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A Note on the Effect of the 1965-69 Boom in
the United States on World Trade

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by

F. Gerard Adams and Helen B. Junz

The U.S. trade surplus, which had run at a healthy $5 billion annual rate in the early 1960's, declined sharply after the middle of the decade until mid-1969, by which time it had eroded to virtually nothing. The magnitude of this decline has necessarily raised questions about the underlying causes and about the future trend of the U.S. trade balance. Basically, the questions regarding causality are aimed at determining whether a fundamental and structural shift has occurred in the U.S. competitive position in world markets or whether the severe deterioration in the trade position is temporary -- and particularly cyclical -- in nature. The answer to this question has obvious policy implications. Specifically, this note addresses itself to the question of the effect of inadequate demand management policies -- here and abroad -- upon trade flows, utilizing a simple application of an updated version of the OECD world trade model[1]/ to put quantitative dimensions on this effect. The

model, which was designed to isolate pressure of demand and price effects from other influences upon trade flows, is a good vehicle for such calculations. Like all such models though, it can indicate only the approximate range of magnitudes involved. Within this limitation, the model has been used to contrast a base solution -- which assumes that economic activity and prices moved as they actually did throughout the period -- with alternative solutions postulating first, what would have happened if instead of moving above its potential growth path, the U.S. economy had grown at its potential rate after 1964; and, second, what would have happened if other industrial countries had kept their economies fully employed throughout the period.

The results of these comparisons show that the inflationary boom that gripped the United States after 1964 had a very considerable impact upon trade flows. It reduced the U.S. trade surplus markedly and it augmented the surpluses of Japan and, though less substantially, those of European countries, notably Germany and Italy. If the U.S. economy had followed a non-inflationary growth path from 1965 onward -- that is if real GNP had grown about in line with the underlying growth rate of productive capacity -- the U.S. trade balance in the first half of 1969 would have been at least $3-1/2 billion larger than it was in fact.

This result is based on the assumption that Canadian economic activity would also have grown at a slower rate, but that the economies of the rest of the world would have developed as they actually did.

Given the historically close inter-relationship between economic activity in the United States and Canada, it is only reasonable to assume that Canadian demand management policies could not have fully offset the effects of significantly slower growth of U.S. demand. Furthermore, the Canadian authorities probably would not have been inclined to adopt such policies consistently since Canada, during a major part of the 1965-69 period, was trying to reduce inflationary pressures.

For the other industrial countries, however, it is not unreasonable to assume that economic activity could have proceeded along actual trends. In fact, a number of European countries experienced a considerable amount of slack during some part of the simulation period, notably Germany, France and Belgium in 1966-early 1968 and Italy during most of the period. It was only during 1969 that these economies began to experience supply constraints. Therefore, a further question was asked, namely, how trade flows would have been affected if the industrial countries outside North America had adopted demand management policies so as to keep their economies fully employed, at the same pressure of demand as they experienced in the second half of 1964, while the United States and Canada grew at non-inflationary rates. The results of this simulation yield an improvement in the U.S. trade balance in the first half of 1969 of just over $6 billion.

The study thus suggests that if the United States avoids excess demand, the U.S. trade balance can benefit considerably. If

other industrial countries, at the same time, act upon their commitment to high- employment goals, the improvement in the U.S. trade position can be even greater. This conclusion is supported by the recent improvement in the U.S. trade surplus, which in May-July 1970, has run at an annual rate of $4-1/2 billion. However, this level has been achieved at U.S. activity rates well below capacity, while many other countries are experiencing rather higher rates of demand pressure than they wish to see. Thus the "full-employment trade surplus" of the United States may be less than the actual trade surplus now, but the trade balance still shows a rising trend. It is difficult to predict the extent to which the effects of the past years of inflation -- in terms of lost market opportunities -- can be rolled back. But, given the responsiveness of trade flows to alternative economic conditions, the world cyclical constellation currently offers a better than average possibility of recouping lost ground, if U.S. demand management policies are successful in preventing excess demand, while the economy returns to an adequate growth path.

The Updated OECD Trade Model

The updated version of the OECD trade model used in these calculations was prepared by Mr. Yajima at OECD in Paris during 1969.[2]

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[2] The authors wish to thank Mr. Yajima for providing the card deck and for his assistance in adapting it to the present purpose.

While it maintains the character of the original OECD trade model,[3] it has been reestimated on data for the period 1955 to 1968 and it has undergone some structural modifications. The basic model consists of a set of import and export equations. These equations, shown for the updated version in Appendix Table I, form an interrelated system. Imports are predicted for each of the seven most important OECD countries, other OECD as a group, and non-OECD also as a group -- on the basis of economic activity variables such as industrial production or GNP, pressure of demand, and relative prices. The pressure of demand effect (PD) is measured by the ratio of actual industrial production to its semi-log trend value. This serves as a simple, but useful, measure of business cycle position and avoids dealing with uncertain data on such variables as unemployment or inventory change. Pressure of demand has been introduced non-linearly in some cases by including only values when industrial production is above trend (PD+). Imports of the non-OECD countries, principally developing countries, are a function of their exports (lagged), capital inflows, and reserve changes.

Estimated imports then enter into the export equations in the form of an import market variable (S), which represents the exports which each country would have if its trade share in world markets remained at its base year (1963) level. Relative prices and relative pressure of

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[3] Adams et al., op. cit.

demand are the other principal factors determining each country's exports. Total estimated exports are adjusted to equal total imports, but the adjustment required represents only a small percentage of the total. The model does not include feedbacks from the trade balance to economic activity or prices. This is appropriate here since our simulations assume that each country uses available policy instruments to achieve stipulated economic conditions in the domestic economy.

The specification of the updated model differs from the original in certain respects. The updated model has been estimated entirely in log-log form, on semiannual data. Pressure of demand has been measured by establishing the level of industrial production relative to a semi-log trend of industrial production. In the case of the United States and Canada, GNP rather than industrial production has been used as the activity variable. With regard to import prices, the model has been refined to measure import prices as a weighted average of the export prices of the supplier countries. This average is deflated by the GNP deflator of the importing country. A number of dummy variables have been introduced to allow for special circumstances such as strikes and data aberrations. The data have been adjusted to eliminate the impact of the U.S./Canadian Auto Agreement. The elasticities of exports with respect to the import market variable (S) have been determined empirically by regression in the updated version of the OECD model.[4]

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[4] They had been constrained to equal 1.0 in the earlier version of the OECD model.

OECD Trade Model Simulation of Non-Inflationary Growth in the United States

Simulations of the OECD trade model involved estimation of a base case, using the values of the exogenous variables as they actually occurred, and alternative solutions, substituting different values based on assumptions of moderate non-inflationary growth in the United States and Canada and/or more rapid expansion of activity and prices in other industrial countries. The simulations cover the period 1964 to mid-1969. The equation constants were adjusted to equalize the estimated values and the actual values of imports and exports in each country over the average of the year 1964 in order to provide an appropriate starting point for the simulations.

The results of the base case simulations, when compared with the actual values, show that the model generally tracks the actual movements that occurred, though aberrations in the measure of pressure of demand (PD) and prices occasionally obscure short-term movements. But these occasional deviations of estimated values from actual movements do not impose real limitations upon the simulation results. The basic assumption in the simulation calculations is that estimation errors in the simulation with actual values -- the base case simulation -- carry over also to the simulations with postulated values. The effect of the variation in economic conditions on trade flows is then measured by the difference between the base case simulation and those with assumed values. Thus estimating errors that reflect short-term deviations of simulated values from actual movements are eliminated and the derived effects can

be taken to denote the difference between actual trade flows and those that would have occurred under different economic conditions.

Simulation Assumptions

The following simulation cases were considered:

Base Case:

The base case introduces all exogenous variables at their actual values during the sample period.

Alternative Case I: Moderate non-inflationary growth in the United States.

The statistics on economic growth and inflation in the United States show a fairly clear break between 1964 and 1965, which saw the beginning of rapid economic expansion and acceleration of the rate of price increase. It was assumed, consequently, that beginning in the first half of 1965, the U.S. economy expands at a rate corresponding to that for potential real GNP (using the Council of Economic Advisers' estimate for the mid-1960's of an annual rate of expansion of 3.75 per cent) -- and that the GNP deflator and export prices increase at the rate of 1.5 per cent p.a. as in the early 1960's. By the first half of 1969 this results in GNP approximately 4 per cent and in prices 7.7 per cent below actual levels. Alternative calculations assuming a 4 per cent growth rate for GNP (the CEA's estimate of the annual potential rate of growth for 1966-69) yield a first half 1969 level about 3 per cent below actual. Elimination of cyclical troughs and peaks during the 1965- mid-1970 period would have yielded levels of output very close to those that actually occurred.

Steady growth of real GNP at a 3-3/4 per cent or a 4 per cent annual rate would have resulted in a first half 1970 GNP level just below or just above actual, respectively.

Alternative Case Ia: Moderate non-inflationary growth in Canada as well as in the United States.

While the present model lacks feedback features, it is clear that economic expansion in Canada is greatly dependent on developments in the United States. Consequently, in addition to the assumption of moderate growth in the United States, it was thought appropriate also to assume slower growth and smaller price increases in Canada. Therefore, it was assumed that Canadian GNP would have expanded at an annual rate of 4.5 per cent beginning with the first half of 1965 and that the rate of price increase would have been 1.5 per cent p.a. as in the United States. By the first half of 1969 the assumed real GNP and the corresponding GNP deflator would have been 3 per cent and 8-1/4 per cent, respectively, below actual levels.

Alternative Case II: More rapid expansion and price increase in other industrial countries.

In many of the major industrial countries outside the United States and Canada, economic activity expanded at a slower pace after 1964 than in preceding years and a sharp upward surge of activity and prices did not occur until 1968. In fact, Germany experienced a recession in 1966-67 and France, Italy and Japan, all had under-utilized resources at some time during the period. The United Kingdom pursued stringent stabilization policies during a major part of the period. In order to test how much this non-concordance of cyclical

paths contributed to trade developments, in this simulation it is assumed that growth was such as to maintain the 1964 level of resource utilization and that prices continued to increase at about the same rate as was recorded from the second half of 1963 to the end of 1964. The specific assumptions about economic growth and rates of inflation for the major industrial countries other than the United States and Canada are as follows:5/

	France	Germany	Italy	U.K.	Japan
Assumptions Alternative Case II					
GNP deflator, % change p.a.	4.0	3.0	7.0	5.0	5.0
Export prices, % change p.a.	4.0	4.0	2.0	3.0	0
Position in first half 1969a/ Index numbers, 1963 = 100					
Industrial production, actual	140	142	144	123	212
assumed	138	141	147	123	214
GNP deflator, actual	124	117	123	104	128
assumed	126	119	147	110	129
Export prices, actual	111	109	100	107	103
assumed	124	124	111	99	102

a/ Price changes adjusted for exchange rate changes.

In general, the growth assumptions lead to levels of output and cyclical positions in the first half of 1969 that are rather similar to those which actually prevailed. But price levels are higher because

5/ In this simulation it was assumed that there is no feedback so that activity in the United States and Canada were taken at their actual levels. It should be noted that imports, exports, and prices in the United States and Canada are affected insofar as they depend on relative prices or pressures of demand.

elimination of cyclical troughs resulted on average in higher pressure
of demand after 1964 than actually occurred. While it is questionable,
at least in some cases, whether these relatively high pressures of
demand could have been sustained throughout the period, the assumptions
underlying this simulation either approximate quite reasonably or under-
state the cyclical positions actually prevailing in the first half of
1970. For example, the rates of inflation, as measured by the GNP deflator,
in the first half of this year were as follows:

France 5-3/4 per cent, Germany 7-1/2 per cent, Italy 6-3/4 per
cent, United Kingdom 5-1/2 per cent, Japan 6-1/2 per cent.

In all cases except Italy, these were above the rates assumed
for the simulations. Pressure of demand in France, Germany, and Japan
was higher than in 1964 and in the United Kingdom and Italy it was about
the same. In further work it might be interesting to test additional
alternatives which would attempt to approximate a more realistic growth
path for each of these countries. This would involve postulating different
and changing values for the economic growth and prices variables of each
country. The more global assumptions chosen for the present study suffice
here, because it addresses the general question of the effect on trade
flows of alternative rates and combinations of economic activity in major
industrial countries.

Alternative Case III: Moderate non-inflationary growth in the
    United States and more rapid expansion and price increase in
    other industrial countries.

This case corresponds to a combination of Alternative Cases I
and II.[6]

6/ Canada is taken at its actual levels.

Alternative Case IIIa: Moderate non-inflationary growth in Canada as well as in the United States and more rapid expansion and price increase in other industrial countries.

This is a combination of Alternative Cases Ia and II.

Simulation Results for Non-Inflationary Growth in the United States

Taking the United States first, simulations I and Ia show that slower economic expansion combined with a very moderate rate of price increase would have resulted in substantially lower imports and somewhat increased exports (see tables 1 and 2).[7] In case I, where activity rates were changed only in the United States, the U.S. trade balance in the first half of 1969 would have been $4.5 billion higher than it actually was. In case Ia, it is rather more realistically assumed that lower activity rates in the United States should be combined with slower growth in Canada also. Constraining the expansion of the Canadian market results by the first half of 1969 in a $1 billion lower export improvement for the United States and the improvement in the U.S. trade balance, in this case, is $3.5 billion.

The impact of more rapid expansion in the other industrial countries (case II) on U.S. imports occurs through the relative price term. While in this case U.S. imports would have been lower than estimated in the base case for the entire period 1965 through 1968, the import

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[7] As noted on page 7 comparisons should be made between the base case and the alternatives. This is particularly important for the 1967 period, because the U.S. equation did not catch the temporary slowdown of U.S. imports at that time.

Table 1. Effect on U.S. trade of moderate non-inflationary growth
in the U.S. (Case I)
(billions of 1963 and current $, seasonally adjusted,
annual rates)

		Change from actual:			Trade Balance (current dollars)
		Exports	Imports	Trade Balance	
		(1963 dollars)			
1965	I	+ .0	- .4	+ .5	- .4
	II	+ .2	-1.1	+1.4	+1.4
66	I	+ .2	-1.8	+2.0	+2.1
	II	+ .9	-2.0	+2.9	+3.0
67	I	+ .4	-1.6	+2.1	+2.2
	II	+ .9	-1.8	+2.6	+2.8
68	I	+ .9	-2.3	+3.3	+3.5
	II	+1.1	-2.8	+3.9	+4.3
69	I	+1.4	-2.8	+4.1	+4.5

Totals may not add due to rounding.

Table 2. Effect on U.S. trade of moderate non-inflationary growth
in the U.S. and Canada (Case Ia)
(billions of 1963 and current $, seasonally adjusted,
annual rates)

| | | Change from actual: | | | Trade Balance |
| | | Exports | Imports | Trade Balance | (current dollars) |
		(1963 dollars)			
1965	I	- .1	- .4	+ .4	+ .4
	II	- .0	-1.1	+1.1	+1.1
66	I	- .3	-1.8	+1.5	+1.6
	II	+ .2	-2.0	+2.2	+2.3
67	I	- .1	-1.6	+1.5	+1.6
	II	+ .3	-1.8	+2.1	+2.2
68	I	+ .3	-2.3	+2.6	+2.9
	II	+ .3	-2.8	+3.1	+3.4
69	I	+ .4	-2.8	+3.2	+3.5

Totals may not add due to rounding.

estimate for the first half of 1969 obtained by simulation II corresponds to the result of the base case. U.S. exports, on the other hand, would have been substantially higher throughout the entire period.

Finally the two assumptions -- slower growth in North America and faster growth elsewhere -- are put together in simulations III and IIIa and the results show that the two effects are cumulative (see Table 3). If the United States and Canada grow more slowly and other countries more rapidly, the impact on U.S. imports is to produce a smooth path (a reflection of the smooth path of activity and prices assumed in the simulations) substantially below the results of simulation Ia (non-inflationary growth in North America). By the first half of 1969, however, when other industrial countries were approaching similar cyclical positions in the simulations as in actuality, U.S. imports in simulation IIIa begin to approximate those obtained in simulation Ia. The impact on U.S. exports of more rapid economic expansion and higher rates of inflation in industrial countries other than Canada is pronounced. The balance of trade impact of simulation IIIa rises to between $5 and $6 billion (1963 dollars) from the second half of 1967. In the first half of 1969 it amounts to $5.6 billion in 1963 dollars and $6.1 billion in current dollars.

With regard to Canada, where activity and prices in the simulations are assumed to move parallel to those in the United States, the balance of trade impact is similar to that for the United States, though it is of course smaller in absolute magnitude. Thus, improvements in the Canadian trade balance of up to $1.5 billion (1963 dollars) and $2 billion (1963 dollars) per annum, result from simulations Ia and IIIa, respectively. This is remarkably close to the improvement actually registered in the

Table 3.   Effect on trade flows of slower rates of growth in U.S. and Canada
combined with higher rates in other industrial countries (Case IIIa)

(billions of 1963 $, seasonally adjusted, annual rates)

A. Exports

Change from actual:

	U.S.	Canada	France	Germany	Italy	U.K.	Japan	Other OECD	Non-OECD
1965 I	+ .3	+ .0	+ .0	+ .4	.0	+ .1	- .1	+ .2	+ .4
II	+ .8	- .1	- .2	+ .3	- .3	+ .2	- .3	+ .3	+ .2
66 I	+ .5	- .3	+ .1	+ .1	- .3	+ .2	- .8	+ .3	+ .0
II	+1.2	- .2	+ .0	- .4	- .3	+ .2	- .7	+ .7	+ .0
67 I	+1.2	- .0	+ .3	- .4	- .1	+ .3	- .5	+1.5	+ .8
II	+2.0	- .1	- .2	- .7	- .4	+ .3	- .5	+1.5	+ .5
68 I	+2.4	+ .2	- .6	- .9	- .4	+ .0	- .3	+1.6	+ .6
II	+2.5	+ .1	- .8	-1.9	-1.4	- .1	- .6	+ .5	- .6
69 I	+2.5	+ .2	- .9	-2.6	-1.5	- .3	- .6	- .3	- .7

Table 2. (continued)

B. Imports

Change from actual:

1965		U.S.	Canada	France	Germany	Italy	U.K.	Japan	Other OECD	Non-OECD
1965	I	-.4	-.2	+.9	-.3	+.8	-.0	+.6	0	-.0
	II	-1.4	-.4	+.7	+.2	+.7	+.0	+.9		+.2
66	I	-2.3	-.9	+.8	+.2	+.9	-.0	+.9	By	+.1
	II	-2.4	-.8	+.7	+1.3	+.9	+.5	+.4	def-	-.1
67	I	-2.4	-1.0	+1.2	+2.6	+.9	+1.0	+.7	inf-	-.0
	II	-3.0	-.9	+1.2	+2.3	+1.2	+.9	+.4	tion	+.3
68	I	-3.4	-1.1	+2.0	+2.0	+1.9	+.7	+.5		+.1
	II	-4.1	-1.4	-.6	+.9	+2.1	+.5	+.2		+.2
69	I	-3.1	-1.7	-1.5	-.2	+2.1	-.0	+.6	0	-.4

Table 3. (continued)

C. Trade Balance

Change from actual:

		U.S.	Canada	France	Germany	Italy	U.K.	Japan	Other OECD	Non-OECD
1965	I	+.7	+.2	-.9	+.8	-.8	+.1	-.7	+.2	+.5
	II	+2.2	+.3	-.9	+.2	-1.0	+.1	-1.3	+.3	+.0
66	I	+2.8	+.6	-.8	-.1	-1.2	+.2	-1.6	+.7	-.1
	II	+3.6	+.6	-.7	-1.7	-.3	-.3	-1.1	+1.5	+.8
67	I	+3.6	+.9	-.9	-3.0	-1.0	-.7	-1.2	+1.5	+.1
	II	+5.0	+.8	-1.4	-3.0	-1.6	-.7	-.8	+1.5	+.2
68	I	+5.9	+1.3	-2.6	-2.9	-2.1	-.7	-.8	+1.6	+.5
	II	+6.7	+1.5	-.2	-2.7	-3.5	-.7	-.8	+.5	-.7
69	I	+5.6	+1.9	+.6	-2.4	-3.6	-.3	-1.3	-.3	-.2

first half of 1970 when the cyclical constellation was quite similar to
that assumed in simulation IIIa, though the U.S. rate of inflation was
rather higher and pressure of demand in the United States rather lower
than assumed.

The impact on other countries of the postulated economic
developments in the United States and Canada (simulations I and Ia)
varies (see Table 4). The effect is most pronounced on the exports of
Japan and the Japanese trade balance deteriorates by up to $2 billion
(1963 dollars) per annum. For all other countries the effect is much
smaller ranging from a maximal annual loss of $3/4 billion for Germany
to $1/4 billion for the United Kingdom (both 1963 dollars). These results
would support the conclusion that the exchange rate adjustments which took
place in 1968 and 1969 reflected adjustments to structural imbalances that
were independent of U.S. cyclical developments in 1965-1969.

Since simulations II and IIIa assume steady high rates of growth
and accelerated price increases in the industrial countries other than the
United States and Canada, it is not surprising that the main trade balance
impact is concentrated on the imports of these countries. It is interest-
ing to note, however, that the assumptions used are such as to smooth out
the path of imports so that the level of imports reached by the first
half of 1969 under the simulation II and IIIa assumptions is not very
different from that in the base case. Since utilization of resources in
Italy has been rather lower than in other industrial countries in recent
years, the simulation assumptions make a more significant difference

Table 4.   Effect on trade balances of non-inflationary growth in North America (Case Ia)

(billions of 1963 $, seasonally adjusted, annual rates)

Change from actual:

	U.S. [1]	Canada	France	Germany	Italy	U.K.	Japan	Other OECD	Non-OECD
1965 I	+.4	+.2	+.0	-.0	-.0	-.0	-.2	-.0	-.1
II	+1.1	+.2	-.1	-.1	-.1	-.1	-.4	-.1	-.4
1966 I	+1.5	+.5	-.1	-.2	-.2	-.1	-.8	-.2	-.3
II	+2.2	+.5	-.3	-.3	-.2	-.2	-.9	-.3	-.5
1967 I	+1.5	+.8	-.2	-.4	-.2	-.2	-.9	-.2	-.1
II	+2.1	+.7	-.3	-.4	-.2	-.2	-1.0	-.3	-.3
1968 I	+2.6	+1.0	-.4	-.5	-.3	-.2	-1.3	-.3	-.5
II	+3.1	+1.2	-.5	-.6	-.4	-.2	-1.7	-.4	-.4
1969 I	+3.2	+1.5	-.6	-.7	-.5	-.3	-1.9	-.4	-.4

1/ An indication of the impact of alternative assumptions is obtained by assuming in case Ia that the U.S. grows at 4.0 per cent in place of 3.75 per cent. The figures would be for the U.S.:

65I	+.4	67I	+1.4
65II	+1.0	67II	+1.8
66I	+1.2	68I	+2.4
66II	+2.0	68II	+2.8
		69I	+2.6

in this case than in others. In particular, from a balance of payments point of view, the assumed rate of inflation is unsustainably high. However, recent developments seem to bear out the reasonableness of the general simulation results. The combination of slower expansion in the United States and Canada and more rapid expansion in Europe and Japan results in substantial balance of trade deterioration spread among the major continental European countries (see Table 3). The change, as already noted, is largest for Italy. The German trade balance is less favorable by an annual rate of between $2 and $3 billion (1963 dollars). The highest impact is registered in 1967 and in the first half of 1968, since economic activity in Germany was well below potential during that period. The impact on France, $1 to $2.6 billion (1963 dollars) p.a., is also greatest during the second half of 1968, when actual inflationary pressures began to equal those assumed in simulation IIIa. Perhaps one of the more interesting effects is that more rapid growth of activity and prices in European countries substantially improves the trade balance of Japan (compare simulation IIIa with simulation Ia) despite the assumption of somewhat higher growth and inflation in Japan itself.

Alternative Pressure of Demand Simulations

In order to appraise better the role of varying degrees of pressure of demand and corresponding price trends, an additional set of simulations has been carried out assuming alternative values -- ranging from boom conditions to economic slack -- for pressure of demand and prices for the U.S. economy over the period from the end of 1964 to the first

half of 1969. To carry out these calculations it was necessary to modify

the OECD model by substituting import equations using industrial production

and activity variables for the United States and Canada. The change also

includes a new treatment of import prices, linking import prices to the

weighted export prices of the supplier countries (PM*) by a regression

relationship. The new equations for the United States and Canada are

shown in Appendix Table II.

Assumptions for Pressure of Demand Simulations

Alternative simulations were run using the period from mid-1964

to mid-1969 as a basis. It was assumed that outside the United States

and Canada economic activity and prices took their observed actual path.

For the United States and Canada it was assumed that the rate of expansion

of industrial activity corresponded to trend (4.6 per cent p.a. and

5.6 per cent p.a., respectively). The alternative runs assume that

growth can be maintained at a constant relative level above or below the

trend line; that is, with more or less continuous slack as measured by

the pressure of demand (PD) variable. Accordingly alternative PD's have

been assumed and, on the basis of available empirical evidence, corresponding

growth rates for the GNP deflator (PY) and export prices (PX) have been

introduced.

The alternatives considered were:

<u>Per cent change annual rate</u>

	United States		Canada	
<u>PD</u>	<u>PY</u>	<u>PX</u>	<u>PY</u>	<u>PX</u>
104	3.0	2.1	3.2	1.9
102	2.6	1.8	2.6	1.5
100	2.2	1.5	2.0	1.1
98	1.8	1.2	1.4	0.9
96	1.4	1.0	0.8	0.4

Results of Pressure of Demand Simulations

The results of these simulations for the United States are

summarized in Table 5. The second half year of 1964 is the base point,

but the first half of 1965 represents the first point to which the

simulation assumptions apply (exports and imports take a sharp shift from

second half 1964 to first half 1965 as a result). The time path of

exports and imports from the initial simulation point depends on the

underlying assumptions about industrial production, pressure of demand,

and prices. It is important to note that the rate of change in prices

has been adjusted corresponding to the level of PD assumption and that

the effect of alternative price and growth assumptions builds up over

time.

Table 5 shows that substantially different balance of trade

patterns result under different PD assumptions. The approximate impact

may be gauged by comparing deviations in the estimated trade balances

from the balance obtained by assuming PD = 100. In the first half of

1969, the U.S. trade balance under assumption of economic boom (PD = 104)

Table 5. Effect of varying levels of pressure of demand, at constant
growth rates, upon the U.S. trade balance expressed as
deviations from PD = 100
(billions of 1963 $, seasonally adjusted, annual rates)

		PD = 104	PD = 102	PD = 100	PD = 98	PD = 96
1965	I	- .6	- .3	0	+ .3	+ .6
	II	- .7	- .4	0	+ .3	+ .6
66	I	- .8	- .4	0	+ .4	+ .8
	II	-1.0	- .5	0	+ .5	+ .9
67	I	-1.2	- .6	0	+ .6	+1.1
	II	-1.3	- .7	0	+ .7	+1.3
68	I	-1.5	- .7	0	+ .8	+1.5
	II	-1.7	- .8	0	+ .9	+1.7
69	I	-1.9	- .9	0	+1.0	+2.2

is $4.1 billion (1963 dollars) less than under assumption of slack

(PD = 96). The time paths observed from the first simulation point

are also different: under the assumption of economic slack (PD = 96),

the trade balance shows a growing improvement over the moderate growth

assumption (PD = 100) from $.6 billion in the first half of 1965 to

$2.2 billion in the first half of 1969 (1963 dollars), the deterioration

of the trade balance in the comparison of boom (PD = 104) with moderate

growth, moves from $.6 billion to $1.9 billion over the same period.

It is noteworthy that the impact observed depends almost entirely on

the path of imports. The export results are obscured by the assumption

that changes in U.S. economic conditions are accompanied by similar changes

in Canadian economic activity. Since Canada is an important market for

U.S. exports, a lower PD for the United States, for example, will result

in lower U.S. exports, despite an export gain in other markets, because

Canadian expansion, PD and prices have been moderated at the same time

as the U.S. figures.[8]

Of course, it is not realistic to assume growth paths which,

over a great length of time, deviate continuously and substantially from

reasonably high employment conditions. Furthermore, particularly under

the boom assumptions, price changes probably would accelerate -- and,

indeed, have accelerated -- a great deal more than has been built into

the model. Nevertheless, the present simulations were intended to

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[8] Similar calculations using alternative assumptions about economic
conditions outside the United States may also be made.

disentangel the possible effects of differential pressure of demand conditions -- at constant rates of growth -- upon trade flows. And the results demonstrate that these effects can be considerable.

Conclusion

The calculations made in this study present an approximate measure of the impact of various types of alternative economic conditions on trade. The study indicates that the past few years of inflationary pressures in the United States have had substantial effects on the trade balance. Quantification of these effects shows that if demand management policies had succeeded in achieving a steady non-inflationary growth path for the United States economy from 1965 onward, the U.S. trade balance would have been at least $3-1/2 billion (current dollars) higher in the first half of 1969 than it actually was. If other industrial countries at the same time had achieved continuous high employment of resources throughout the period, the first half 1969 trade surplus might have been $6 billion (current dollars) higher.

Furthermore, it can be shown that different rates of capacity utilization, although combined with identical rates of growth, have substantially different effects on the U.S. trade balance.

APPENDIX

Table I

Import and Export Equations of Updated OECD Trade Model
Log - Log Formulations

IMPORTS

France $M = -.09 + 1.29 \text{ IP} - 1.49 \text{ PM} + 1.19 \text{ PD}^{+} + .02 \text{ LIB} - .03 \text{ D}$

Germany $M = 1.23 + 1.69 \text{ IP} - .27 \text{ PM} - .35 \text{ PD} - .33 \text{ PD.}$

Italy $M = .35 + 1.23 \text{ IP} + 1.14 \triangle\text{PY} + .71 \text{ PD} - 1.04 \text{ PM} - .10\text{D}$

U.K. $M = -1.54 + 1.62 \text{ IP} - .29 \text{ PD} + .004\text{DSUR}$

U.S. $M = 4.37 + 1.48 \text{ GNP} - .41 \text{ PM} - .99 \text{ PDN}$

Canada $M = -.47 + 1.08 \text{ GNP} - 1.24 \text{ PM} + 1.29 \text{ PD}^{+}$

Japan $M = 1.46 + .82 \text{ IP} - .77 \text{ PM} + .62 \text{ PD}^{+} + .54\triangle\text{IP}$

Other OECD $M = -1.80 + 1.39 \text{ IP}$

Non OECD $M = -.25 + .50 \text{ X}_{-1} + .25 \text{ NCAP}_{-1} + .32 \text{ RES}_{-1}$

EXPORTS

France $X = 3.28 + 1.02 \text{ S} - 1.41 \text{ PX} + .69 \text{ PD.} + .08 \text{ D}$

Germany $X = 3.84 + 1.24 \text{ S} - 1.18 \text{ PX} + .04 \text{ PD.} + .03 \text{ D1} - .01\text{D}_{2}$

Italy $X = 3.83 + 1.62 \text{ S} - 1.50 \text{ PX} - .06 \text{ D}$

U.K. $X = 1.53 + .56 \text{ S} - .24 \text{ PX} + .37 \text{ PD.} + .19 \text{ D}$

U.S. $X = 2.28 + .80 \text{ S} - .83 \text{ PX} + .54 \text{ PD.} + .01 \text{ D1} + .19 \text{ D}_{2}$

Canada $X = 4.62 + .90 \text{ S} - .79 \text{ PX} - .10 \text{ PD.} - .08 \text{ D}$

Japan $X = -1.58 + 2.07 \text{ S} - 1.12 \text{ PX} + .39 \text{ PD.} + .22\text{D1} + .13 \text{ D}_{2}$

Other OECD $X = .11 + 1.09 \text{ S} - .17 \triangle\text{PX} - .12 \text{ PD.}$

Non OECD $X = 1.77 + .87 \text{ S} - .26 \text{ PD.}$

Table II

Import and Import Price Equations for the United States and Canada for Pressure of Demand Simulations

United States

$$M = 5.807 + .816IP + .333PD - 1.39\hat{PM}/ + .096DST$$

$$\hat{PM} = -.478 + .764 \; PM^* - .002TIM - .077PD + .428PDN$$

Canada

$$M = 4.022 + .840IP + .602PD - 1.303\hat{PM}/$$

$$\hat{PM} = 2.791 + .828PM^* + .003TIM - .448PD$$

Definition of Variables

All indexes are 1963 = 100
Price variables are in U.S. $ after allowing for parity changes
All weights are drawn from the 1963 trade matrix.

M   Import volume index

IP   Industrial Production index

PM   Weighted average of export prices of supplier countries/ GNP deflator
of importing country

PM^* Weighted average of export prices of supplier countries

$\hat{PM}$ Estimated import price

$\hat{PM}/$ Estimated import price/GNP deflator of importing country

DST   Steel strike dummy second half year 1959

TIM   Time trend

PD   Ratio of industrial production over its semi-log trend level

PD^+ Values of PD greater than 100, all other values are assumed to be 100

PD.   Weighted average of PD in the market countries

PDN   Weighted average of PD in countries supplying the U.S. market

LIB   Trade liberalization variable

PY   GNP deflator

X   Exports volume index

NCAP   Net capital flows

RES   Foreign exchange reserves

S   Market variable -- weighted average of estimated imports -- corresponds
to export estimates assuming constant market share in all markets

PX   Export unit value index manufactured goods only

D   Various dummy variables