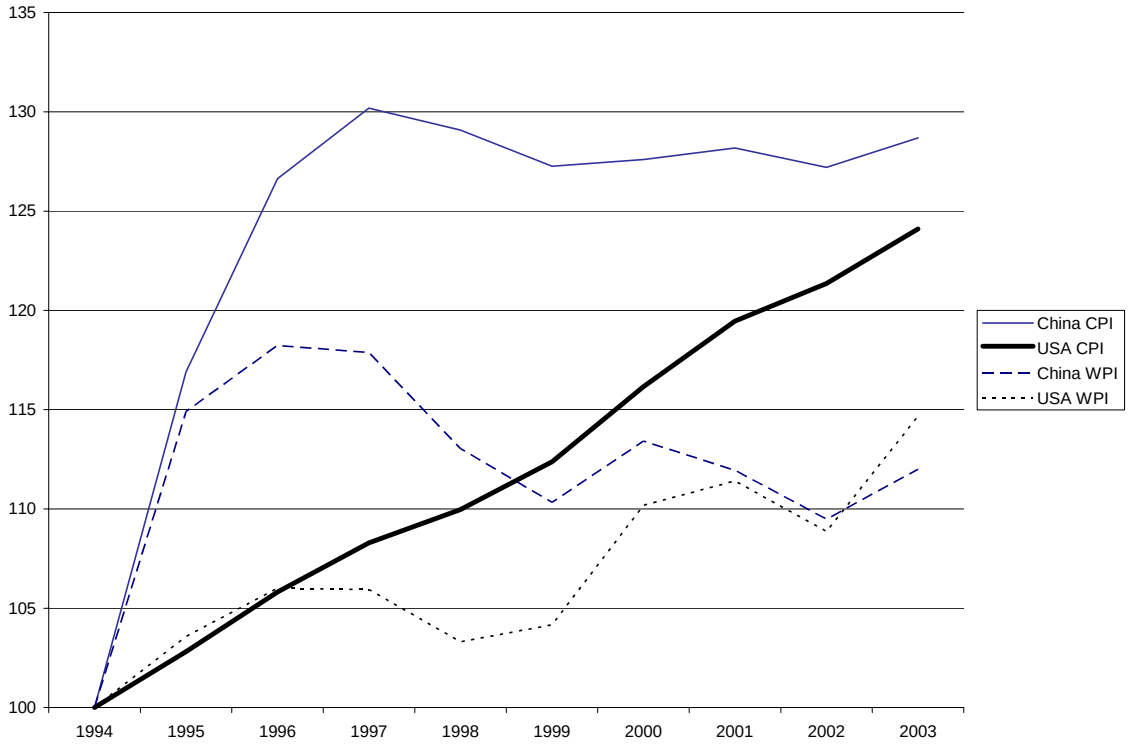


Table 1: Key economic indicators for Japan and the United States, 1950-1971 (average annual percent change)

Wholesale prices		Money wages		Consumer prices		Industrial production	
U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan
1.63	0.69[a]	4.52	10.00	2.53	5.01	4.40	14.56
Real GDP		Nominal GDP		Narrow money		Labor productivity	
U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan
3.84	9.45[a]	6.79	14.52[a]	3.94	16.10[b]	2.55	8.92[c]

Source: IMF, *International Financial Statistics*, CD-ROM, October 2003, unless otherwise noted. Japanese real income data, wholesale price data, and labor productivity data are from *Japan Economic Yearbook*, 1960-1971, *Economic Survey of Japan*, 1954-1959, and *OECD Economic Surveys: Japan*, 1964-1971. Labor productivity data for the U.S. are obtained from the index for the nonfarm business sector as reported by the Bureau of Labor Statistics. Note that labor productivity refers to the industrial sector.

[a] 1952-1971.
[b] 1953-1971.
[c] 1951-1971.

Table 2: Key economic indicators for China and the United States, 1994-2003 (average annual percent change)

Wholesale prices		Money wages (Mfg)		Consumer prices		Industrial production	
U.S.	China	U.S.	China	U.S.	China	U.S.	China
1.53	1.26[a]	3.03	13.04[b]	2.43	2.84	3.00	12.17[c]
Real GDP		Nominal GDP		Narrow money		Labor productivity	
U.S.	China	U.S.	China	U.S.	China	U.S.	China
3.17	8.55	5.03	10.74	4.16	17.88	2.70	12.32[d] 9.48[e]

Source: IMF, *International Financial Statistics*. CD-ROM, Nov 2004, unless otherwise noted. Chinese CPI, manufacturing wage data, labor productivity data, real income data, and wholesale price data are from *China Statistical Yearbook*, 2004. Labor productivity data for the U.S. are obtained from the index for the nonfarm business sector as reported by the Bureau of Labor Statistics. The China labor productivity data refers only to the industrial sector.

[a] Ex-factory price index.
[b] 2003 data on manufacturing wages is projected from overall average wages from 1997-2003.
[c] 1994-2002.
[d] 1994-2001. Zhang and Tan
[e] 1994-2002. R. Fernholz