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TRENDS IN U.S. INTERNATIONAL TRADE
AND INVESTMENT SINCE WORLD WAR II

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Trends in U.S. International Trade and Investment Since WW II

ABSTRACT

At the end of World War II the U.S. was by far the dominant industrial economy in the world. With industrial capacity largely destroyed in Europe and Japan, the U.S. produced more than 60 percent of the world's output of manufactures in the late 1940s. As a result, in the immediate post-war years, the pattern of U.S. trade was distorted by a relative strength in manufacturing that was transitory. By the 1970s, trade patterns reflecting underlying comparative advantage had been restored. The U.S. international investment position just after World War II was miniscule. While the U.S. was very open to trade at that point, there was little international ownership of assets. The U.S. long-term foreign asset and liability positions have both grown steadily at about 10 percent per year since 1950. This has resulted in an internationalization of investment over the same period in which the U.S. lost its dominant position in trade.

This paper lays out and analyzes the data on the trends in U.S. international trade and investment since World War II. It shows the shrinking U.S. fraction of manufacturing output and exports, a return to and strengthening of lines of comparative advantage, and balanced and rapid growth in long-term investment. Also seen is an increasing volatility of trade and long-term investment in the 1970s, along with a real depreciation of 25 percent in the weighted U.S. exchange rate.

The major theme of this paper is the restoration of a kind of economic balance to the world picture after the distortions of World War II. The transitory U.S. dominance of trade has disappeared, while international investment has thickened the connections of the U.S. to the world economy. Thus from a position of dominance, the U.S. has become much more one of roughly equal centers in an interconnected world economy.

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TRENDS IN U.S. INTERNATIONAL TRADE AND INVESTMENT SINCE WW II

I. Introduction and Summary

At the end of World War II the U.S. was by far the dominant industrial economy in the world. With industrial capacity largely destroyed in Europe and Japan, the U.S. produced more than 60 percent of the world's output of manufactures in the late 1940s. As a result, the U.S. was a net exporter of manufactured goods of all kinds; historically the U.S. was a net importer of consumer goods, but in 1947 there was a net export surplus of \$1 billion in that category. Thus in the immediate post-war years, the pattern of U.S. trade was distorted by a relative strength in manufacturing that was transitory. The recovery of the European and Japanese economies in the 1950s and 1960s, and the growth of manufacturing capacity in the developing countries in the 1960s and 1970s inevitably reduced the U.S. share of world output, and of world exports. The evolution of U.S. trade patterns since World War II has been strongly influenced by these initial post-war conditions. By the 1970s, trade patterns reflecting underlying comparative advantage had been restored, and the U.S. was once again an importer of consumer goods.

The U.S. international investment position just after World War II was miniscule. In 1950, U.S. private long-term assets abroad totalled \$17.5 billion; foreign investment in the U.S. was \$8 billion. Thus while the U.S. was very open to trade at that point, there was little international ownership of assets. The U.S. long-term foreign asset and liability positions have both grown steadily at about 10 percent per year since 1950. This has resulted in an internationalization of investment over the same period in which the U.S. lost its dominant position in trade.

In this paper we lay out and analyze the data on the trends in U.S. international trade and investment since World War II. We see the shrinking

There we see that U.S. investment abroad has been increasingly directed toward Europe, whose share of total U.S. direct investment rose from 15 percent in 1950 to over 40 percent in 1977. To a large extent, direct investment has gone to the industrial economies, rather than to the developing countries. Foreign investment in the U.S. has been mainly European throughout, with a share of 66 percent in the 1950s and the 1970s.

Developments in the balance of payments, reserves, and exchange rates are discussed in section V. There we see the trend from surplus to deficit in the U.S. basic balance (current account plus long-term capital), and the marked increase in the volatility of the basic balance (as measured by time series variance) from the 1960s to the 1970s. This increase in volatility has raised significantly the size of variation in reserves that would be needed to fix exchange rates. The result has been more movement in reserves with "floating" rates in the 1970s than with "fixed" rates in the 1960s.

It is difficult to summarize briefly the impression created by this intensive review of the data, but perhaps it is worth a try. At the end of World War II the U.S. dominated an industrial world that was tied together economically mainly by trade. This was clearly a temporary position, at least in hindsight. Gradually, over 35 years, the other industrial countries have caught up with the U.S., restoring a kind of economic balance to the world picture. At the same time, international investment has thickened the connections of the U.S. to the world economy. My impression is that from a position of dominance, the U.S. has become much more one of several roughly equal centers, with increasingly tight economic interconnections among them.

of world exports of manufactures has fallen from 29% in 1953 to 17% in 1963 and 13% in 1976. The weighted real exchange rate of the U.S. (in index terms, 1975 = 100) has depreciated from around 83 in 1961 to 106 in 1978. The U.S. economy is now part of a world of nearly symmetric interdependence.

In this section of the paper we present data describing and summarizing the change in the U.S. position in the world economy since World War II. First we look at comparative trends in production, then at competitiveness and trade, and finally at exchange rates. These data set the framework for subsequent analysis of trends in U.S. international transactions.

A. Measures of Trends in Output

1. Real GDP

U.S. real GDP has grown more slowly along trend than that of the other major industrial countries since World War II. In Table 1 we show index numbers for real GDP for seven major countries: U.S., Canada, Japan, France, W. Germany, Italy, and the U.K. The data are indexed to 1967 = 100. Among these countries, only the U.K. had a slower growth rate to 1967 (27% per year vs. 3.5%). This is also true of the period since 1967, where the U.S. growth rate has been 2.3% per year.

2. Real GDP per Capita and per Worker

More interesting than aggregate real GDP data are real GDP per capita and per worker. These summarize both income per capita and productivity trends in terms of domestic prices and over the entire economy.

In Table 2 we show index numbers for GDP per capita in the same set of industrial countries, and in Table 3 the 5-year average growth rates are given. In terms of per capita GDP, the U.S. growth rate is slightly lower than that of the U.K., and much lower than the other major countries. The

Table 2: Index of Gross Domestic Product Per Capita, 1967=100

YEAR	UNITED STATES	CANADA	JAPAN	FRANCE	GERMANY	ITALY	UNITED KINGDOM
1950	69.5	64.9	25.7	52.1	42.4	54.4	67.4
1955	76.3	73.2	37.1	61.3	63.5	56.9	77.6
1960	80.5	78.0	53.3	70.4	62.1	72.2	85.0
1965	93.9	93.7	81.0	92.3	93.0	89.5	96.4
1966	98.4	98.4	89.9	96.3	100.4	94.0	98.0
1967	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968	104.3	104.0	112.7	103.5	105.9	105.7	103.1
1969	105.0	107.8	125.0	105.8	113.1	111.0	104.4
1970	103.6	109.1	130.1	115.1	118.7	115.8	106.5
1971	105.4	115.3	142.1	120.2	121.3	116.8	108.8
1972	110.6	120.7	153.2	126.2	124.9	119.6	110.7
1973	115.7	128.3	166.1	131.9	130.9	126.7	119.4
1974	113.3	131.0	163.4	135.3	130.9	130.9	117.4
1975	111.2	130.6	163.6	135.1	123.8	125.5	115.4
1976	116.7	136.4	172.1	140.8	135.9	131.8	119.6
1977	121.9	138.8	179.3	144.6	140.0	133.8	121.3
1978	126.2	142.3	187.9	148.4	144.5	136.5	125.6

SOURCE: Department of Labor

growth rate summary in Table 3 shows a general deceleration of growth in the industrial world, throughout the period 1950-78, with the U.S. growth rate consistently slower than the others.

Tables 4 and 5 show index numbers and the growth rate summary for real GDP per employed worker, coming closer to a home-currency productivity measure. The U.S. growth rate in these terms is relatively slower than in terms of GDP per capita. Over the entire period 1950-78, the U.S. growth rate was 1.7% per year; the next slowest was the U.K. with 2.2%.

3. Manufacturing Output per Hour

More precise estimates of trends in productivity are given in Tables 6 and 7, for output per hour in manufacturing. Since manufactures are an important component of tradeable goods, this brings us closer to fundamental movements in relative competitiveness, as well. In Table 6 we see that the U.S. and U.K. trends in manufacturing productivity have been about the same over the entire period; the U.S. growth rate for 1950-78 is 2.4% per year, for the U.K. it is 2.5%. Both are well below the trends in the other countries. Table 7 shows the general deceleration in productivity growth; the U.S. is consistently low.

Tables 1 through 7 document the fact that U.S. growth in output and productivity in manufacturing since 1950 has been slower than that of the other major industrial countries. This is the case even before adjustment for the major movements in exchange rates and the terms of trade in the 1970s. It has permitted a convergence toward the U.S. level of productivity by the late 1970s. The data imply a decline in the U.S. share of world output as the others catch up in productivity terms.

Table 5: Average Annual Growth Rate of Real GDP Per Employed Worker (%)

COUNTRY	1950-55	1955-60	1960-65	1965-70	1970-75	1975-78
U.S.	2.61	1.42	2.98	0.97	1.04	1.52
Canada	3.40	1.81	2.83	1.79	1.76	1.58
Japan	6.41	6.19	8.30	9.91	4.36	4.47
France	3.98	4.75	5.16	4.36	3.61	3.05
Germany	6.36	4.53	4.23	4.50	3.01	3.97
Italy	4.96	4.00	5.94	6.18	2.16	2.77
U.K.	2.14	2.05	2.33	2.88	1.74	2.48

Table 7: Average Annual Growth Rate of Output per Hour in Manufacturing

COUNTRY	1950-55	1955-60	1960-65	1965-70	1970-75	1975-78
U.S.	2.62	1.26	4.40	1.22	2.46	2.89
Canada	4.12	3.39	4.43	4.04	3.01	4.42
Japan	10.31	7.58	8.16	12.33	3.51	7.05
France	4.21	4.74	5.06	6.29	4.36	5.96
Germany	5.86	6.09	5.82	4.94	5.30	4.91
Italy	6.65	4.53	7.38	6.37	4.56	4.06
U.K.	1.36	2.81	3.67	3.25	2.65	1.16

Table 8: Shares of Total Manufacturing Output in Ten Industrial Countries,
1950-77

COUNTRIES	Share of Total, %						
	1950	1955	1960	1965	1970	1975	1977
U.S.	61.9	58.1	50.5	50.1	43.6	42.5	44.0
Canada	3.5	3.4	3.3	3.5	3.4	3.7	3.6
Japan	2.1	3.5	6.3	8.0	13.1	13.2	13.4
Denmark	0.7	0.5	0.6	0.6	0.7	0.7	0.7
France	7.6	7.1	8.1	8.1	8.9	9.8	9.6
Germany	10.1	14.1	17.2	16.7	17.2	16.5	16.0
Italy	2.2	2.5	3.1	3.1	3.7	4.3	4.3
Netherlands	1.8	1.9	2.2	2.1	2.3	2.3	2.2
Sweden	2.0	1.7	1.9	1.9	1.9	2.0	1.6
U.K.	8.2	7.2	6.9	5.9	5.3	4.9	4.5

SOURCE: Department of Labor

Table 9: Geographical distribution of world industrial production^a
Percentages and index numbers

	1963	1970	1973	1974	1975	1976	1977
United States	40.25	36.90	36.59	36.30	34.97	35.42	36.90
Japan	5.48	9.28	9.74	9.28	8.88	9.06	9.14
Germany	9.69	9.84	9.19	8.95	8.98	8.97	8.85
France	6.30	6.30	6.25	6.35	6.25	6.25	6.15
United Kingdom	6.46	5.26	4.78	4.61	4.67	4.29	4.16
Italy	3.44	3.49	3.29	3.43	3.28	3.41	3.33
Canada	3.01	3.01	3.08	3.16	3.17	3.08	3.08
Spain	0.88	1.18	1.37	1.48	1.47	1.43	1.56
Portugal	0.23	0.27	0.30	0.31	0.31	0.30	0.32
Greece	0.19	0.25	0.30	0.30	0.33	0.33	0.33
Yugoslavia	1.14	1.25	1.31	1.43	1.60	1.53	1.62
Brazil	1.57	1.73	2.10	2.25	2.47	2.49	..
Mexico	1.04	1.27	1.30	1.38	1.54	1.44	1.45
Hong Kong	0.08	0.15	0.18	0.17	0.17	0.21	..
Korea	0.11	0.22	0.32	0.41	0.51	0.63	0.69
Taiwan	0.11	0.23	0.34	0.33	0.37	0.42	0.46
Singapore	0.05	0.06	0.08	0.08	0.09	0.09	0.10
Total "Gang of 4"	0.35	0.66	0.92	0.99	1.14	1.35	..
Total of 10 NICs above	5.40	6.61	7.60	8.14	8.86	8.87	(9.28)
Other developed countries ^b	10.99	9.72	9.83	9.73	10.58	9.90	9.29
Other developing countries	8.98	9.59	9.65	10.05	10.36	10.75	9.30
of which: India	1.21	1.11	1.03	1.04	1.15	1.17	1.19
Argentina	0.94	1.07	1.09	1.14	1.18	1.06	1.06
World ^a	100.0	100.0	100.0	100.0	100.0	100.0	100.0
World (1970 = 100)	66.0	100.0	121.0	122.0	115.0	125.0	129.0

a) Excluding the Eastern bloc. Figures for 1970 represent value added, those for other years are based on industrial production indices.

b) All other OECD countries plus South Africa and Israel.

Source: *The Growth of World Industry, and Monthly Bulletin of Statistics*, United Nations; IMF Statistics; Secretariat estimates.

SOURCE: OECD

Table 10: Indexes of Unit Labor Costs in Manufacturing, U.S. Dollar Basis, 1950-1978, 1967=100

YEAR	UNITED STATES	CANADA	JAPAN	FRANCE	GERMANY	ITALY	UNITED KINGDOM
1950	69.4	75.2	83.2	69.1	61.1	70.6	54.7
1951	73.4	84.9	85.0	80.2	68.3	69.4	59.3
1952	77.3	97.6	93.3	90.3	66.7	71.9	67.7
1953	80.2	98.6	86.0	92.3	65.3	73.6	68.3
1954	82.5	100.8	88.1	94.8	64.7	72.7	69.9
1955	81.6	96.4	87.9	97.2	64.8	72.3	72.3
1956	87.5	97.7	85.9	98.4	61.3	73.9	78.4
1957	90.8	106.3	82.7	86.9	70.2	75.2	81.4
1958	95.4	106.8	90.1	81.5	72.7	77.8	85.7
1959	98.8	106.5	86.1	79.3	73.2	75.2	84.9
1960	97.7	106.9	82.5	81.5	76.5	76.5	85.5
1961	98.3	94.7	84.7	85.8	84.7	78.3	91.1
1962	97.7	92.8	92.8	90.3	80.7	83.4	93.7
1963	98.2	91.8	95.6	94.2	92.8	96.1	92.8
1964	93.4	90.9	94.8	96.4	93.3	101.0	92.7
1965	92.6	92.0	102.5	98.2	94.4	47.1	98.6
1966	95.4	46.0	102.5	97.7	100.4	45.1	103.0
1967	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968	103.3	100.6	103.8	101.2	99.1	99.0	86.0
1969	108.7	102.1	107.2	96.7	103.5	104.3	92.6
1970	116.5	111.7	113.2	96.7	125.7	114.2	104.8
1971	117.6	116.1	130.7	102.9	102.8	135.6	117.4
1972	118.1	122.0	159.7	118.4	164.3	152.2	125.7
1973	123.2	127.0	195.2	146.3	211.7	172.5	130.2
1974	143.1	147.7	237.3	157.7	236.2	182.6	154.7
1975	152.4	166.6	284.8	206.2	268.5	245.1	196.2
1976	158.2	187.4	285.3	195.1	265.4	212.5	182.9
1977	166.6	183.7	326.5	207.5	299.4	234.9	196.9
1978	179.4	175.8	412.0	243.9	358.3	270.4	249.0

SOURCE: Department of Labor

Table 12: Index of U.S. Weighted Relative
Unit Labor Cost, 1975=100

YEAR	RELATIVE COST INDEX
1961	152.6
1962	151.8
1963	151.0
1964	151.2
1965	148.1
1966	147.5
1967	148.1
1968	151.4
1969	151.2
1970	144.8
1971	137.0
1972	123.9
1973	110.1
1974	105.8
1975	100.0
1976	105.1
1977	104.2
1978	96.5

SOURCE: International Monetary Fund

Table 13
Distribution of Exports
of Manufactures (SITC 5-8)

	1953	1956	1959	1962	1965	1968	1971	1974	1976
Total (million \$)	37,738	51,721	61,400	79,330	109,730	150,070	226,670	483,070	585,260
Country	% of Total								
Developed	88.0	83.5	82.1	81.6	82.0	83.1	83.9	83.7	83.1
LDCs ^{2/}	7.0	6.6	5.3	5.3	5.8	5.8	5.5	7.8	8.0
CPEs ^{3/}	5.0	9.9	12.6	13.1	12.1	11.0	10.4	8.4	8.9
Developed									
W. Europe	49.0	50.1	53.7	54.4	54.7	53.0	54.7	54.9	54.0
EEC	-	-	31.9	33.5	34.4	34.4	35.8	*44.9	44.0
EFTA	-	-	20.3	19.2	18.4	17.2	17.2	* 8.2	8.0
Germany	9.7	12.2	15.6	14.8	15.4	14.8	15.4	16.3	15.5
U.S.	29.4	23.0	18.7	17.6	15.8	15.8	13.4	13.2	13.2
Canada	5.0	4.3	3.9	3.5	3.7	4.9	4.6	3.4	3.5
Japan	2.8	4.2	4.9	5.5	7.1	8.1	10.0	10.9	10.9
Other	1.9	2.0	1.2	0.6	0.8	1.4	1.3	1.4	1.5
LDC									
Africa ^{4/}	1.6	1.4	1.3	1.2	1.3	1.3	0.9	0.9	0.6
Lat. Amer.	1.6	1.6	1.2	1.1	1.2	1.6	1.4	1.9	1.6
M. East	0.3	0.4	0.4	0.3	0.4	0.2	0.2	0.5	0.4
Asia ^{5/}	3.5	3.2	2.4	2.6	2.8	2.7	2.9	4.5	5.4
NIC3 ^{6/}	0.9	0.9	0.8	0.9	1.2	1.5	1.8	2.4	3.0

^{1/} Developed Market Economies: U.S., Canada, Japan, West Europe, Australia, N. Zealand, & South Africa

^{2/} All countries excluding Developed & CPEs

^{3/} East Europe, U.S.S.R., PRC, Mongolia, N. Korea, N. Vietnam

^{4/} Excludes S. Africa & Rhodesia

^{5/} Excludes Developed countries & CPEs

^{6/} Republic of Korea, Hong Kong, Singapore (Data for Taiwan was not available for the entire period)

growth could be attributed to rapid growth of the West European economies, but it should be noted that the rest of Western Europe's market share declined during the period, while Germany's increased by almost 6% (60% of the 1953 share). Clearly Germany was increasing its position in the European market and capturing a larger share of non-European markets. Japan's share increased by 2.1% (75% of the 1953 share), beginning a trend which continued until 1974. Three of the LDC regions lost market shares while the Middle East's remained unchanged.

Table 14 displays the growth rates of real exports for 1953-76. The deflator used is the export price index for all manufactures. Therefore, the deflated values include changes in the relative price of a region's manufactures as well as volume growth. During the 1953-1959 period U.S. export growth was nil and the LDCs and Canada also had very slow growth.

1959-1971. During the 1960s the U.S. lost market share at a slower pace. Germany and the CPEs stopped penetrating markets as the lead passed to Japan and the other members of the Common Market. Japan doubled its share from 5% to 10% of the world market. The non-German EEC countries gained 4% of the market. Canada's growth was due entirely to the rapid increase in machinery and transport equipment during 1965 to 1971. Examination of bilateral flows reveals that this is due mainly to the effects of the 1965 Auto Agreement between Canada and the U.S.

An interesting pattern developed among the LDCs during this period. Overall they gained only 0.2% of the world market. The Middle East and Africa lost, Latin America gained slightly; non-NIC Asia lost; but the NICs more than doubled their market share.

1971-1976. During the final five years the U.S. share remained constant at

Table 15
Distribution of Exports
of Chemicals (SITC 5)

	1953	1956	1959	1962	1965	1968	1971	1974	1976
% of World Man.	9.3%	10.1	10.9	10.7	11.1	11.3	10.7	13.3	11.7
Total (million \$)	3,518	5,198	6,668	8,460	12,220	16,970	24,210	64,110	68,440
Country	% of Total								
Developed	87.8	87.8	87.3	86.2	86.9	88.5	88.8	88.2	88.2
LDCs	7.8	4.7	3.9	4.1	4.2	3.7	3.9	5.8	5.3
CPEs	4.4	7.5	8.8	9.7	8.9	7.8	7.3	6.0	6.5
OPEC	-	-	-	-	-	-	0.3	0.9	0.9
Developed W. Europe	55.7	54.8	56.8	57.7	59.2	60.3	62.5	64.7	64.0
EEC	-	-	35.4	36.9	38.8	41.2	42.7	* 55.2	54.6
EFTA	-	-	20.7	20.0	18.9	17.6	18.3	* 7.9	8.0
Germany	13.6	15.0	16.6	17.1	17.0	18.4	18.7	18.9	18.3
U.S.	23.8	24.5	22.8	22.2	19.6	19.4	15.9	13.8	14.6
Canada	4.9	5.1	3.7	2.4	2.4	2.4	2.4	1.7	2.1
Japan	1.8	2.0	2.5	3.1	4.5	4.8	6.2	6.3	4.0
Other	1.6	1.4	1.5	0.8	1.2	1.6	1.8	1.7	3.5
LDC									
Africa	2.0	1.4	1.3	1.3	1.0	0.6	0.7	0.6	0.5
Lat. Amer.	2.6	1.7	1.1	1.3	1.3	1.7	1.8	2.3	2.2
M. East	0.3	0.2	0.3	0.2	0.5	0.2	0.2	1.0	0.9
Asia	2.9	1.4	1.3	1.3	1.4	1.1	1.2	1.8	1.7
NIC3	2.6	1.2	0.5	0.5	0.4	0.7	0.8	1.0	0.8

* Reflects admission of U.K., Ireland & Denmark to EEC and their departure from EFTA

Japan has continued to increase its share in the 1970s and has been joined by the Asian countries, which have tripled their share in five years. The burden of these gains have not been concentrated on the U.S. During the 1971 to 1976 period the U.S. has lost only 1% of the market while more serious losses have been sustained by Western Europe, Canada, and the CPEs.

4. Other Manufactures

Trade patterns in other manufactures are shown in Table 17. Here the U.S. lost two-thirds of its 1953 share by 1976. Most of the loss came in the 1950s: since 1962 the loss has been moderate and of decreasing importance to the overall U.S. position in manufactures. During the 1950s the big gains were made by Japan, the CPEs and Germany. During the 1960s leadership passed to other West European countries along with Japan.

From 1968 to 1976 a major shift has occurred in this category. The U.S. market position has stabilized, Japan's growth has been nil and the Asian LDCs have made all of the market gains. Since 1968 the Asian LDCs have captured 4.6% of the market; of this three NIC countries have taken more than half, 2.6%. This is the category of manufactures most important to Asian and NIC penetration of manufactured exports.

5. Summary

Since 1953 the U.S. has experienced a major reduction of its share of world trade in manufactures. During the 1950s the gains were made by Western Europe, especially Germany, the CPEs, and Japan. During the 1960s Japan's share increased very rapidly while growth of Western Europe slowed and the CPEs actually lost market shares. In the 1970s the growth centers have been the Asian LDCs, especially

the newly industrializing countries. Japan's share has continued to increase but at a much slower rate than in the earlier periods.

The movements of market shares have been different amongst the three categories of manufactures; chemicals, machinery and transport equipment, and other. Japan's performance has been led by the second category while the third has been most important to the LDCs.

D. Trends in Effective Exchange Rates

The combination of growing capacity in the rest of the world relative to the U.S. and roughly comparable cost developments led to a significant drop in the U.S. share of world exports in manufacturing from 1950 to 1970, as we saw in subsection C above. This in turn built up pressure for a devaluation of the U.S. dollar. Under the Bretton Woods system, a dollar devaluation was effectively ruled out, so the U.S. trade balance deteriorated after reaching a peak surplus in the early 1960s. As pressure accumulated, eventually the system broke down in 1970-71. We will look at monetary developments in detail in section V below; here we focus on movements in the real effective exchange rate as an adjustment mechanism that was frozen during the period 1950-70, but has worked reasonably well since.

1. Measures of Exchange Rates

When we consider exchange rate adjustment, we must keep in mind two distinctions. First, we can consider bilateral or effective rates. Bilateral exchange rates are the relative prices of individual currencies; an effective rate is the average price of a group of currencies. For example, we can consider the bilateral rates of the U.S. dollar vs. Swiss franc, Canadian dollar, etc., or an effective rate that averages the U.S. dollar price of these bilateral rates. With some bilateral rates rising and some falling, an effective rate will generally show less movement than

Table 18: U.S. Effective Exchange Rates, 1961-78,

1975 = 100

YEAR	(1) Effective Exchange Rate ^{a/}	(2) U.S. WPI Relative to Competitors	(3) Exchange Rate Adjusted for Relative WPI (3)=(1)÷(2)×100
1961	85.0	102.6	82.9
1962	84.3	101.7	82.9
1963	84.2	99.7	84.4
1964	84.2	98.2	85.7
1965	84.2	98.0	85.9
1966	84.2	98.4	85.6
1967	84.0	98.7	85.1
1968	82.6	99.0	83.5
1969	82.4	99.3	83.0
1970	83.2	98.4	84.5
1971	85.5	98.3	86.9
1972	92.3	98.4	93.8
1973	100.3	98.3	102.0
1974	98.1	97.9	100.2
1975	100.0	100.0	100.0
1976	94.4	97.3	97.0
1977	95.6	96.4	99.2
1978	105.3	98.9	106.4

^{a/} This is the inverse of an index of the weighted average of the foreign exchange prices of the U.S. dollar.

SOURCE: International Monetary Fund

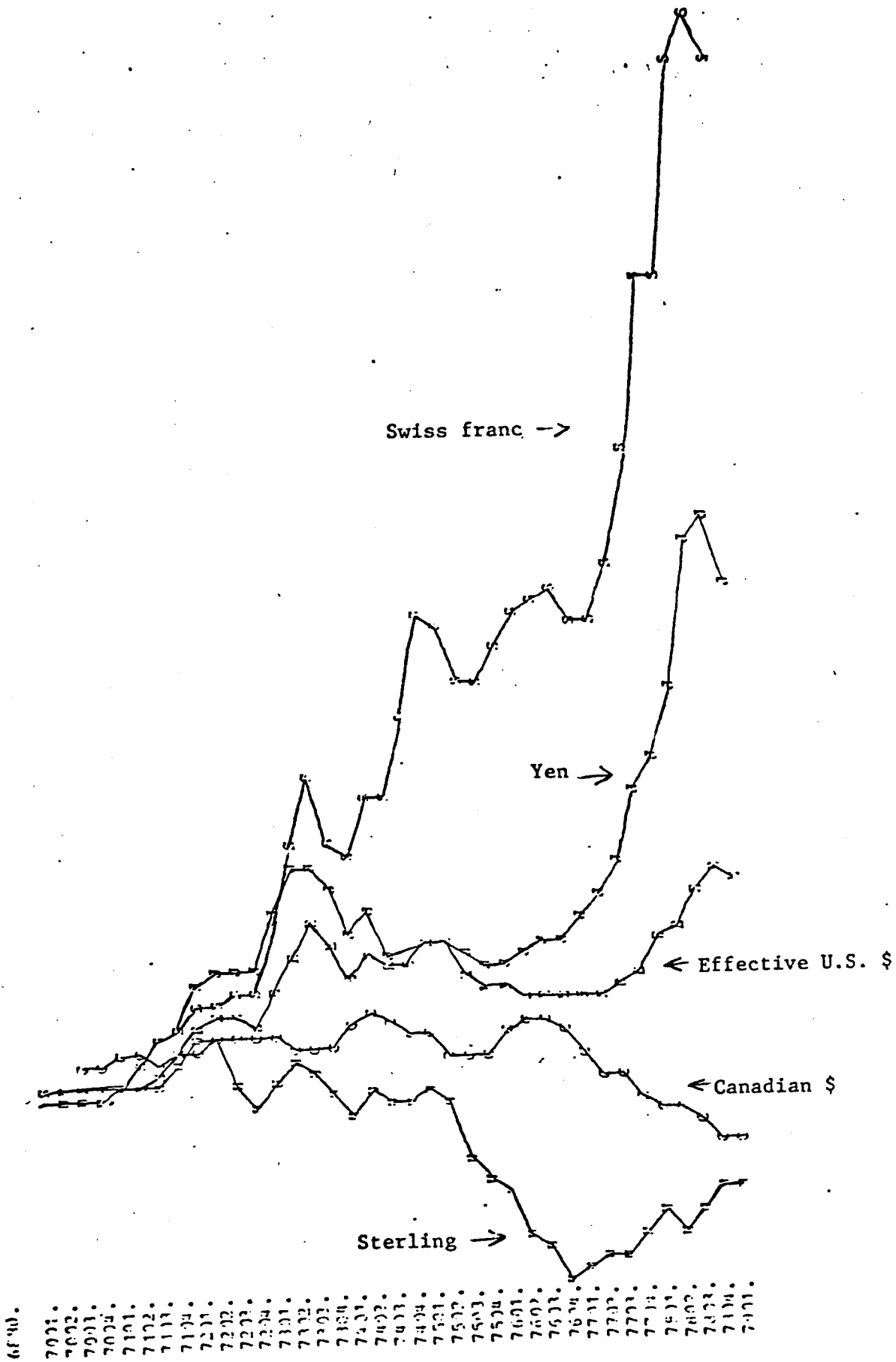


Figure 1: Bilateral and Effective Nominal Exchange Rate

III. Trends in the Composition of U.S. Trade

At the end of World War II, the pattern of U.S. trade was distorted by the fact that industrial capacity had been significantly reduced in the other major advanced countries. Trade in consumer goods provides a good example of this distortion. In every year from 1925 to 1938 the U.S. was a net importer of consumer goods [see Table 19 below]. But in 1946 the U.S. emerged from the war as a net exporter, and in 1947 the surplus on consumer goods was \$1 billion. As industrial capacity was rebuilt in Europe and Japan, the surplus shrank steadily, and in 1959 the U.S. again became a net importer, with a deficit in consumer goods that has grown steadily since then. This example is typical of the pattern we see in the long-run data on the composition of trade. During the years since 1950 the composition of U.S. trade has moved back toward its longer-run base of comparative advantage. By the mid-1960s we see growing surpluses in trade in capital goods, chemicals, and agriculture, and deficits in consumer goods and non-agricultural industrial supplies and materials. Trade in automotive products switched from surplus to deficit in 1968.

In this section we analyze the long-term trends in commodity composition of U.S. trade, using end-use data developed by the Commerce Department. We begin in part A with an analysis of the aggregate data by major end-use categories. These show the broad trends just described. Then in part B we study the disaggregated data, down to the four-digit level. At that level one can see the effects of product cycles, international rationalization of the location of industry, and international location of stages in processing within an industry, for example.

In part C we move to the implicit factor composition of trade, and find that the U.S., on balance, is a net exporter of the services of human capital and importer of labor services. Thus the broad picture that emerges in this

net balance of payments should be in equilibrium on whatever basis is thought appropriate, while within it some items show deficits, and others surpluses. Furthermore, the basic notion of comparative advantage implies that the United States should be a net importer of some goods and a net exporter of others.

But even at the finest level of statistical disaggregation that is available, it appears that most goods are subject to two-way trade. Thereby, the notion of comparative advantage becomes the proposition that the United States should be a net exporter of goods in which it has a comparative advantage--whether it derives from resource endowment, technological advantage, or education embodied in human capital--and a net importer of goods in which it is at a disadvantage.^{3/} Thus it is natural to focus on net exports by commodity group in an analysis that attempts to reveal something about movements in U.S. comparative advantage and trade.^{4/}

2. Trends in Aggregate End-Use Categories

Table 19 shows net exports for ten major export end-use categories for the years 1925-78, excluding the war years 1941-45. In the table, total non-agricultural industrial supplies and materials are disaggregated into three parts: fuels and lubricants; chemicals; and a residual component. This disaggregation is necessary for two reasons. Fuels and lubricants include as major subcategories crude petroleum and semifinished petroleum products and

^{3/} Strickly speaking, in a list of commodities ordered from those with maximum net exports to those with maximum net imports, the United States has a comparative advantage in producing the goods higher on the list relative to those lower on the list.

^{4/} Disaggregation of the end-use data in an analysis focusing on net exports runs into the problem that, beyond the two-digit level, export and import categories do not match. This arises because a major criterion the OBE used for creating subcategories was the contribution of an item to the value total in its major category, and this criterion was applied separately on the export and import sides. In disaggregating beyond the two-digit level, therefore, the analysis here basically follows the export end-use categories, assigning import categories to the relevant export groups. For a discussion of the rationale and structure of the end-use groupings, see U.S. Exports and Imports, pp. vii-xviii.

Table 19: (Continued)

Industrial Supplies and Materials

<u>Year</u>	<u>Agricultural Goods</u>	<u>Fuels and Lubricants</u>	<u>Chemicals</u>	<u>Other</u>	<u>Capital Goods</u>
1972.	1500.	-3100.	2114.	-7183.	10955.
1973.	7907.	-6373.	3150.	-8249.	13700.
1974.	10327.	-21913.	4940.	-7527.	20003.
1975.	11414.	-21000.	5103.	-5010.	20120.
1976.	10471.	-25913.	5509.	-7470.	25198.
1977.	8804.	-40218.	5572.	-10950.	25358.
1978.	13230.	-38413.	6590.	-15055.	20771.

Table 19: (Continued)

<u>Year</u>	<u>Consumer Goods</u>	<u>Automotive Products</u>	<u>Other</u>	<u>Military Goods</u>	<u>N.E.C.</u>
1972.	-7600.	-4207.	111.	1036.	206.
1973.	-8175.	-4542.	73.	1385.	556.
1974.	-8090.	-3798.	139.	2015.	916.
1975.	-6735.	-1596.	297.	2762.	860.
1976.	-9243.	-4911.	312.	2413.	697.
1977.	-12979.	-8584.	165.	3041.	1175.
1978.	-17894.	-9853.	342.	4341.	1392.

natural gas. Throughout the period trade in these categories was heavily influenced both by natural resource advantages and by government policies. The oil price increases of the 1970s show up here. Chemicals are shown separately because they are the only three-digit category among nonagricultural industrial supplies and materials to show a surplus consistently since World War II.

Agricultural goods. Exports and imports of agricultural goods are shown in Figure 2. From 1925 to 1972, the U.S. trade balance in agricultural goods typically fluctuated in a range from a surplus of \$1.5 billion to a deficit of \$1.2 billion. Deficits dominated in the 1950s, there were small surpluses throughout the 1960s. A major change in U.S. agricultural trade came in the years 1972-74. Exports rose from \$9.5 billion in 1972 to \$22.2 billion in 1974, and the surplus went from \$1.6 billion to \$10.5 billion. Of the increase, approximately \$5 billion was in wheat and feed grains, the other \$4 billion is scattered across other commodities. The 1972-74 increase is associated with the boom in agricultural prices in those years. However, exports stayed in the \$22-24 billion range in 1974-77, and rose to \$30 billion in 1978, with the surplus rising to \$13.3 billion in 1978. Thus food prices do not account for the persistence of the change. During the mid-1970s U.S. agricultural trade moved from a position typically near balance to a surplus of \$10-14 billion.

Fuel and lubricants. Trade in fuel and lubricants is shown in Figure 3. It consistently showed a small surplus from 1925 through 1957. This was replaced in 1958 by a deficit, which grew fairly steadily to 1970. The deficit began to increase progressively in 1971, with major jumps to \$22 billion in 1974 and \$40 billion in 1977-78. On the basis of the first two quarters of 1979, the fuels and lubricants deficit for the year is about \$50 billion. The increase in the deficit in recent years is, of course, due to the oil

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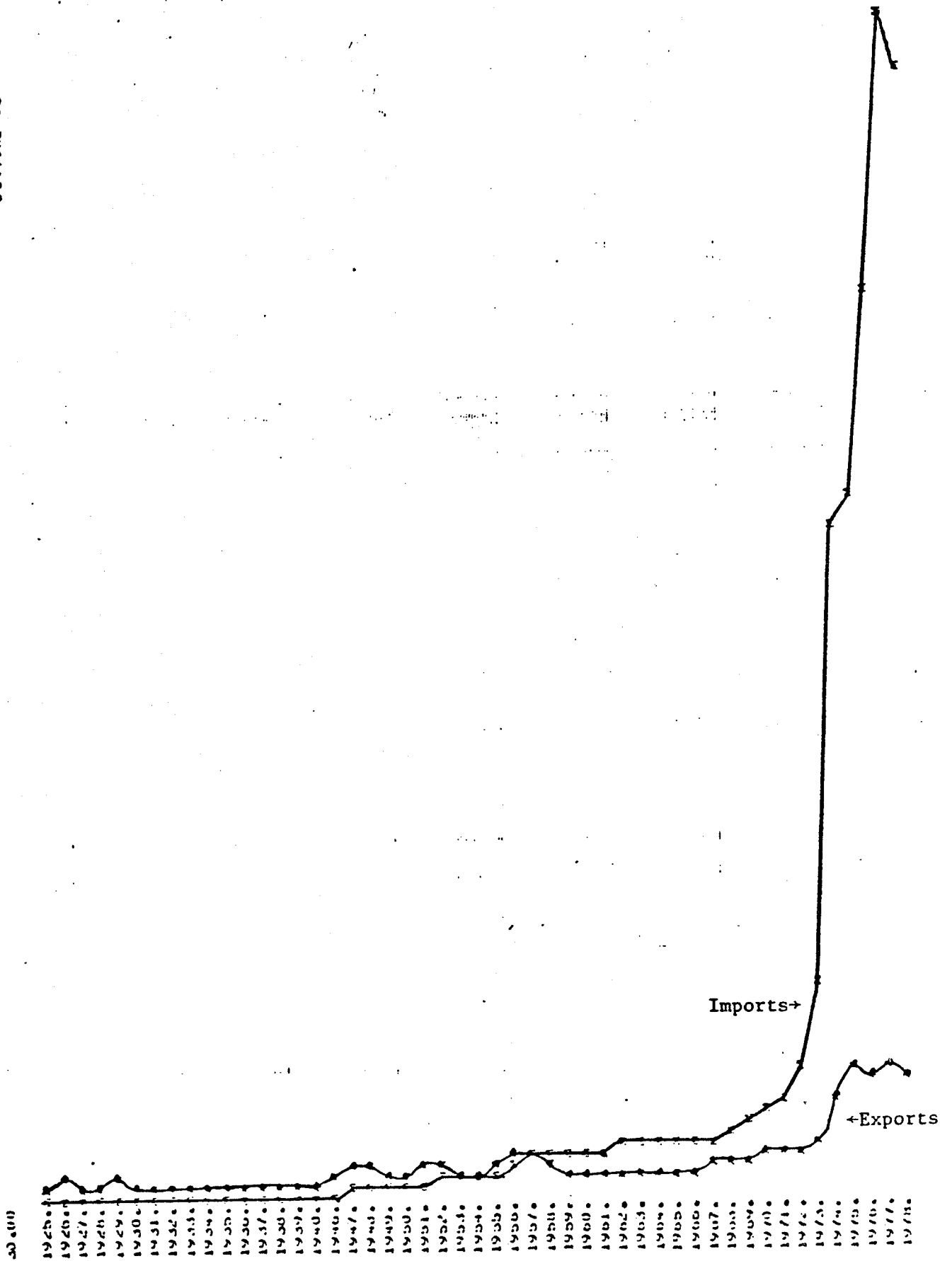


Figure 3: U.S. Exports and Imports of Fuels and Lubricants, 1925-1978

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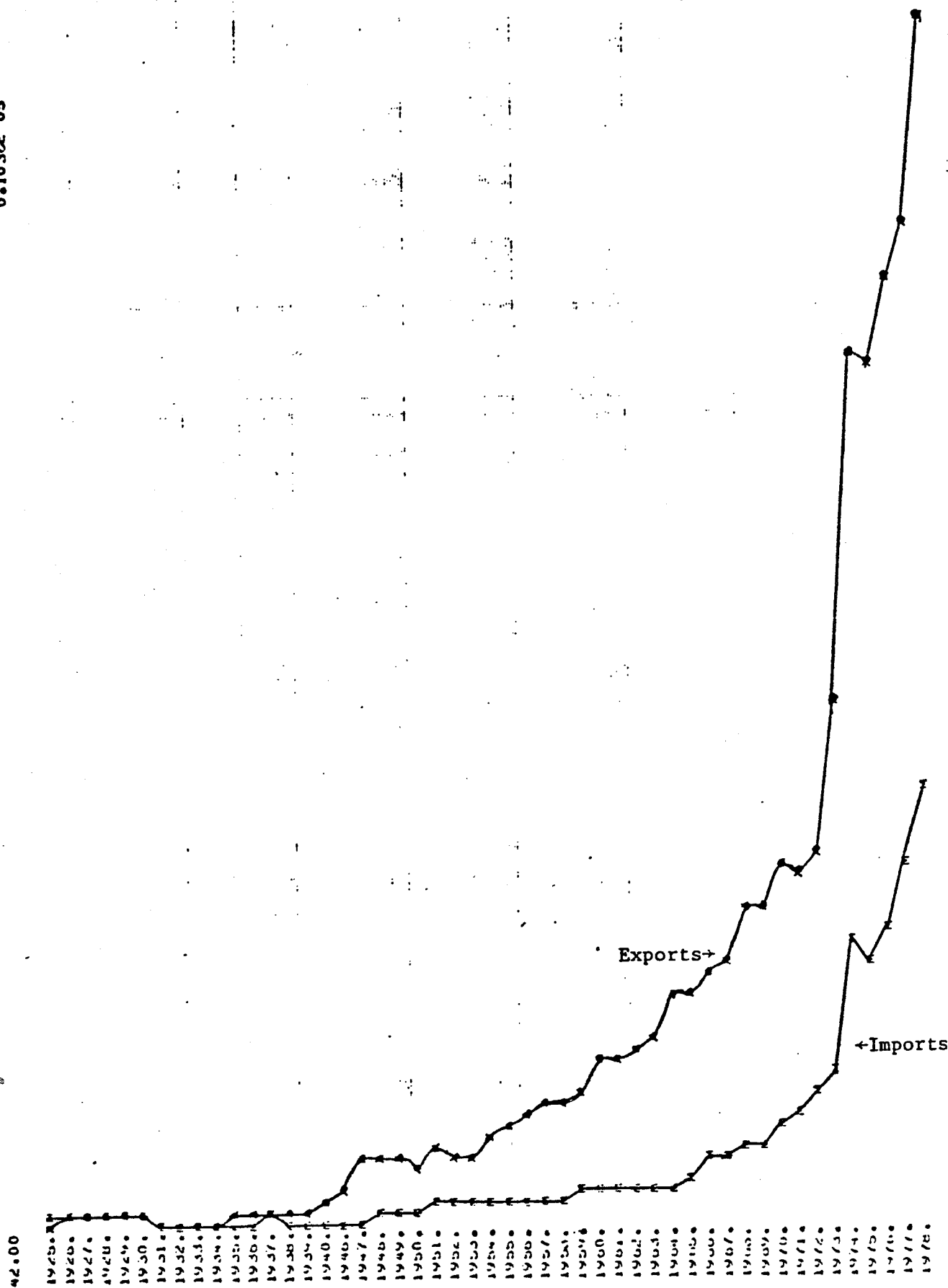


Figure 4: U.S. Exports and Imports of Chemicals 1925-1978

ing a much higher surplus than in the prewar years. The post-war bulge disappeared by 1950, and the surplus grew steadily to about \$11 billion in 1971-72. From 1972 to 1975, capital goods exports increased from \$17 to \$36 billion, and the surplus rose by \$15 billion. The distribution of the \$19 billion increase in capital goods exports is shown in Table 20. Exports to Western Europe and Canada rose significantly. More striking is the increase to the developing countries and OPEC. As we see below in Table 20, the increase was spread across all the subcategories of capital goods.

Table 20: Change in Capital Goods Exports, 1972-75
(\$ billion)

Area	Increase in Exports
Western Europe	\$4.9
Eastern Europe	0.7
Canada	2.7
Japan	0.5
Latin America	3.6
Australia, N.Z., S.A.	1.1
Other Asia and Africa	<u>5.5</u>
TOTAL	<u>\$19.0</u>

Consumer goods. Consumer goods (excluding food and beverages) describe a pattern completely different from that of capital goods, as Figures 5 and 6 confirm. Before World War II, the United States typically was a net importer of consumer goods by a small margin. Immediately after the war, a sizable surplus emerged as exports quadrupled from around \$250 million to

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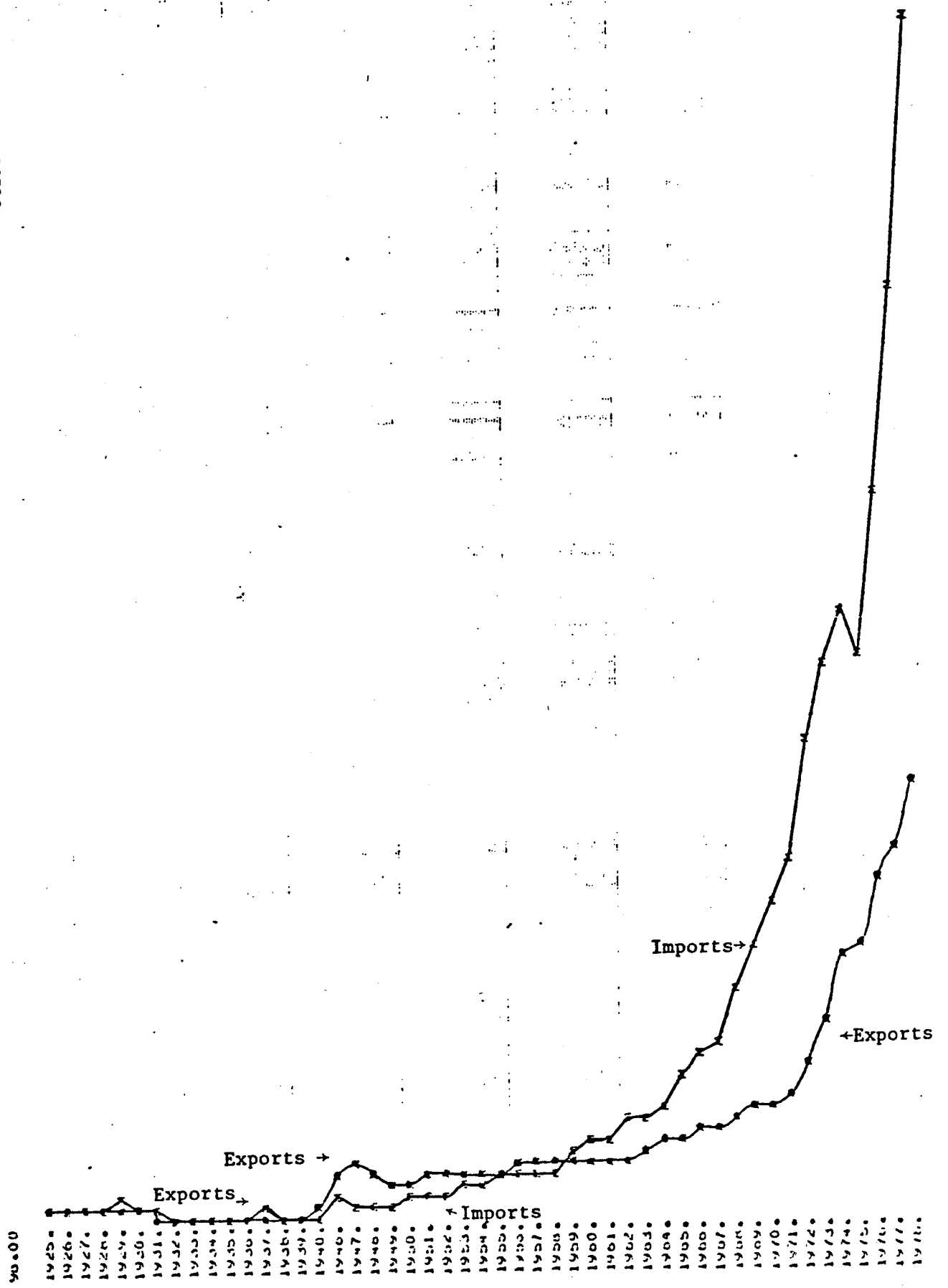


Figure 6: U.S. Exports and Imports of Consumer Goods, 1925-1978

Table 21: Change in Trade in Automotive Products,
1976 - 78 (\$ billion)

Area	Exports	Imports	Balance
Western Europe	0.3	2.0	-1.7
Canada	1.7	2.5	-0.8
Japan	0	3.4	-3.4
Latin America	0.7	0.2	+0.5
Other	<u>0.5</u>	<u>0.1</u>	<u>+0.4</u>
TOTAL	3.2	8.2	-5.0

Military goods. Trade in military goods is shown in Figure 8. Imports of aircraft and parts have grown erratically to about \$150-200 million a year in 1975-78. Exports have had two major periods of expansion. In 1950-53, during the Korean War, exports rose from \$0.4 to 3.8 billion. Exports then shrank to a level of about \$0.8-1.3 billion a year in the period 1958-73. Since 1974, exports have again grown rapidly, reaching \$4.5 billion in 1974.

Summary. The data of Table 19 give a strong impression that U.S. trade since World War II has been characterized by growing surpluses in chemicals and capital goods, and growing deficits in consumer goods and industrial materials. Once the immediate post-war adjustment to 1950 or so was finished,

a clear pattern of comparative advantage in these goods emerged. More recently, in the 1970s we have seen a growing deficit on automotive products and surplus in agriculture. These also can be assumed to reflect comparative advantage. Finally, the oil price increases of the 1970s have produced a \$40 billion deficit in fuels, and military sales show a \$4 billion surplus.

B. Disaggregated Patterns of Trade in Manufactured Goods

Patterns of U.S. trade in manufactured goods, disaggregated into thirty-four end-use commodity groups, are outlined in Table 22.^{5/} The table attempts to summarize the movements of exports and imports of manufactured goods down to the level represented by four-digit end-use codes. Selected commodities serve as illustrations of four general points.

1. From Raw Inputs to Finished Products: Steel

Within a given industry, such as steel or petroleum, the U.S. trade balance tends to move from deficit to surplus along the industrial scale from raw materials to semifinished products to finished products. Iron and steel and finished metals provide a good example.

The trade balance in iron and steel is depicted in Figure 9. In basic materials, there was a surplus in the 1930s, but almost continuous deficits have existed after 1946, widening since 1960. In iron and steel products, except advanced manufactures, a prewar surplus widened after the war, and then narrowed, giving way to balance in the early 1960s, but a

^{5/}The subsequent analysis focuses on trade in manufactured goods, for several reasons. First, and perhaps most important, trade in agricultural goods is greatly affected by nonmarket activities, mainly government subsidy and import programs in all the developed countries, and the P.L. 480 agricultural aid program in the United States. This general intervention is much more extensive in agricultural trade than in trade in manufactured goods, and could easily obscure underlying trends in comparative advantages. In addition, the cross-section data used below to assess the basis for U.S. comparative advantage in the mid-1960s relate only to trade in nonagricultural goods, although they include trade in goods from the mining industry.

Table 22 (continued)

Commodity ^a	End-use code number		1978 trade			Trade pattern, 1946-78
	Exports	Imports	Exports	Imports	Surplus	
Capital goods, less automotive ^c	2	2	45,952	19,181	26,771	Surplus throughout; growing rapidly to \$26 billion in 1975; level since.
Electrical machinery	20	200	8,110	5,860	2,251	Surplus generally growing since 1946; exports growing rapidly since 1971.
Construction and contracting machinery less nonfarm tractors	210 less 2104	2011	4,429	2,333	2,095	Surplus growing to \$4 billion in 1975; decreasing since.
Nonferrous industrial machinery	211	2010, 2012	12,890	4,275	8,614	Surplus growing rapidly to 1975; level at \$8-9 billion since.
Machine tools and metal working machinery	2112	2010	1,161	969	192	Surplus growing rapidly to 1975; level since.
Industrial machinery less machine tools and metal working machinery	211 less 2112	2012	11,729	3,306	3,306	Surplus growing rapidly to 1975; level since; jump in exports 1972-75.
Agricultural, scientific, and business machinery less tractors	212 less 2120	2015-16, 2018	9,949	3,982	5,967	Surplus growing since 1959; rapid growth since export take-off in late 1960s.
Agricultural machinery, except tractors	2121	2015	1,249	507	742	Balance to 1973; rapid growth of exports since 1974.
Business machinery	2122	2016	5,241	2,143	3,098	Little trade to 1960; surplus growing exponentially since.
Scientific and medical instruments and equipment and equipment and tools for photo and other service industries	2123, 2124	2018	3,459	1,332	2,126	Post-war export bulge and surplus throughout; growing rapidly since 1968.
Tractors, nonfarm, and farm and garden tractors and parts	2104, 2120	2013, 2014	2,497	929	1,568	Surplus throughout; rapid export growth 1972-75.
Civilian aircraft, engines, and parts	220	21	7,283	982	6,302	Little trade to 1958; rapid export growth since 1965.
Complete aircraft, civilian	2200	2100	3,616	231	3,385	Rapidly growing surplus since 1958.
Civilian aircraft, engines, and parts, except complete aircraft	220 less 2200	2101	3,667	751	2,916	Exports and surplus growing rapidly since 1967.

Table 22 (continued)

COMMODITY ^a	End-use code number		1978 trade			Trade pattern, 1946-78
	Exports	Imports	Exports	Imports	Surplus	
Consumer nondurables, except textiles	411	400	4,294	5,892	- 1,599	Postwar export bulge and surplus to 1968; deficit growing irregularly since 1970.
Footwear, luggage, apparel of leather, fur, rubber, plastic	4110	4010, 4011	196	3,215	- 3,019	Postwar export bulge and surplus to 1954; deficit growing steadily since then.
Medicinal and pharmaceutical preparations	4113	4012	1,521	699	821	Surplus throughout, growing rapidly since 1967.
Other consumer nondurables	4111-12, 4114	4013	2,552	1,978	575	Surplus except 1970; rapid export growth since then.

SOURCE: U.S. Exports and Imports, Table 5 (exports) and Table 6 (imports), U.S. Merchandise Trade, Table 2.2, and data tape provided by this reason, export and import categories do not generally match one for one. The development of the trade balances by commodity, described in the table, follows the export end-use description and end-use breakdown, and matched imports to exports as closely as possible. Thus the first two columns of the table give the export end-use description and code number, and the third column gives the import end-use code numbers covering the same commodity as the second column's export end-use code number.

- Commodity descriptions are for export end-use code numbers, as described in U.S. Exports.
- Groups 1273 and 1275-77 are subgroups of other nonagricultural industrial commodities that are a heterogeneous group and very difficult to match to an import category. In 1968, these groups accounted for \$686 million of exports.
- Total includes other transportation equipment, not shown separately below.
- This manufactured category is included in the table because of its relative importance in foreign trade.

deficit opened from 1963 onward. Finally, in unfinished metal shapes and advanced metal manufactures the U.S. still has a small surplus after a few years of deficit in the period 1966-73.^{6/}

This description makes clear that the United States has become basically a net importer of steel, with basic inputs and semifinished products in deficit and a small surplus in advanced products by 1978. While the United States has steadily lost its comparative advantage in iron and steel in general, the figure also suggests that, the more advanced the stage of production, the longer the U.S. trade advantage is maintained.^{7/}

2. Textiles: Postwar Export Bulge and 1970s Rationalization

In several commodities the United States characteristically had a balanced or deficit trade position before World War II, enjoyed a substantial surplus with a major increase in exports just after the war, and then lost it in a growing deficit after 1950. Also, in several commodities in the 1970s we can see the effects of international reallocation of the location of production, with labor-intensive stages of manufacturing moving away from the U.S. A good example of these patterns is presented by textiles, both industrial and consumer textiles, as reflected in the trade balances shown in Figure 10.

The postwar export bulge in textiles disappeared by 1949, leaving exports essentially flat at \$500 million to \$600 million in industrial textiles and \$150 million to \$200 million in consumer textiles from 1950 on, with little growth in the latter in the 1960s. Imports, however, grew in both

^{6/} A similar pattern can be seen in the petroleum industry. The United States has had a deficit in crude petroleum trade since 1946, a deficit in semifinished petroleum products since 1949, and a surplus in finished petroleum products that has been shrinking from a \$520 million peak in 1951 to a deficit of \$114 million in 1976.

^{7/} This could, of course, be due either to a basic U.S. comparative advantage in more advanced manufacturing, or to an effective tariff structure that favors it.

cases. Consumer textile imports rose slowly from 1947 through 1954 and increasingly rapidly after 1954, while industrial textile imports grew irregularly from 1949 to 1961 and extremely rapidly after that. The United States became a net importer of consumer textiles in 1955 and of industrial textiles in 1963.^{8/}

Since 1972, imports of consumer textiles have taken another significant jump, and trade in industrial textiles has moved back into surplus. At the consumer end, imports have risen from \$1.9 billion in 1972 to \$5.4 billion in 1978, with the deficit moving from \$1.2 billion to \$3.6 billion. At the industrial end, however, exports have risen from \$0.9 billion in 1972 to \$2.2 billion in 1978, while the balance moved from a \$0.5 billion deficit to a \$0.6 billion surplus. The U.S. is now an exporter of the industrial good and an importer of the consumer good.^{9/}

3. The Product Cycle: Household Appliances:

Disaggregation to the four-digit level makes it possible to determine the pervasiveness of the product cycle phenomenon. In his seminal paper, Raymond Vernon suggested that trade in manufactured goods typically follows a cycle in which the United States is first a net exporter as a good is introduced and "shaken down," and then becomes a net importer as production of the good becomes standardized and moves abroad to minimize production costs.^{10/} Since the product cycle involves patterns of trade in individual commodities, the likelihood that it can be observed increases with disaggregation of the

^{8/} Trade in footwear, luggage, and apparel of leather, fur, rubber, or plastic has followed a pattern quite similar to that of consumer textiles.

^{9/} A similar pattern is observable in trade in automotive goods, with a surplus in parts and a deficit in finished product.

^{10/} Raymond Vernon, "International Investment and International Trade in the Product Cycle," Quarterly Journal of Economics, Vol. 80 (May 1966), pp. 190-207.

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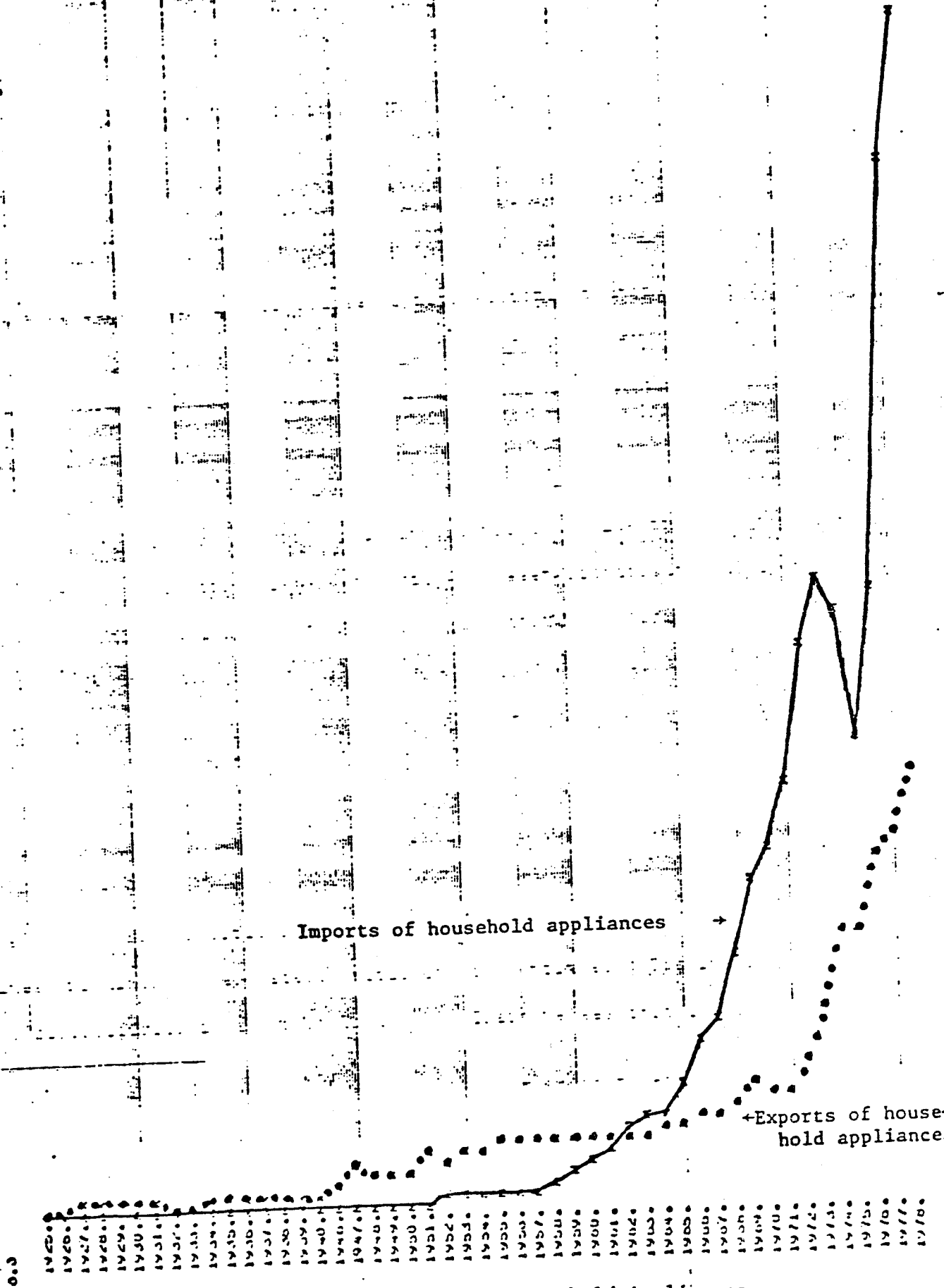


Figure 11: U.S. Exports and Imports of Household Appliances
1925-78

the middle or later 1950s and a growing deficit developed in the 1960s. Thus the patterns of trade are similar within end-use aggregates, and dissimilar across them, confirming the usefulness of the OBE categorization.

6. Conclusions from the Long-Term Data

From this survey of the long-term data, it appears that the United States has a growing comparative trade advantage in capital goods and chemicals, but is at a disadvantage in consumer goods and other industrial supplies and materials. In consumer goods, the United States typically had a deficit from 1925 to 1938, and after a postwar surplus, returned to a deficit position starting in 1959. In some industrial supplies and materials--fuels and lubricants, basic materials for iron and steel, and their products--the United States was a net exporter before World War II and became a net importer thereafter.

Part of the movement from surplus to deficit in consumer goods and non-chemical industrial supplies and materials since the late 1940s has been due to the loss of a temporary advantage after World War II. This seems to be the case in consumer goods and textiles, although the trade deficit continued to increase even after the postwar advantage disappeared in the mid-1950s. In these areas, as well as in steel and petroleum, the loss of the postwar advantage merely reinforced the more fundamental loss in competitive advantage.

This assumption was refuted by Leontief (1953). Gradually, after 15 years of confusion and further analysis, a new consensus has appeared, which focuses on the role of human capital as the principal source of U.S. comparative advantage. Below we first discuss the evaluation of theory and evidence on comparative advantage, and then summarize empirical results that are representative of recent research on the topic.

1. Capital Labor, and Human Capital

The classical factor-endowments theory of international trade, generally associated with Heckscher and Ohlin, predicts that a country will export goods whose production is intensive in the use of primary input factors with which it is relatively well endowed, and import goods whose production intensively uses factors in which it is relatively poor. In the usual two-goods, two-factors, two-countries models, this dictum means simply that a country better endowed with capital than with labor should export goods whose production is capital-intensive, and import goods that are labor-intensive. Since the United States has a high ratio of capital per employee, this proposition was generally taken to mean that its exports would be more capital-intensive than its imports.

This assumption was refuted by Leontief in 1953, when, using the 1947 input-output coefficients, he showed that U.S. exports are less capital-intensive in production than are the goods it imports. Leontief's findings were subsequently confirmed by Leontief (1956), using 1951 data, and by Hufbauer (1970) and Baldwin (1971), who used the 1963 input-output coefficients. Hufbauer showed that they also hold for manufactured goods separately.

Leontief suggested that his findings were due to higher labor productivity in the U.S. than in its trading partners. In support of this conjecture in his 1956 paper he showed that production of U.S. exports employed

role for wage differentials as representing human capital in explaining trade. The other approach attempts to measure differences in human capital across industries by proportions of employees in various skill classifications. This is the route taken recently by Baldwin (1971), and earlier by Keesing (1966).

The first approach should be preferable if human capital is, in fact, reflected in earned income. If human capital is correctly valued, and this value accrues as earned income, wage differentials should fully capture the effects on productivity of differences in human capital per person. The presence of, say, a high proportion of scientists in an industry should make that a high-wage industry, with the capitalized value of the excess of that wage rate over the wage of an uneducated person measuring the human capital input. In this event, the wage, or human capital, differential should capture the contribution of the input of human capital to production, or to trade advantage. Only if the scientists contribute something extra, in excess of their wage, to production should a "skill ratio" of scientists to total employees add to the ability of the human capital measure to explain variations in output or trade advantage.

Thus if wage rates accurately reflect differences in human capital, the capitalized value of the average wage above the wage of raw labor can serve as a measure of human capital in explaining net exports. If, in addition, a skill ratio is significant, it reveals that the skilled personnel are, in a sense, contributing more to comparative advantage than their market-determined wage indicates.

By the mid-1970s, the human capital explanation of the basis for U.S. comparative advantage was broadly accepted in the economics literature, as reflected in the paper by Bertil Ohlin (1977) and the comments thereon. Next we turn to a brief summary of one set of empirical results that supports

Table 24: Estimates of Regression Equations at the 3-Digit SITC Level

Dependent Variables	Independent Variables				R ²	EQ #
	K	H	L	C		
NX (1963)	-0.04 (1.63)	0.03 (5.31)**		-2.29 (0.08)	0.34**	2-1
NX (1963)	-0.05 (2.18)*	0.04 (6.87)**	-0.67 (3.99)**	18.54 (0.72)	0.45**	2-2
X (1963)	0.01 (0.61)	0.03 (5.39)**	-0.44 (2.58)*	37.56 (1.45)	0.53**	2-3
M (1963)	0.06 (5.58)**	-0.01 (2.88)**	0.23 (2.77)**	19.02 (1.48)	0.40**	2-4
NX (1967)	-0.04 (2.33)*	0.04 (6.02)**	-0.69 (3.21)**	19.05 (0.53)	0.34**	2-5

practically unchanged from 0.32 to 0.34. When L is entered into the regression in equation 2-2 the size and sign of the coefficients of K and H are not affected while their significance is increased slightly so that K becomes marginally significant. The coefficient of L is negative and significant, and R² rises from 0.34 to 0.45.

Equation 2-3 of the table shows that industries with high gross exports are human capital-intensive in production, other things being equal. Physical capital input is not significant. On the other hand, equation 2-4 indicates that the U.S. imports goods whose domestic production intensively uses physical capital and labor relative to human capital. The signs of the coefficients are the reverse of 1-2 and all three coefficients are significant although the fit of the regression is not as good as when X is the dependent variable.

IV. Trends in Long-Term Investment

During the period since World War II there has been significant growth in U.S. long-term investment abroad and foreign long-term investment in the U.S. Both U.S. long-term claims on foreigners and liabilities to foreigners have grown at an annual rate of about 9 percent during the period 1950-77. Within this balanced growth of the aggregate long-term investment position there have been significant changes in composition, both of type and location of U.S. foreign investment and type and geographical source of foreign investment in the U.S.

We have compiled the data on the long-term U.S. investment position for the years 1950-77, and present them in this section. We begin with the aggregate position, and then disaggregate to the level of direct investment by industry, source, and destination.

A. Aggregate Investment Position

The aggregate U.S. long-term foreign investment position is summarized in Table 25. There we see that U.S. private plus government long-term claims have grown from \$28.3 billion in 1950 to \$264.4 billion in 1977, while long-term liabilities have risen from \$8 billion to \$94 billion. The U.S. net long-term position was \$170.5 billion in 1977. Over the 27-year period for which we have data, U.S. total long-term claims have grown at an annual rate of 8.3 percent [columns (1) and (2) in Table 25], and U.S. liabilities have grown at the annual rate of 9.1 percent. The distribution of U.S. claims has shifted from government toward private. In 1950 private claims were 62 percent of the total; by 1977 this ratio had risen to 82 percent.

B. Distribution and Growth of U.S. Long-Term Assets and Liabilities

1. U.S. Assets

In Table 26 we show the break-down of the U.S. long-term private asset

Table 26: U.S. Private Long-Term Foreign Assets
(\$ billion)

YEAR	Total	Direct	Foreign Bonds	Foreign Stocks	Other
1950	17.5	11.8	3.2	1.2	1.4
1955	26.7	19.4	3.0	2.4	1.9
1960	44.4	31.9	5.5	4.0	3.1
1965	71.0	49.5	10.2	5.0	6.4
1970	105.0	78.2	13.2	6.4	7.2
1971	114.5	83.0	15.9	7.6	8.1
1972	127.8	90.5	17.1	10.5	9.7
1973	139.8	101.3	17.4	10.0	11.1
1974	151.0	110.1	19.2	9.0	12.7
1975	174.4	124.0	25.3	9.6	15.4
1976	198.3	136.4	34.7	9.5	17.8
1977	216.6	148.8	39.2	10.1	18.5

Table 27: Average Annual Growth Rates of U.S.

Private Long-Term Foreign Assets (%)

ITEM	1950-77	1950-55	1955-60	1960-65	1965-70	1970-75	1975-7
Long-Term Private, Total	9.3	5.5	10.2	9.4	7.8	10.2	10.8
Direct Investment	9.4	10.0	9.9	8.8	9.2	9.2	9.1
Foreign Bonds	9.3	-0.7	11.9	12.2	5.2	13.1	21.9
Foreign Corporate Stocks	7.8	14.6	9.8	4.7	4.9	8.0	2.7
Other	9.7	6.3	9.9	14.5	2.4	15.3	9.1

Table 29: Average Annual Growth Rates of Foreign
Long-Term Assets in U.S. (%)

ITEM	1950-77	1950-55	1955-60	1960-65	1965-70	1970-75	1975-77
Long-Term Total	9.1	10.3	6.3	7.2	10.6	11.8	7.6
Direct Investment	8.5	8.0	6.2	4.8	8.2	14.7	10.4
Bonds	15.9	7.2	18.4	6.0	41.2	7.5	5.7
Corporate Stock	9.7	16.2	6.9	9.0	4.9	12.7	5.9
Other	5.6	0	0.8	6.0	20.8	5.2	-6.7

Table 30: U.S. Direct Investment, Total
(\$ billion)

YEAR	Mining and Smelting	Petroleum	Manufacturing	Other
1950	1.1	3.4	3.8	3.4
1955	2.2	5.9	6.6	4.7
1960	3.0	10.9	11.2	7.7
1965	3.8	15.3	19.3	10.9
1970	6.2	21.7	32.3	18.0
1971	6.7	24.2	35.6	19.7
1972	7.1	26.3	39.7	21.2
1973	6.0	27.3	44.4	26.0
1974	6.1	30.2	50.9	31.3
1975	6.5	26.2	55.9	35.6
1976	7.1	29.7	61.1	39.4
1977	7.1	30.9	65.6	45.2

SOURCE: Survey of Current Business

Table 32: U.S. Direct Investment in Canada
(\$ billion)

YEAR	Mining and Smelting	Petroleum	Manufacturing	Other
1950	0.3	0.4	1.9	0.9
1955	0.9	1.4	3.1	1.4
1960	1.3	2.7	4.8	2.4
1965	1.8	3.4	6.9	3.2
1970	3.0	4.8	10.1	4.9
1971	3.2	5.1	10.6	5.1
1972	3.5	5.3	11.6	5.4
1973	2.7	5.3	11.8	5.8
1974	2.8	5.7	13.4	6.4
1975	3.1	6.2	14.7	7.1
1976	3.2	7.2	16.0	7.6
1977	3.2	7.7	16.7	7.8

SOURCE: Survey of Current Business

Table 34: U.S. Direct Investment in Latin America
(\$ billion)

YEAR	Mining and Smelting	Petroleum	Manufacturing	Other
1950	0.6	1.2	0.8	1.8
1955	1.0	1.6	1.4	2.2
1960	1.2	2.9	1.6	2.7
1965	1.1	3.0	2.7	2.5
1970	2.1	3.9	4.6	4.1
1971	2.1	4.2	5.0	4.5
1972	2.1	4.3	5.6	4.8
1973	1.7	3.0	6.5	5.3
1974	1.4	3.6	7.5	7.1
1975	1.5	3.3	8.6	8.7
1976	1.6	2.9	9.2	9.8
1977	1.6	3.4	10.0	12.8

SOURCE: Survey of Current Business

Table 36: Distribution of U.S. Direct Investment by Area

YEAR	Europe	Canada	Japan	Latin America	Other
1950	.15	.30	.00	.38	.17
1955	.15	.35	.01	.31	.18
1960	.20	.34	.01	.26	.19
1965	.28	.31	.01	.19	.20
1970	.31	.29	.02	.19	.19
1971	.32	.28	.02	.18	.19
1972	.32	.27	.03	.18	.20
1973	.37	.25	.03	.16	.20
1974	.38	.24	.03	.16	.19
1975	.40	.25	.03	.18	.15
1976	.41	.25	.03	.17	.15
1977	.41	.24	.03	.19	.14

Table 37: Foreign Direct Investment in the U.S.
(\$ billion)

YEAR	Total	Petroleum	Manufacturing	Insurance & Finance	Other
1950	3.4	0.4	1.1	1.1	0.8
1955	5.1	0.9	1.8	1.5	1.0
1960	6.9	1.2	2.6	1.8	1.3
1965	8.8	1.7	3.5	2.2	1.4
1970	13.3	3.0	6.1	2.3	1.9
1971	13.9	3.1	6.7	2.6	1.5
1972	14.9	3.3	7.3	2.9	1.4
1973	20.6	4.8	8.2	1.9	5.6
1974	25.1	5.6	10.4	1.3	7.8
1975	27.7	6.2	11.4	1.6	8.4
1976	30.8	5.9	12.6	2.1	10.1
1977	34.1	6.6	13.7	2.3	11.5

SOURCE: Survey of Current Business

Table 39: Direct Investment in U.S.
by Canada (\$ billion)

EAR	Petroleum	Manufacturing	Insurance & Finance	Other
1950	0.1	0.5	0.2	0.4
1955	0.2	0.7	0.2	0.5
1960	0.2	0.9	0.2	0.6
1965	0.2	1.2	0.4	0.6
1970	0.2	1.8	0.3	0.8
1971	0.2	2.0	0.3	0.8
1972	0.2	2.2	0.4	0.7
1973	0.4	2.3	0.2	1.3
1974	0.5	2.9	0.2	1.5
1975	0.6	3.1	0.2	1.5
1976	0.7	3.4	0.2	1.6
1977	0.7	3.4	0.2	1.7

SOURCE: Survey of Current Business

Table 41: Direct Investment in U.S.
by Other Countries (\$ billion)

EAR	Petroleum	Manufacturing	Insurance & Finance	Other
1950	0.0	0.0	0.0	0.1
1955	0.0	0.0	0.0	0.1
1960	0.0	0.1	0.1	0.1
1965	0.0	0.0	0.1	0.1
1970	0.0	0.1	0.1	0.1
1971	0.0	0.2	0.1	0.1
1972	0.0	0.2	0.2	0.9
1973	0.2	1.0	0.2	1.4
1974	0.3	1.0	0.1	1.4
1975	0.1	1.3	0.2	1.5
1976	0.2	1.5	0.3	1.6
1977	0.3	1.5	0.3	1.6

SOURCE: Survey of Current Business

petroleum share has risen from 12 to 19 percent, manufacturing from 34 to 40 percent, and other from 23 to 34 percent, while the share of insurance and finance has fallen from 31 to 7 percent.

In the share distribution of Table 42, we see Europe fairly steady at 65-70 percent over the period, Canada falling from 30 to 18 percent, Japan growing from nil as late as 1973 to 5 percent in 1977, and other growing from 4 to 11 percent. As foreign direct investment in the U.S. has accelerated in the 1970s, the Canadian and European shares have fallen, and the Japanese and other shares have risen. In Table 43 we show the distribution of the increase in foreign investment from 1970 to 1977. There we see that even as the Japan and other shares have risen, the bulk of the increase in investment position has come from Europe. The rising shares of Japan and other began from a very small base.

To summarize, foreign direct investment in the U.S. has risen in the 1970s relative to the trend of 6-7 percent growth of the 1950-70 period. The distribution has moved away from finance toward manufacturing, petroleum, and other, essentially from finance toward non-financial firms. While foreign investment in the U.S. is only a quarter of U.S. investment abroad, we may be seeing the beginning of the internationalization of ownership of U.S. industry.

V. The Change in Balance-of-Payments and Exchange-Rate Arrangements, 1960-78

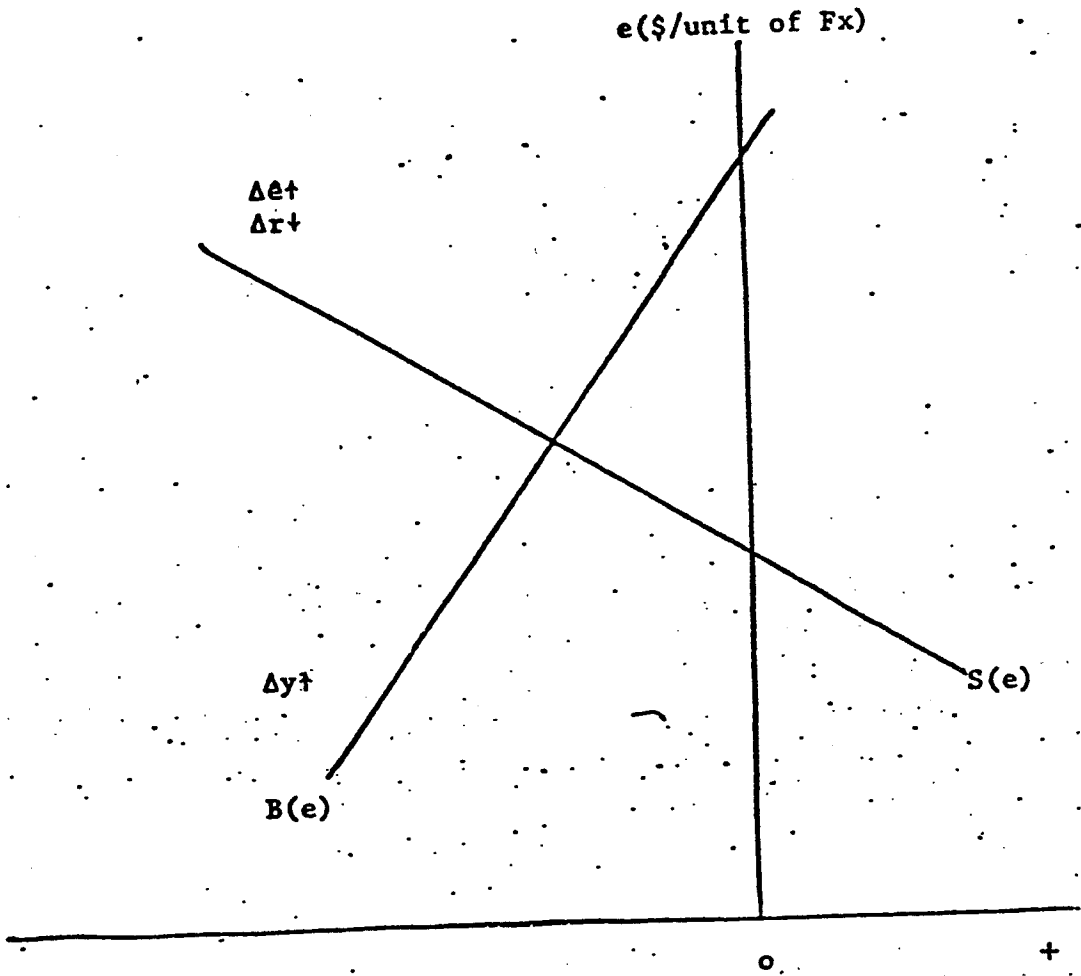
In the previous two sections of the paper we have reviewed trends in trade and investment since World War II against the background of section II. There we saw that the dominant U.S. economic position of the 1950s eroded subsequently, perhaps in a return to more normal historic patterns. In this section we will briefly review the major changes in monetary arrangements, as they reflect or affect the changing structure of the U.S. economy. We will not go through a full-scale review of international monetary developments.^{13/} Rather, we will focus on two major structural changes since 1960. One is an increase in the underlying volatility of the U.S. "basic balance," defined as the current account plus net long-term capital flows, from the 1960s to the 1970s. The other is the shift from fixed exchange rates in the 1960s to managed floating since 1973. To an extent, these two changes have a cause-and-effect relationship. The increase in variability of the basic balance is an economic fact that makes the equilibrium exchange rate more variable over time. This is one of the reasons for the emergence of the system of managed floating, to permit use of the exchange rate to absorb some of this variability. We begin below with a simple analytical framework for discussion of exchange-rate pol'cy and its connection to variation in the basic balance, and then present and discuss the data.

A. Intervention and Exchange-Rate Flexibility

During the period 1971-73, between President Nixon's speech of August 15, 1971 which ended gold convertibility of the dollar, and March 1973 when "generalized floating" of the major currencies began, there was a major shift in U.S. exchange rate policy. This was one of the two major structural changes affecting reserve and exchange-rate relationships during the period. Most commentators agree that after March 1973 the world had completed a shift to

^{13/}See Branson (1979b) for a year-by-year description of international monetary developments since 1965, and their effect on the theory of international finance.

Figure 12: Basic Balance and Short-term Capital



Basic Balance Surplus (R)
Short-term Capital Outflow (S)

Figure 13: Intervention with a Fixed Rate

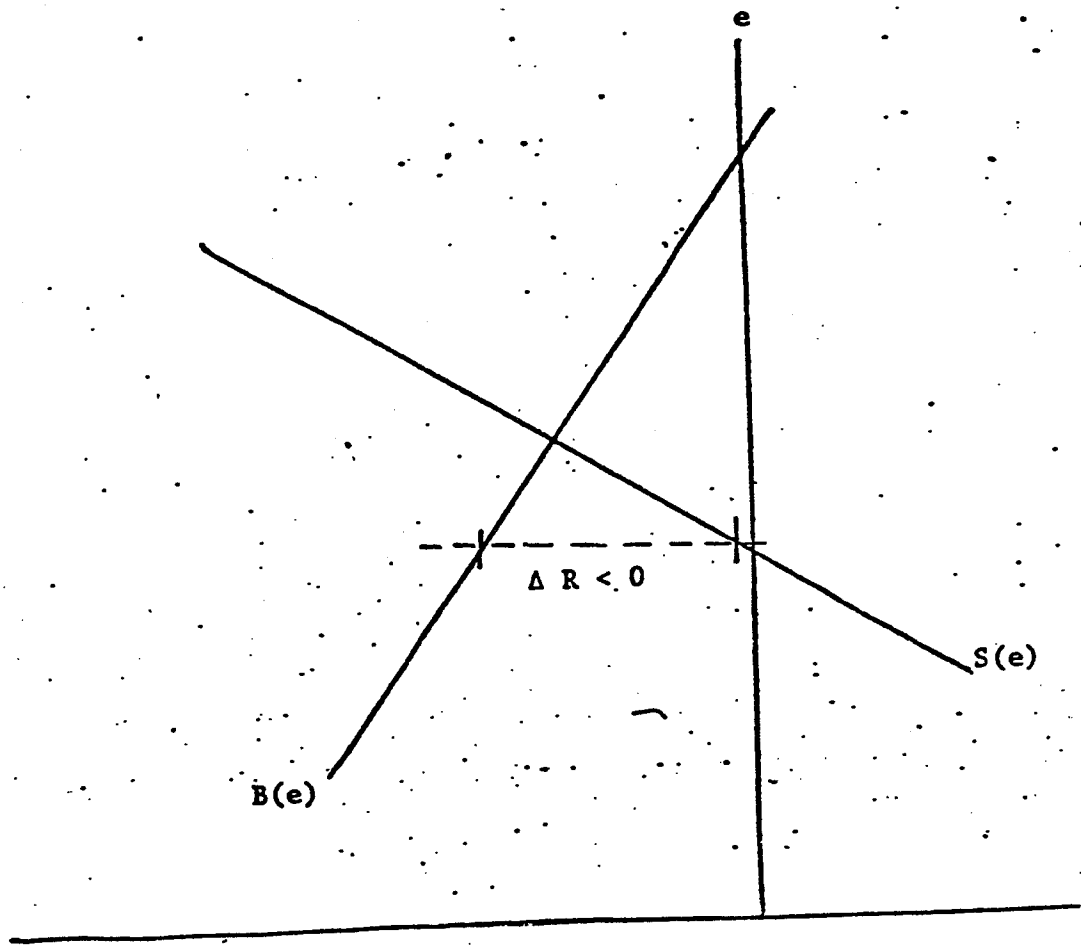


Table 44: U.S. Balance of Payments (\$ billion)

YEAR	(1)	(2)	(3)	(4)	(5)
	Current Account	Long-Term Capital Surplus (+)	Basic Balance (1)+(2)	Short-Term Capital Net Outflow (+)	Change in Reserves (3)-(4) Net Income (+)
1960	2.8	-4.4	-1.6	1.8	-3.4
1961	3.8	-3.7	0.1	1.4	-1.3
1962	3.4	-4.6	-1.2	1.5	-2.7
1963	4.4	-6.0	-1.6	0.3	-1.9
1964	6.8	-7.1	-0.3	1.2	-1.5
1965	5.4	-7.4	-2.0	-0.7	-1.3
1966	3.0	-6.0	-3.0	-3.2	0.2
1967	2.6	-6.7	-4.1	-0.7	-3.4
1968	0.6	-2.9	-2.3	-3.9	1.6
1969	0.4	-4.4	-4.0	-6.7	2.7
1970	2.3	-6.3	-4.0	5.9	-9.9
1971	-1.4	-9.1	-10.5	19.2	-29.7
1972	-5.7	-5.1	-10.8	-0.6	-10.2
1973	7.1	-7.9	-0.8	4.5	-5.3
1974	2.1	-6.1	-4.0	4.7	-8.7
1975	18.3	-17.3	1.0	5.4	-4.4
1976	4.6	-15.3	-10.7	-0.2	-10.5
1977	-14.1	-14.8	-28.9	6.1	-35.0

SOURCE: Survey of Current Business

rate moves. This intervention policy, called "leaning against the wind" in foreign exchange markets, is illustrated in Figure 15.^{15/} There the initial market exchange rate is e_0^* . A leftward shift of $B(e)$ from B_0 to B_1 would raise the market equilibrium rate to e_1^* . If the rate of change of e from e_0^* to e_1^* , is viewed as too large by foreign central banks or the Fed, intervention could hold the rate at some intermediate value e_1 . The resulting reserve loss to the U.S. would be ΔR , in Figure 15.

An example of this policy appears in the data for 1977-78 in Figure 1 and Table 44. The U.S. basic balance deficit increased from \$11 billion in 1977 to \$29 billion in 1978 [Table 44]. This was accompanied by an increase in the weighted nominal exchange rate of 12.6 percent from 1977:IV to 1978:IV and an increase in reserve loss from \$11 billion in 1977 to \$35 billion in 1978 as central banks slowed the movement in the exchange rate.

It should be clear from the example of 1977-78 that observed reserve movements can be larger under managed floating than under fixed rates, if the stability of the $B(e)$ function changes across periods. When $B(e)$ is relatively stable, fixed rates may be maintained with little intervention as long as the parity rate is close to the market equilibrium rate on average over time. But if $B(e)$ becomes unstable, larger interventions are required. If these become too large for central banks to countenance, they move to managed floating. This permits the exchange rate to absorb some of the shock of $B(e)$ disturbances. For example, in Figure 15 and ΔR that would be to hold the rate at e^* as B shifts from B_0 to B_1 is much larger than the intervention under managed floating.

^{15/} This policy was first analyzed in Branson (1976). There is ample empirical evidence that intervention policy has followed this approach, in general. See, for example, Branson-Halittunen-Masson (1977) for Germany and Amano (1979) for Japan. This policy rule is explicitly built into the Flex 1 econometric model of Japan, which is discussed by Amano.

Thus a significant increase in the volatility of the current account or the basic balance could move the system from fixed rates to managed floating. Here the structural change in policy regime in the 1970s could be traced to a change in the underlying structure of the economy. We now turn to evidence of such an increase in basic balance volatility.

B. Volatility of Underlying Exchange-Rate Determinants

The annual data for U.S. balance-of-payments aggregates since 1970 are shown in Table 44. There the data are arranged to correspond to the framework of Figures 12 through 15. The basic balance surplus of column (3) is $B(e)$; the short-term capital outflow of column (4) is $S(e)$, and the change in reserves of column (5) is ΔR . The basic balance shows deficits every year except 1961 and 1976; the reserve column shows losses every year except 1966, 1968, 1969. The current account column generally shows surpluses. The exceptions are the cyclical recovery years of 1971-72 and 1977-78. It is interesting to note that cyclical fluctuations rather than movements in the price of oil have dominated movement in the current account in the 1970s.

The increase in volatility in the basic balance from the 1960s to the 1970s is evident in Table 44. From 1960 to 1969 the range of variability of the basic balance was \$4.2 billion, from a surplus of \$0.1 billion in 1961 to a deficit of \$4.1 billion in 1967. But from 1970 to 1978 the range widened to \$30 billion, from a \$1 billion surplus in 1975 to a deficit of \$28.9 billion in 1977. The time-series standard deviation of the basic balance increased from \$1.4 billion in 1960-69 to \$9.4 billion in 1970-77.^{16/} Thus there was a significant increase in the volatility of the basic balance from the 1960s to the 1970s. This resulted both from the increase in variation

^{16/}The F-statistic for the increase is 32.8 compared to 3.1 at the 5 percent level and 5.1 at the 1 percent level.

in exchange rates now absorb some of the pressure of variation in the basic balance.

The data of Table 44 support the view that the variability in exchange rates since 1973 is largely the result of underlying variability in the basic balance. As the basic balance is perceived to change, the exchange markets forecast the consequences for exchange rates, and the pressure appears as an immediate movement of the rate. Thus in interpreting balance-of-payments and exchange rate fluctuations in the 1970s, we should go back to underlying economic determinants of movements in the basic balance.

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