

A COMPETITIVENESS ANALYSIS OF THE US-JAPAN TRADE RELATIONS, 1985-1995

Mohammed Ansari

Carl H. Tong

Allen L. Bures

Radford University

ABSTRACT

The US trade deficit with the rest of the world rose during the 1985-1995 period and the trade deficit with Japan accounted for the major share of the overall US trade deficit. This article provides measures of US trade deficits with Japan, offers an analysis of the measures of competitiveness, and discusses some macro-level factors which seem to have contributed to the large US trade deficit with Japan.

The US, after being a large creditor nation in the interwar period and in the 1960s, turned into a large debtor nation in the 1980s and the 1990s. The standard theory of current account behavior tells us that a country moves from being a net debtor to a net creditor status as it advances from a lower level of growth and development to a higher level of growth and development (e.g., see Dunn, Jr. and Ingram 1996, 272-276). During the early stages of economic development, a country suffers from a lack of capital stock. With a low level of income, it cannot generate sufficient saving to boost investment. A high return on capital attracts foreign capital which helps bridge the gap between saving and investment. Typically, the country ends up importing more than exporting, causing a large current account deficit to match the growing surplus on the capital account. With growth, the level of income rises and so does saving. This, along with a reduced need for investment, means that the country can export more, gradually reducing the current account deficit. Eventually, a mature developed economy is expected to enjoy a high level of income and saving. With growing stock of capital, return on capital is depressed causing it to seek more profitable venues outside the country. A developed country can export more, leading to an increase in current account surplus. This as well as the concomitant large capital account deficit makes the country a large creditor nation.

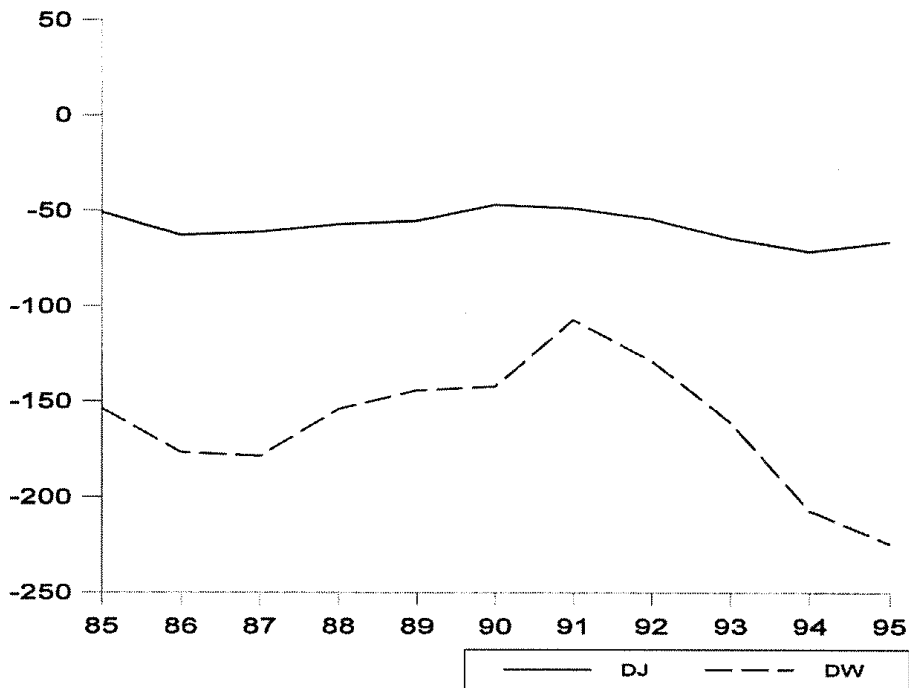
Japan's postwar economic boom reached its peak in the late 1980s. This was symbolized in 1989 by Mitsubishi Estate's purchase of 51 percent of an American icon, New York's Rockefeller Center. In the early 1990s, Japan's stock and property prices collapsed, many Japanese financial institutions faced difficulties because of nonperforming loans, and Japan's economy became stagnant (Porter and Takeuchi 1999; Bremner and Thornton 1999). These developments made the 1985-1995 period important in Japan's recent business and economic history.

The US trade deficit with the rest of the world rose over the 1985-1995 period and the trade deficit with Japan accounted for the major share of the overall US trade deficit. In this paper we examine the behavior of the US trade deficit with Japan over the period 1985-95. The objectives of this paper are threefold: (1) to provide measures of US trade deficits with Japan at both the aggregative and the disaggregative levels; (2) to offer an analysis of the measures of competitiveness and examine the changes in the competitiveness position of the US vis-à-vis Japan; and (3) to discuss some macro-level factors which seem to have contributed to the persistently large US trade deficit with Japan.

Nature and Magnitude of the US Trade Deficit with Japan

To put things into perspective, the US trade deficit with the rest of the world rose from approximately 153 billion dollars in 1985 to approximately 224 billions dollars in 1995, which represented a 50 percent increase. The trade deficit with Japan accounted for a big share of this overall US trade deficit. In fact, the US trade deficit with Japan as a proportion of the US global trade deficit grew from 33 percent in 1985 to over 45 percent in 1991 before declining to about 30 percent in 1995. Figure 1 depicts the US global trade deficit (DW) and the US trade deficit with Japan (DJ). As Figure 1 shows, the US trade deficit with Japan has displayed a greater degree of persistence than the total US trade deficit over this ten-year period.

Figure 1. The U.S. Trade Deficits with the world and with Japan, 1985-1995
(in billions of US\$)



A COMPETITIVENESS ANALYSIS OF THE US-JAPAN TRADE RELATIONS

In order to obtain a richer understanding of the nature and magnitude of the US trade deficit with Japan, we summarized the US trade deficits with Japan by major categories based on the one-digit Standard International Trade Classification (SITC) codes in Table 1. As Table 1 shows, the manufactured goods, machinery and transport equipment, and miscellaneous manufactured goods have accounted for all of the deficits with Japan during this period. It is apparent that the "machinery and transport equipment" category posted the largest deficit. To depict the changes in the behavior of these three product categories over time, we plotted the trade deficits for manufactured goods (SITC6), machinery and transport equipment (SITC7), and miscellaneous manufactured goods (SITC8) in Figure 2. Being the largest trade-deficit category, the "machinery and transport equipment" group deserves closer scrutiny. It is widely assumed that the US has been running a consistently large trade deficits with Japan in the area of consumer electronics and autos. In order to quantify the impact of consumer electronics and autos on the US-Japan trade we prepared Table 2 using the two-digit SITC codes. We used telecommunication and sound recording apparatus (SITC76) and electrical machinery and appliances (SITC77) to represent consumer electronics, and road vehicles (SITC78) to represent autos.¹ These three sub-categories together accounted for about 81 percent of the deficit in the "machine and transport equipment" category in 1985, 75 percent in 1990 and 65 percent in 1995. Although the deficit in these sub-categories have shown some decline in percentage terms in recent years, the three continue to account for the major share of the deficit in the category of machinery and transport equipment. These three sub-categories represent 79 percent, 92 percent, and 77 percent of the overall US deficit with Japan. The time series behavior of the three sub-categories together as a proportion of machinery and transport equipment trade deficit with Japan (D3R7) and the overall US trade deficit with Japan (D3RT) is shown in Figure 3.

Table 1. The U.S. Trade Deficit with Japan by Major Product Categories (in billions of US\$)

CODE	CATEGORIES	1985	1990	1995
0	Food and live animals	3.5	6.0	9.7
1	Beverages and tobacco	0.4	1.8	2.1
2	Crude materials, inedible excl. fuels	3.8	6.7	6.7
3	Mineral fuels and lubricants	1.7	1.4	0.7
4	Animal and vegetable oils etc.	0.1	0.0	0.0
5	Chemicals and related products	1.4	2.1	0.7
6	Manufactured goods	-7.1	-3.6	-4.0
7	Machinery and transport equipment	-49.4	-57.3	-78.6
8	Miscellaneous manufactured articles	-4.7	-4.4	-3.4
Overall		-50.8	-46.9	-66.2

Source: OECD, Foreign Trade by Commodities, various issues.

Note: Figures in the columns may not add up to the overall because of omission of "commodities and transactions not classified elsewhere in SITC" and due to rounding.

ESSAYS IN ECONOMIC AND BUSINESS HISTORY (2000)

Figure 2. The U.S.-Japan Trade Deficits for Major Product Categories

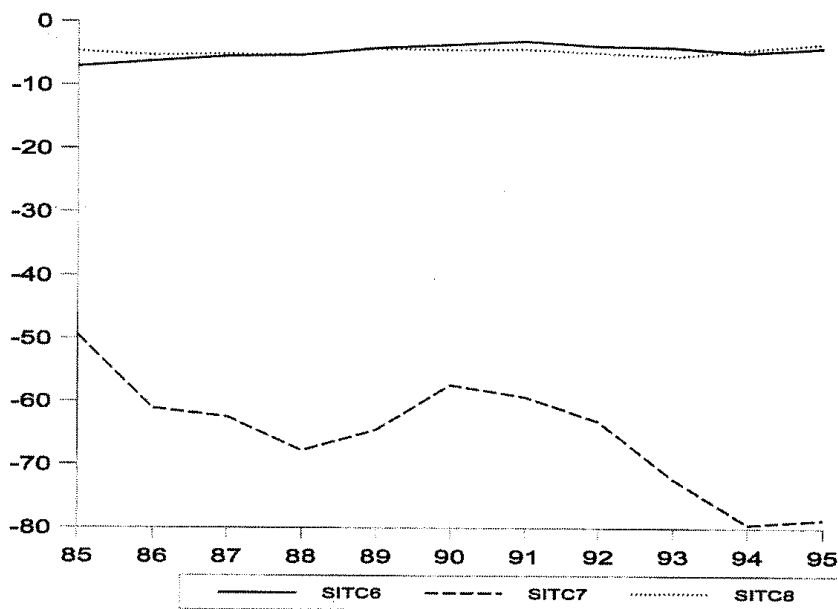


Table 2. The U.S. Trade Deficit with Japan in Machinery and Transport Equipment (in billions of US\$)

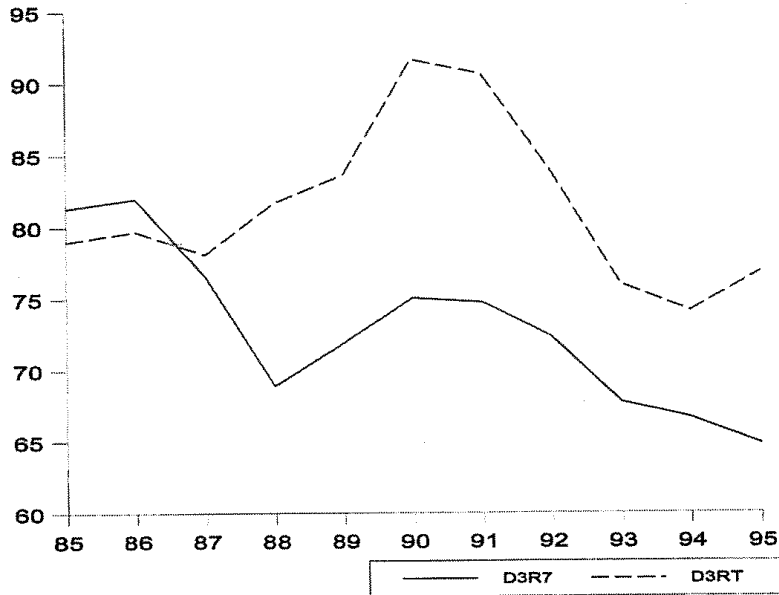
CODE	CATEGORIES	1985	1990	1995
71	Power generating machinery etc.	-1.1	-2.5	-5.0
72	Specialized machinery	-1.7	-2.5	-3.7
73	Metal working machinery	-1.2	-1.4	-2.1
74	Other industrial machinery, parts	-1.9	-3.2	-4.8
75	Office machines and ADP equipment	-4.5	-7.9	-14.4
76	Telecom, sound recording apparatus	-11.3	-8.7	-6.9
77	Electrical machinery and appliances	-4.1	-7.1	-15.5
78	Road vehicles	-24.7	-27.3	-28.4
79	Other transport equipment	1.2	3.1	2.3
Overall		-49.4	-57.3	-78.6

Source: OECD, Foreign Trade by Commodities, various issues.

Note: Overall figures may be slightly off due to rounding.

A COMPETITIVENESS ANALYSIS OF THE US-JAPAN TRADE RELATIONS

Figure 3. Consumer Electronics and Autos as Percent of SITC7 and Total Trade Deficits with Japan



A Competitive Analysis of the US-Japan Trade

In this section we first analyze the US trade performance vis-à-vis Japan. Following Balassa (1967), we computed aggregative and disaggregative trade ratios. A trade ratio is defined as the ratio of net export (export-import) to total trade (export+import), or $(X-M)/(X+M)$. We conducted a similar analysis for each of the sub-categories based on the one-digit SITC codes using the following expression:

$$\frac{X_i - M_i}{X_i + M_i},$$

where X = exports, M = imports, and $i = 0, 1, 2, \dots, 8$.

The computed trade ratio takes a value between +1 and -1. A value of +1 means that the country has a complete trade advantage, while a value of -1 means that the country has a complete trade disadvantage. A change in the value is indicative of a changing trade performance over time. For instance, a reduction in the positive value would mean a loss of comparative advantage, while a reduction in the negative value would mean an improvement in trade competitiveness. These computed values are summarized in Table 3. As the table shows, the US overall trade ratio with respect to Japan has been negative for 1985, 1990 and 1995, the value remaining between -.58 and -.34 during the 1985-1995 period. This implies that the US has consistently had a trade

ESSAYS IN ECONOMIC AND BUSINESS HISTORY (2000)

disadvantage with Japan. The disaggregative analysis reveals that the last three sub-categories (SITC6, SITC7, and SITC8) have had consistently negative trade ratios, indicating trade disadvantage in these areas. As seen earlier, these are the same sub-categories which accounted for most of the US trade deficit with Japan. Thus, there seems to be a positive relationship between trade ratios and trade deficits, as one might expect. If the country is enjoying a trade advantage in a given category, it should, *ceteris paribus*, experience a favorable trade balance.²

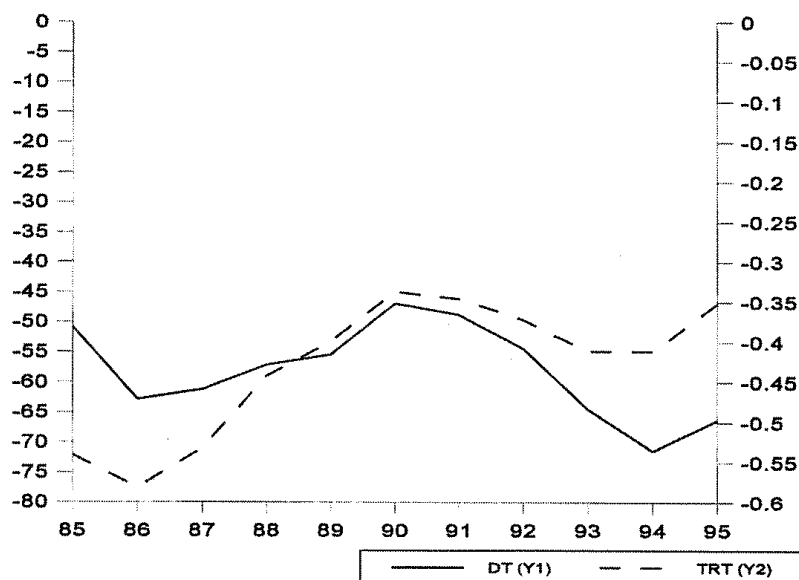
Table 3. The U.S.-Japan Trade Ratios for Major Trade Categories

CODE	CATEGORIES	1985	1990	1995
0	Food and live animals	.78	.71	.87
1	Beverages and tobacco	.83	.96	.96
2	Crude materials, inedible excl. fuels	.93	.95	.94
3	Mineral fuels and lubricants	.92	.87	.59
4	Animal and vegetable oils etc.	.71	.53	.71
5	Chemicals and related products	.32	.29	.06
6	Manufactured goods	-.74	-.33	-.35
7	Machinery and transport equipment	-.82	-.67	-.65
8	Miscellaneous manufactured articles	-.60	-.30	-.18
Overall		-.54	-.34	-.35

Source: OECD, Foreign Trade by Commodities, various issues.

Note: Figures for "commodities and transactions not classified elsewhere in SITC" have been omitted.

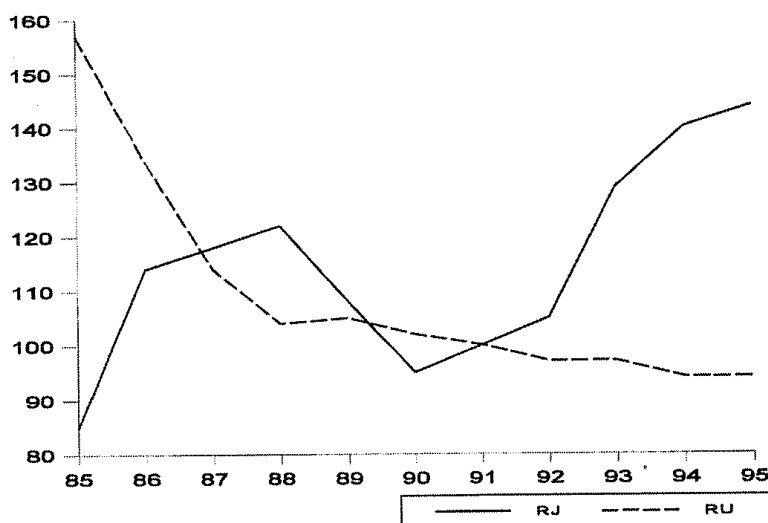
Figure 4. The U.S.-Japan Trade Balance and Trade Ratios



A COMPETITIVENESS ANALYSIS OF THE US-JAPAN TRADE RELATIONS

We plotted the overall US-Japan trade ratio (TRT) and the overall US-Japan trade balance (DT) in Figure 4. As expected, it appears from Figure 4 that the two series have moved together. Nevertheless, the gap between them actually widened overtime, accounting for a small correlation coefficient. Moreover, a closer look at Figure 4 reveals a clear difference in the trend. In fact, there has been a trend toward a closer comovement of the two series from 1985 to 1990, with both showing marked improvement. However, from 1990 to 1995, the association between the two series has weakened, with both showing deterioration from 1990 to 1994 followed by a bit of improvement in 1995.

Figure 5. Relative Unit Labor Costs in the U.S. and Japan



Macro-Level Factors Contributing to the US Trade Deficit with Japan

There are several factors which might explain the apparently anomalous situation discussed in the preceding section, namely, the deteriorating US trade deficit with Japan despite an apparent improvement in trade ratios. First, the US has experienced a marked improvement in its competitive position vis-à-vis Japan during the sample period. This is depicted in Figure 5 which plots relative labor unit costs in the US (RU) and Japan (RJ).³ It is clear that while the US saw its cost declining over the entire period, Japan experienced a sharp rise since 1990. Theoretically, a change in productivity can have two opposing influence on trade balance. On the one hand, an improvement in productivity implies a gain in comparative advantage, which, *ceteris paribus*, should cause an improvement in trade balance. However, a rise in productivity, is a major factor contributing to economic growth. With the concomitant rise in income,

the country is likely to see increased imports. Thus, the net effect of a rise in productivity on trade balance will depend on the relative strength of these two opposing forces. According to the OECD Economic Outlook, the US growth rate in real terms exceeded that of Japan in each year since 1992.⁴ Thus, any potential gain due to improved competitiveness may well have been lost due to increased imports.⁵

Second, exchange rates can also influence trade balance. During the ten-year period studied the US dollar consistently depreciated against the yen. Theoretically, this makes US goods cheaper, boosting US exports to Japan. However, the impact of exchange rates on the trade balance is generally of indeterminate nature because of the effect of time lag and other institutional factors. As Mah (1994) has pointed out, there are many unofficial private barriers in Japan, such as unique distribution system, which can prevent a decline in import price to have any positive effect on Japanese imports.

Third, the performance of the Japanese stock market during the ten years under study was dismal in comparison to the US market.⁶ This accelerated the flow of funds from the Japanese market to the North American market. A growing capital account surplus means that the country will have its export capacity further reduced causing the current account to deteriorate even further.

Fourth, and perhaps more importantly, the US saving rate was low and continuing to deteriorate by historical standard. The gap between saving and investment required financing by foreign sources, perpetuating and even exacerbating the trade account imbalance.⁷

Besides these factors, one can see the US-Japan interest rate differential playing an important role in this regard as well. The US had a consistently higher long-term interest rate than Japan, making Japanese investment in the US more attractive. Once again, a rising capital account surplus required a declining current account balance.

Final Comments

In an ideal world without trade barriers, governments would not place any restrictions on the flow of goods and services across national borders. In reality, almost all the nations do intervene in international trade—they typically use tariffs, import quotas, voluntary export restraints, local content requirements, and administrative policies to restrict imports and, at the same time, provide domestic firms with subsidies, tax incentives, international market information, international marketing assistance, and international trade seminars to promote exports. Facing a large and prolonged trade deficit, the US has to decide what, if anything, needs to be done, when, where and how.

During the 1985-1995 time period, the US and Japan had the world's two largest economies. The persistent unbalanced trade relationship between Japan and the US is important and must be thoroughly examined. This paper represents our attempt to shed new light on the recent US-Japan trade relationship. Additional studies can, and should, be conducted at the industry and/or business level. Findings from these stud-

A COMPETITIVENESS ANALYSIS OF THE US-JAPAN TRADE RELATIONS

ies can be used as valuable input to help formulate effective government policies and sound business strategies.

Notes

1. Three factors have contributed to an imbalance in the auto sector. First, the Japanese auto industry has been successful in increasing the share of the US auto market due mainly to their reputation for superior quality. Second, Japanese auto industry has used the argument of long business relations with domestic suppliers of auto parts in their favor. Third, the voluntary export restraints (VER) introduced to limit imports of Japanese automobiles has led to an increase in the establishment of Japanese auto manufacturing operations in the United States, replacing the need for Japanese export.

2. We found a small positive correlation of 0.20 between overall trade ratio and overall trade balance.

3. The data has been taken from OECD, *Economic Outlook*, no. 62.

4. The US economy grew at an annual average rate of 2.7 percent over 1985-95 compared to the Japanese economy which grew only at 0.85 percent. This represents larger than three-fold difference in the annual average growth rate between the two countries over this period (OECD, *Economic Outlook*, no. 64, 1998).

5. Several studies have shown that the income elasticity of demand for imports in the US has risen in recent years. If so, then even a moderate growth in income is likely to cause a significant rise imports, causing a trade balance deterioration. For a detailed discussion of this point see Atesoglu, (1993, 1995, 1997) and Hieke (1997).

6. The Japanese stock market declined by about 29 percent over the period 1985-95 while the US stock market, based on the S&P 500, rose by more than 190 percent over the same period (Global Financial Data).

7. Saving rate in the US, defined as the ratio of domestic saving to GDP, declined from 19 percent in 1980 to 15 percent in 1995. Over the same period, the Japanese saving rate has remained unchanged at 31 percent. (World Bank, *World Development Indicators*, 1977).

References

- Atesoglu, S. "Balance of Payments Constrained Growth." *Journal of Post Keynesian Economics*, 15 (1993): 507-514.
- Atesoglu, S. "An Explanation of the Slowdown in U.S. Economic Growth." *Applied Economic Letters*, 2 (1995): 91-94.
- Atesoglu, S. "Balance of Payments Constrained Growth Model and its Implications for the United States." *Journal of Post Keynesian Economics*, 19 (1997): 327-355.
- Balassa, B. *Trade Liberalization Among Industrial Countries*. New York: McGraw-Hill, 1967.
- Barshesky, c. "The Future of U.S.-Japan Trade Relations." *Law and Policy in International Business*, (1994): 1287-1296.
- Bremner, Brian, and Thornton, Emily. "Fall of a Keiretsu: How Giant Mitsubishi Group Lost Its Way." *Business Week*, (March 15, 1999): 86-92.
- Burckel, V. D. "Dynamics of the Yen-Dollar Real Exchange Rate and the US-Japan Real Trade Balance." *Applied Economics* 29 (1997): 661-665.
- Dunn, Jr., R. M., and Ingram J. C. *International Economics*. New York: John Wiley & Sons, 1996.
- Global Financial Data. "Stock Market Indices, 1800-1998." <http://www.globalfindata.com/tbffd18.htm>.
- Hieke, H. "Balance of Payments Constrained Growth: A Reconsideration of the Evidence for the US Economy." *Journal of Post Keynesian Economics*, 19 (1997): 313-325.
- Khan, M. S., and Ross, K. Z. "Cyclical and Secular Income Elasticities of the Demand for Imports." *Review of Economics and Statistics*, 57 (1975): 357-361.
- Mah, J. S. "Japanese Import Demand Behavior: The Cointegration Approach." *Journal of Policy Modeling* 16 (1994): 291-298.
- OECD. *Economic Outlook*, no. 62, 63, 64. Porter, Michael E., and Takeuchi, Hirotaka. "Fixing What Really Ails Japan." *Foreign Affairs* 78, no. 3 (may/June 1999): 66-81.
- World Bank. *World Development Indicators* (1997).

