

Effects of currency depreciation
on prices production &
foreign trade, 1929 to 1937.

EMOIR 242

APRIL 1942

CORNELL UNIVERSITY
AGRICULTURAL EXPERIMENT STATION

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PRICES, PRODUCTION, AND FOREIGN
TRADE, 1929 TO 1937

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ITHACA, NEW YORK
PUBLISHED BY THE UNIVERSITY
Received for publication July 16, 1941

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EFFECTS OF CURRENCY DEPRECIATION ON PRICES, PRODUCTION, AND FOREIGN TRADE, 1929 TO 1937¹

CLAUDIUS VAN DER MERWE

INTRODUCTION

The severe economic recession that began in 1929 inaugurated an unprecedented series of currency depreciations also. Since then, a wide variety of studies² have been made of the effects of exchange depreciation on prices and on foreign trade, with particular emphasis on the efficacy of devaluation in relieving a state of depression and bringing about sustained recovery. Because of the wide fluctuations in prices and trade and the divergent economic and financial policies followed by the various countries during the period from 1929 to 1937, it is extremely difficult, if not impossible, to isolate the influence of individual factors. Consequently, many aspects of the problem are still highly controversial.

The purpose of the study here reported was primarily to examine one aspect of the problem, namely, the effects of exchange depreciation on foreign trade. The foreign trade of the various countries was closely related to prices and production. It became evident that the influence of currency depreciation on prices and production was of even greater significance than was its influence on foreign trade. The influence of currency depreciation on prices seemed especially significant in two respects: its effects on the price relationships within countries and its effects on the price relationships among countries.

STATISTICS USED

The foreign-trade computations were calculated almost exclusively from trade values expressed in United States old gold dollars.³

¹Also presented to the Faculty of the Graduate School of Cornell University, December 1940, as a thesis in partial fulfillment of the requirements for the degree of doctor of philosophy.

²AUTHOR'S ACKNOWLEDGMENTS. The writer wishes to express his appreciation to those at Cornell University who directed and assisted him in this study. The work was done under the direction of Professor F. A. Pearson. Professor P. A. Southard made helpful suggestions and comments. Mrs. Eva Paarlberg and Miss Dorothy Kahn did most of the statistical work. Although much assistance has been received from others, the writer alone is responsible for the findings and conclusions presented.

³Some of the more familiar studies are:

Cassady, Ralph, Jr., and Uppgren, Arthur R. International trade and devaluation of the dollar, 1932-1934. *Quart. journ. econ.* 50: 415-435. 1936.

Ellsworth, P. T. Export, import, and domestic prices in the United States, 1931-1936. *Rev. econ. statis.* 19: 192-202. 1937.

Gilbert, Milton. Currency depreciation and monetary policy. Univ. Pennsylvania Press. 1939.

Graham, Frank D. Recent movements in international price levels and the doctrine of purchasing power parity. *Amer. Statis. Assoc. Journ.* 30: 159-166. 1935.

Harris, S. E. Exchange depreciation. Harvard Univ. Press. 1936.

King, Willford J. Recent monetary experiments and their effects upon the theory of money and prices. *Amer. Statis. Assoc. Journ.* 30: 387-400. 1935.

Li, Choh-Ming. The effect of depreciated exchange upon merchandise movements. *Quart. journ. econ.* 49: 495-502. 1935.

Warren, G. F., and Pearson, F. A. Monetary policy and prices. *Journ. farm econ.* 17: 219-234. 1935.

Warren, George F., and Pearson, Frank A. World prices and the building industry, p. 95. 1937.

White, Horace G., Jr. Foreign exchange rates and internal prices under inconvertible paper currencies. *Amer. econ. rev.* 25: 259-272. 1935.

World economic survey; World production and prices; Review of world trade: 1932-33, 1933-34, 1934-35. League of Nations, Geneva, Switzerland.

³Statistical Yearbook of the League of Nations, 1938-39, and earlier issues. Data on volume of trade are available for relatively few countries, and, because of differences in methods of calculation, are not always comparable. Furthermore, the values of a country's imports and exports are more relevant with respect to its balance of payments and foreign exchange. The use of trade values expressed in terms of gold has several possible weaknesses. Among these are: (1) "gold" values may tend to understate the trade of depreciated-currency countries; (2) it has been contended that "gold" values tend to overstate the trade of exchange-control countries. (See League of Nations, Report on Exchange Control, Economic and Financial, 1938, II.A.10., Geneva, 1938.)

Price and production computations were calculated almost exclusively from the official indexes for the various countries as published by the League of Nations.

Price indexes are based usually on currency prices. Where conversions to a gold basis were desirable, such conversions were based on the average annual exchange rates of the respective currencies relatively to their 1929 gold parities.

METHOD OF ANALYSIS USED

There seem to be two alternative procedures, either of which could be followed in determining the effects of exchange depreciation on foreign trade. First, the trade of a country or a group of countries prior to depreciation could be compared with that of the same countries during and after depreciation; under relatively stable conditions, the trade of *all* countries, irrespective of the time of depreciation, could be compared during a given period prior to depreciation with that during a similar period subsequent to depreciation. Secondly, the trade movements in depreciating countries could be compared with that in non-depreciating countries over the *same period*.

A serious disadvantage of the latter method is that the trade of certain countries would be compared with that of different countries when the countries themselves may not be comparable for various reasons, some of which are as follows:

1. During the depression and recovery periods under study, the trade of predominantly industrial countries differed considerably from that of predominantly agricultural and raw-material countries. The trade of debtor countries differed from that of creditor countries.

2. Even agricultural countries themselves were not always comparable with one another. Those that exported mainly foods differed somewhat from those that exported mainly raw materials. Furthermore, a country such as the Dutch East Indies, whose exports are mainly rubber and tin, was hardly comparable with, for example, Chile, whose exports are mainly copper and nitrates.

3. The economic conditions in the foreign markets of the different countries caused further variations. Some countries are dependent on only one major foreign market, or at the most on only a few. For example, conditions in the United States influenced, to a large extent, the trade of some Central American and South American countries. Conditions prevailing in the United Kingdom affected considerably the trade of other groups.

4. The countries were in different stages of development. Some were in a period of rapid expansion, while others had reached a stage of relative stability.

5. Finally, the different countries pursued national policies which varied considerably and which undoubtedly affected their trade in varying degrees—for example, different types and degrees of import restrictions and exchange controls, bilateral trade agreements, direct and indirect export subsidies, domestic monetary policies (other than depreciation), and national and international control schemes affecting certain commodities (such as coffee in Brazil, cotton in the United States, and rubber and tin in various countries).

Not all of the factors that made for differences as between countries are enumerated above. Practically every country is subject to a combination of factors different from that existing in any other country. Thus it would seem better to compare the trade of the same countries in one period with that in another period, rather than the trade of some countries with that of other countries during the same period.

However, because of the wide fluctuations in prices, production, and foreign trade during the period 1929 to 1937, the first method was impractical and the second had to be used. That is, in order to allow for the decline in trade due to the depression, and for the subsequent increase during the recovery period, it was necessary to draw comparisons between the relative trade movements in different groups of countries for identical periods only. The trade of a country or a group of countries prior to depreciation could not be compared with the trade of the same country or group of countries subsequently to depreciation, except relatively to the trade movements in the rest of the countries during the same periods. These considerations apply also to comparisons of prices and of production in various countries or groups of countries.

Adequate data were available for some of the other factors mentioned above. For these factors, allowance was made by classifying the countries into groups. Predominantly industrial and predominantly agricultural countries were considered separately; similarly, debtor and creditor countries, and free-exchange and exchange-control countries, were considered separately.⁴

Because of the rather limited number of countries for which adequate data were available, these classifications could not be carried too far. For example, there were not enough countries in the exchange-control group to allow a subdivision according to type of economy or according to debtor or creditor status. This difficulty was aggravated by the fact that the currency depreciations did not occur at regular intervals during the period 1929 to 1937. A small number of countries (mostly agricultural) depreciated early; the majority of the countries depreciated during 1932 and 1933; and only a few countries depreciated during the later part of the period. This irregularity further created the problem of determining the periods over which the degree of depreciation should be measured in order to ensure the most suitable comparisons.

Periods considered

If the degree of currency depreciation is measured for each year relatively to the 1929 gold parity, the comparisons during the later part of the period would include in one group countries that depreciated early along with countries that depreciated more recently, as against countries that had not depreciated up to that time. If it is assumed that trade was more affected shortly after depreciation than several years later, the comparison would not be completely satisfactory, especially for the later years of the period.

A classification of the countries according to the degree of currency depreciation relatively to the preceding year (that is, according to changes in

⁴Data on tariffs, bilateral agreements, and many other factors, are available for some countries, but not for enough countries nor in a sufficiently standardized form to permit making satisfactory classifications. Where possible, however, such data were used in a qualitative sense.

the rates of exchange from one year to the next) would obviate this difficulty. It would err in the opposite direction, however, if one assumed that the effects of depreciation do not work themselves out in one year. The effects while depreciation was in progress may also have been different from those later on, when a certain degree of stability of the rates of exchange had been attained.

A third possibility would be to follow an intermediate procedure, using two-year or three-year intervals. This compromise proved to be the most satisfactory method. The procedure that was most frequently, but not exclusively, followed in this study was to measure depreciation over three periods: (1) the four-year period 1929 to 1933;⁵ (2) the two-year period 1933 to 1935; (3) the two-year period 1935 to 1937. These divisions seem to coincide roughly with three distinct phases of currency and exchange depreciation.⁶

For each of the three periods, the countries were classified according to the degree of depreciation from the earlier to the later year. The values of the imports and the exports of the countries in the respective groups were then computed for the years corresponding to those periods.

EFFECTS OF CURRENCY DEPRECIATION ON FOREIGN TRADE IN THE 39 COUNTRIES STUDIED

Degree of depreciation relatively to 1929

For each year, the 39 countries under study were classified into three groups according to the degree of depreciation of their currency in that year relatively to the 1929 gold parity (table 1). In group 1 are included those countries where no depreciation had occurred up to the year indicated; group 2 includes those countries where a moderate degree of depreciation had occurred; group 3 includes those countries where the exchange had depreciated by more than 35 per cent up to the year indicated.⁷

Index numbers for the groups of countries are based on the value of imports and exports in terms of United States old gold dollars.

Since the countries included in the various groups differ from year to year, the index numbers are comparable for any one year but are not comparable from year to year.

Both imports and exports of depreciated-currency countries were lower in 1932, 1933, and 1934 than were imports and exports of non-depreciated-currency countries; in 1934, the index of imports was 36 for non-depreciated-

⁵The period 1929 to 1933 is admittedly rather long. During those years, however, the depression was such a dominant factor that it largely overshadowed any effects which depreciation may have had. In addition, since only a few countries depreciated their currency prior to 1931, it did not prove worth while to subdivide the period into two-year periods.

⁶By 1932 a large number of the agricultural and raw-material countries, as well as the "sterling" group, had suspended the gold standard and depreciated their currency. By the end of that year, some depreciation had occurred in 25 of the 39 countries studied. The countries that depreciated the earliest were generally those that suffered the severest price decline and depression. With few exceptions, suspension of the gold standard and depreciation of the exchange came about largely through pressure of economic forces. It was resorted to mainly from necessity rather than as a matter of policy.

⁷Since 1933, and especially after suspension of the gold standard by the United States in March of that year, exchange depreciation tended more and more to be regarded as a supplementary tool to monetary policy. During the period 1933 to 1935, relatively few countries abandoned the gold standard—namely, the United States, Cuba, and the Philippine Islands early in 1933, Czecho-Slovakia in 1934, and Rumania and Belgium in 1935. However, many countries that had previously depreciated their currency experienced further depreciation during this period. From 1935 to 1937, the so-called "gold-bloc" countries were practically the only ones that depreciated their currency.

⁸There were three years in which the number of countries in a particular group was too few for the data to be significant, and in those cases the countries were included in the preceding or the following group. Thus, in 1934 there were only 2 countries in group 2, and these were included in group 1; in 1936 and 1937 there were only 3 countries in group 1, and these were included in group 2.

and 31 for depreciated-currency countries, and the index for exports was 35 and 32, respectively, when 1929 = 100 (table 1). This was owing partly

TABLE 1. CURRENCY DEPRECIATION AND FOREIGN TRADE FOR 39 COUNTRIES,* 1932 TO 1937

(Index numbers of the value of imports and exports of 39 countries, classified in each year according to the degree of currency depreciation since 1929)

Degree of currency depreciation	1929	1932	1933	1934	1935	1936	1937
	Index numbers of the value of imports and exports						
Imports							
No depreciation	100	39	38	36	33	..	..
Moderate depreciation (5-35 per cent).....	100	39	31	..	33	34	44
Most depreciation (over 35 per cent).....	100	33	33	31	33	37	46
All 39 countries.....	100	38	34	33	33	36	45
Exports							
No depreciation	100	39	37	35	32	..	..
Moderate depreciation (5-35 per cent).....	100	36	32	..	37	35	49
Most depreciation (over 35 per cent).....	100	37	36	32	34	38	45
All 39 countries.....	100	38	34	33	34	37	46

*The countries included are:

Europe: Belgium, Czecho-Slovakia, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Poland and Danzig, Portugal, Rumania, Sweden, Switzerland, Turkey, the United Kingdom.

North America and South America: Argentina, Brazil, Canada, Chile, Columbia, Cuba, Mexico, Peru, the United States, Uruguay, Venezuela.

Asia: British India, British Malaya, Ceylon, China, Japan, Dutch East Indies, Philippine Islands.

Other countries: Australia, New Zealand, Egypt, Union of South Africa.

During the period considered, the total foreign trade of these 39 countries constituted from 84 to 87 per cent of the value of total world trade.

to the fact that the countries which suffered the most in the early years of the depression were also those which depreciated first—Argentina, Brazil, Australia, New Zealand, Chile, and other agricultural and raw-material-producing countries, and, later on, the United Kingdom and the United States, both of which experienced severe declines in foreign trade up to 1932 and a part of 1933. On the other hand, France, Belgium, Switzerland, and the Netherlands suffered less in the early years of the depression.

The situation may have been due partly also to the fact that prices do not respond immediately to depreciation, with the result that the gold value of the trade may show a larger decline than does the volume of trade.

From 1935 to 1937, the foreign trade of depreciated-currency countries caught up with, and even exceeded somewhat, the trade of non-depreciated-currency countries.

Depreciation in each of three periods, 1929 to 1933, 1933 to 1935, and 1935 to 1937

For all 39 countries

For each period the 39 countries were divided into three groups on the basis of the degree of depreciation,⁸ as follows: (1) no depreciation; (2) moderate depreciation; (3) most depreciation. The degree of depreciation

⁸The range of each depreciation group varied from period to period, depending on the total range in the currency depreciation during that period (see first footnote to table 2).

was expressed as the per cent change in the gold value of a currency from the earlier to the later year in each period.⁹ With this grouping, it was possible to compare the imports and exports of depreciated-currency countries with those of non-depreciated-currency countries over shorter periods of time (table 2).

TABLE 2. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE DURING EACH OF THREE PERIODS, 1929 TO 1933, 1933 TO 1935, AND 1935 TO 1937

(Percentage changes in the value of imports and exports of 39 countries, classified according to the degree of currency depreciation from the earlier to the later year in each of the three periods)

Degree of currency depreciation*	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
Per cent change in trade†						
Imports						
No depreciation	-58	-8	-8	-6	11	26
Moderate depreciation	-64	-13	3	2	-1	25
Most depreciation	-65	-5	-10	15	..	..
All 39 countries‡	-62	-10	-4	2	8	25
Exports						
No depreciation	-58	-11	-7	-2	11	24
Moderate depreciation	-65	-10	-1	5	1	25
Most depreciation	-63	-3	-1	2	..	..
All 39 countries‡	-62	-9	-3	2	9	24

*The average per cent depreciation for each period and for each degree of depreciation is given in the following table:

Period	No depreciation	Moderate depreciation	Most depreciation
	Per cent depreciation		
1929 to 1933	2 or less	19-32	33 or more
1933 to 1935	6 or less	9-19	20 or more
1935 to 1937	4 or less	9-39	..

†For the first period, 1929 to 1933, the change in the value of the foreign trade of the countries in each of the respective depreciation groups was expressed as the per cent change from 1929 to 1932 and from 1932 to 1933; for the second period, the change in trade was expressed as the per cent change from 1933 to 1934 and from 1934 to 1935; for the third period, the change in trade was expressed as the per cent change from 1935 to 1936 and from 1936 to 1937. This procedure was followed in order to examine the effects of depreciation on trade for varying lengths of time.

‡The 39 countries are listed in the footnote to table 1.

During the first period, 1929 to 1933, both imports and exports of the countries which depreciated their currency relatively to gold parity in 1929 suffered a greater decline than did those of countries which did not depreciate.¹⁰ Imports of countries with the most depreciation fell 65 per cent from 1929 to 1932, as compared with 58 per cent for countries that did not depreciate. The corresponding changes for exports were 63 and 58 per cent, respectively. During the last year of this period, 1932 to 1933, the difference in trade associated with currency depreciation was less marked.

*This is different from the previous classification (in table 1), where depreciation was expressed as the per cent decline in the gold value of the currencies since 1929.

¹⁰The probable reasons for this relationship are discussed briefly on page 7.

For the first year of the second period, 1933 to 1934, exports of countries that depreciated remained almost constant, whereas exports of countries that did not depreciate declined somewhat (7 per cent). With respect to imports, there was no consistent trend. In the second year of this period, 1934 to 1935, both imports and exports improved in countries that depreciated (+2 and +15 per cent for imports, +5 and +2 per cent for exports); they declined in countries that did not depreciate (-6 and -2 per cent, respectively).

During the third period, 1935 to 1937, this trend seems to have been reversed. This may have been owing to the fact that the countries which depreciated in this period were mainly the so-called "gold-bloc" countries, most of which depreciated in 1936, whereas practically all the other countries had depreciated previously and, on the average, to a considerably greater degree. It is significant to note also that by 1937 the rate of increase in both the imports and the exports of the depreciating group had caught up with the rate of increase for the non-depreciating countries.

A similar study of the changes in imports and exports of manufactures which occurred with currency depreciation did not show any significant differences from the above study of the changes in total trade.

For free-exchange versus exchange-control countries

The effects of currency depreciation on the foreign trade of 24 free-exchange countries were compared with those for 15 exchange-control countries. The countries were grouped according to the degree of currency depreciation over three periods, as in table 2.

TABLE 3. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE OF FREE-EXCHANGE COUNTRIES*

(Percentage changes in the value of imports and exports of 24 free-exchange countries, classified according to the degree of currency depreciation for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in trade					
	Imports					
No depreciation	-52	- 7	-15	- 8	13	24
Moderate depreciation	-64	-13	3	3	6	21
Most depreciation	-66	- 7	-10	16	..	..
All 24 countries	-61	-11	- 5	3	12	23
	Exports					
No depreciation	-59	- 8	1	- 9	11	23
Moderate depreciation	-65	-10	- 2	5	2	22
Most depreciation	-59	2	- 2	3	..	..
All 24 countries	-63	- 8	- 1	1	9	23

*The countries included are: Belgium, Finland, France, the Netherlands, Norway, Poland and Danzig, Sweden, Switzerland, the United Kingdom, Canada, Cuba, Mexico, Peru, the United States, Venezuela, British India, British Malaya, Ceylon, Dutch East Indies, Philippine Islands, Australia, New Zealand, Egypt, Union of South Africa.

Poland instituted exchange control in 1936 but was kept in the free-exchange group.

The general trend of imports and exports for the 24 free-exchange countries corresponded closely to that for all the 39 countries, except for slight differences in the magnitude of the changes (compare table 3 with table 2).

In the 15 exchange-control countries, there was a greater increase from 1936 to 1937 in both imports and exports for the countries that depreciated than for those that did not (compare table 4 with table 2).

TABLE 4. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE OF EXCHANGE-CONTROL COUNTRIES*

(Percentage changes in the value of imports and exports of 15 exchange-control countries, classified according to the degree of currency depreciation for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
Per cent change in trade						
Imports						
No depreciation.....	-64	-11	-1	-4	5	30
Moderate depreciation.....	-72	5	0	0	-18	38
Most depreciation.....	-62	-6	-9	8		
All 15 countries.....	-64	-8	-2	-1	-1	32
Exports						
No depreciation.....	-57	-15	-14	4	11	24
Moderate depreciation.....	-61	-17	0	6	-3	35
Most depreciation.....	-65	-2	5	-1		
All 15 countries.....	-60	-12	-7	4	8	26

*The countries included are: Czecho-Slovakia, Denmark, Germany, Greece, Italy, Portugal, Rumania, Turkey, Argentina, Brazil, Chile, Colombia, Uruguay, China, Japan.
Italy and China did not institute exchange control until 1934, but they are included in the exchange-control group in all years.

TABLE 5. EXCHANGE CONTROL AND FOREIGN TRADE

(Index numbers of the value of imports and exports of 39 countries,* classified on the basis of free or controlled exchange, 1932 to 1937. 1929 = 100)

	1929	1932	1933	1934	1935	1936	1937
Index numbers of value of imports and exports							
Imports							
Free-exchange countries.....	100	39	35	33	34	38	47
Exchange-control countries.....	100	36	33	32	32	32	42
All 39 countries.....	100	38	34	33	33	36	45
Exports							
Free-exchange countries.....	100	37	34	34	34	37	46
Exchange-control countries.....	100	40	35	33	34	37	46
All 39 countries.....	100	38	34	33	34	37	46

*24 free-exchange and 15 exchange-control countries, as listed in the footnotes to tables 3 and 4, respectively.

Over the entire period 1932 to 1937, the imports of manufactures of free-exchange countries held up much better than did those of exchange-control countries, whereas the exports of manufactures held up better in the exchange-control countries (table 6). Since this tendency is only slightly evident in total trade (table 5), trade in manufactures is apparently the more sensitive to exchange-control policies. Moreover, it seems apparent that exchange-control countries which depreciated had more success in stimulating exports of manufactures relatively to imports of manufactures than had exchange-control countries which did not depreciate (table 7). In the case of the free-exchange countries, there was no consistent trend in this respect.

TABLE 6. EXCHANGE CONTROL AND FOREIGN TRADE IN MANUFACTURES

(Index numbers of the value of imports and exports of finished manufactures in 25 countries,* classified on the basis of free or controlled exchange, 1932 to 1937. 1929 = 100)

	1929	1932	1933	1934	1935	1936	1937
	Index numbers of the value of imports and exports						
	Imports						
Free-exchange countries.....	100	37	33	32	32	35	42
Exchange-control countries.....	100	31	29	29	26	26	34
All 25 countries.....	100	35	32	31	30	32	40
	Exports						
Free-exchange countries.....	100	34	31	31	31	33	41
Exchange-control countries.....	100	44	39	36	37	42	52
All 25 countries.....	100	37	33	33	33	36	44

*Imports and exports of finished manufactures were available for 25 countries only—15 free-exchange and 10 exchange-control. These countries are:

Free-exchange countries: Belgium, France, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, Canada, the United States, British India, British Malaya, Dutch East Indies, Australia, Egypt, Union of South Africa.

Exchange-control countries: Czecho-Slovakia, Denmark, Germany, Italy, Poland and Danzig, Argentina, Chile, Colombia, China, Japan.

For industrial versus agricultural countries

The nature of the economy of a country is an important factor in its foreign trade. The effects of currency depreciation were therefore analyzed separately for the 11 industrial and 28 agricultural countries.¹¹

Changes in the total trade of the industrial countries that depreciated their currency were very similar to the changes in the total trade of that proportion of all of the 39 countries that depreciated (compare table 8 with table 2). In the early stages of the depression, 1929 to 1933, the trade of the depreciated-currency countries declined the more; whereas, in the subsequent recovery, these countries experienced the greater recovery.

In the case of the agricultural countries this relationship was not quite so apparent, especially with respect to exports (compare table 9 with table 2).

When the trade in finished manufactures was segregated from the total

¹¹The industrial countries include the principal creditor countries, whereas the agricultural countries include the principal debtor countries. Thus this classification according to the type of economy coincides roughly with that made according to the creditor or debtor status of the countries (see page 13).

TABLE 7. EFFECTS OF EXCHANGE CONTROL AND CURRENCY DEPRECIATION ON FOREIGN TRADE IN MANUFACTURES

(Percentage changes in the value of imports and exports of finished manufactures of 15 free-exchange and 10 exchange-control countries,* classified according to the degree of currency depreciation for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in trade					
Exchange-control countries:						
No depreciation:						
Exports.....	-56	-16	-14	- 1	14	22
Imports.....	-66	-12	0	-18	1	37
Some depreciation:						
Exports.....	-55	2	12	7	15	38
Imports.....	-71	- 4	- 1	0	5	12
Free-exchange countries:						
No depreciation:						
Exports.....	-60	- 5	- 6	-13	11	28
Imports.....	-48	- 6	-14	-13	13	21
Some depreciation:						
Exports.....	-69	-10	2	3	- 3	14
Imports.....	-63	-11	0	5	- 3	22

*The countries are those listed in the footnote to table 6.

TABLE 8. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE OF INDUSTRIAL COUNTRIES*

(Percentage changes in the value of imports and exports of 11 industrial countries, classified according to the degree of currency depreciation from the earlier to the later year in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in trade					
	Imports					
No depreciation.....	-57	- 8	- 8	- 7	12	25
Moderate depreciation.....	-62	-11	0	1	1	25
Most depreciation.....	..	..	-12	16	..	..
All 11 countries.....	-60	-10	- 6	0	8	25
	Exports					
No depreciation.....	-58	-11	-10	- 4	8	26
Moderate depreciation.....	-67	-10	1	4	- 1	22
Most depreciation.....	..	..	- 3	3	..	..
All 11 countries.....	-63	-11	- 5	1	5	25

*The countries included are: Belgium, Czecho-Slovakia, France, Germany, Italy, the Netherlands, Sweden, Switzerland, the United Kingdom, the United States, Japan.

TABLE 9. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE OF AGRICULTURAL COUNTRIES*

(Percentage changes in the value of imports and exports of 28 agricultural and raw-material countries, classified according to the degree of currency depreciation from the earlier to the later year in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
Per cent change in trade						
Imports						
No depreciation	-67	- 8	-11	1	9	27
Moderate depreciation	-66	-16	7	4	-11	26
Most depreciation	-67	- 5	- 6	10	..	..
All 28 countries	-67	-10	1	5	7	27
Exports						
No depreciation	-57	-13	4	2	14	21
Moderate depreciation	-60	- 6	- 3	6	8	40
Most depreciation	-63	- 4	3	2	..	..
All 28 countries	-61	- 6	0	4	14	23

*The countries included are: Denmark, Finland, Greece, Norway, Poland and Danzig, Portugal, Rumania, Turkey, Argentina, Brazil, Canada, Chile, Colombia, Cuba, Mexico, Peru, Uruguay, Venezuela, British India, British Malaya, Ceylon, China, Dutch East Indies, Philippine Islands, Australia, New Zealand, Egypt, Union of South Africa.

trade, it was evident that the effects of depreciation on the imports and exports of manufactures in the 11 industrial countries were even more striking than the effects on the total trade of those countries (compare table 10 with table 8). In general, in all three periods the exports of manufactures for depreciated-currency countries relatively to their imports improved more than did the corresponding ratios for non-depreciated-currency countries (table 11).¹²

Similar comparisons for the agricultural countries are not practical.¹³

For creditor versus debtor countries

The 6 principal creditor countries¹⁴ are also large industrial countries, and, as might be expected, the effects of currency depreciation on the foreign trade of these 6 agreed fairly closely with those found for the 11 industrial countries.

The effects of currency depreciation on the 33 debtor countries (the vast majority of which were agricultural) corresponded closely to those found for the 28 agricultural countries.

¹²The only exception was the change from 1934 to 1935. Countries that still maintained the gold value of their currency at the 1929 parity imposed new restrictions on imports in 1934. This was at least partly responsible for the large decline in the imports of those countries, especially in the case of France, the Netherlands, and Switzerland (League of Nations, World Economic Survey, 1934-35). The decline may have been partly due also to the worsening of economic conditions in countries of the "gold bloc", resulting in decreased incomes and less imports.

¹³Most agricultural countries for which data on manufactures are available had depreciated early in the period under consideration, so that a comparison between depreciating and non-depreciating countries is of scarcely any significance. In addition, the exports of manufactures from these countries are very small and erratic.

¹⁴The United Kingdom, the United States, France, the Netherlands, Belgium, Sweden.

TABLE 10. CURRENCY DEPRECIATION AND CHANGES IN THE FOREIGN TRADE IN MANUFACTURES, FOR INDUSTRIAL COUNTRIES*

(Percentage changes in the value of imports and exports of finished manufactures of 11 industrial countries, classified according to the degree of currency depreciation for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in trade					
	Imports					
No depreciation.....	-53	- 8	- 8	-19	13	25
Some depreciation.....	-67	-13	- 5	2	- 1	17
All 11 countries.....	-61	-10	- 6	- 8	7	22
	Exports					
No depreciation.....	-58	-11	-11	- 6	12	26
Some depreciation.....	-68	- 7	5	4	1	21
All 11 countries.....	-63	-10	- 2	0	9	25

*The countries included and the classification are the same as in table 8.

TABLE 11. CURRENCY DEPRECIATION AND CHANGES IN THE EXPORTS OF MANUFACTURES IN RELATION TO THE IMPORTS OF MANUFACTURES, FOR INDUSTRIAL COUNTRIES*

(Percentage changes in the exports and imports of finished manufactures of 11 industrial countries, classified according to the degree of currency depreciation for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation	First period		Second period		Third period	
	1929 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in trade					
No depreciation:						
Exports.....	-58	-11	-11	- 6	12	26
Imports.....	-53	- 8	- 8	-19	13	25
Some depreciation:						
Exports.....	-68	- 7	5	4	1	21
Imports.....	-67	-13	- 5	2	- 1	17

*The countries included in the respective depreciation groups are the same as in table 10.

Date of depreciation related to foreign trade

The 39 countries were classified also into three groups according to the time when they first depreciated. Group 1 includes 23 countries that devalued their currency in 1932 or earlier; group 2 includes 6 countries that devalued in 1933 and 1934; group 3 includes those countries that did not devalue until 1936¹⁵ as well as those that did not devalue at all.

From 1929 to 1933, the countries that depreciated early (1930 to 1932)

¹⁵Also Belgium, which devalued in 1935.

suffered a somewhat larger decline in imports than did the countries that did not depreciate at all or depreciated only in 1936 (66 and 61 per cent, respectively) (table 12). However, the countries that depreciated early

TABLE 12. TIME OF CURRENCY DEPRECIATION AND FOREIGN TRADE FOR 39 COUNTRIES*

(Index numbers of the value of imports and exports of 39 countries, classified according to the time when they first depreciated their currency relatively to 1929 gold parity, 1933 to 1937. 1929 = 100)

Time of currency depreciation	1929	1933	1934	1935	1936	1937
	Index numbers of value of imports and exports					
	Imports					
Early in period (1930 to 1932)	100	34	34	35	38	48
Later in period (1933 to 1934)	100	27	25	30	35	43
Very late (1935 and later) or not at all	100	39	36	34	34	43
All 39 countries	100	34	33	33	36	45
	Exports					
Early in period (1930 to 1932)	100	35	35	37	41	50
Later in period (1933 to 1934)	100	29	27	29	32	41
Very late (1935 and later) or not at all	100	38	35	33	35	43
All 39 countries	100	34	33	34	37	46

*The 39 countries are those listed in the footnote to table 1.

reached a low point in imports in 1933-34, and thereafter experienced considerable increases. Imports of countries that depreciated very late or not at all, continued to decline until 1935 and showed a substantial increase only in 1937.

The same relationship held for exports of the countries that depreciated early as compared with exports of the countries that depreciated very late or not at all.

By 1937, both imports and exports of the countries that depreciated early had reached a higher level relatively to 1929 than had those of the countries that depreciated very late or not at all (the index numbers in 1937 were 48 and 50, respectively, as compared with 43 and 43) (table 12).

The intermediate group of countries, those that depreciated in 1933 and 1934, fell between the other two groups as far as the turning points in imports and exports were concerned, but not with respect to the general level of trade. This was owing mainly to the decline in United States trade in the early part of the period.

When the industrial countries were considered separately, the relative and absolute gains in trade for the countries that devalued early were even more striking than were those for all the countries included in the study (compare table 13¹⁶ with table 12).

Most of the agricultural countries devalued prior to 1933, and therefore a different classification had to be used for them. Apparently the time of depreciation made little difference in the case of the agricultural countries

¹⁶The United States was omitted from table 13 because of the exceptional decline in trade in this country. Germany and Italy also were omitted. Italy's trade declined considerably up to 1936, partly because of the blockade during the Ethiopian campaign. German trade was subject to a very high degree of control.

TABLE 13. TIME OF CURRENCY DEPRECIATION AND FOREIGN TRADE FOR INDUSTRIAL COUNTRIES*

(Index numbers of the value of imports and exports of 8 industrial countries, classified according to the time when they first depreciated their currency relatively to 1929 gold parity, 1933 to 1937. 1929=100)

Time of currency depreciation	1929	1933	1934	1935	1936	1937
	Index numbers of value of imports and exports					
	Imports					
Early in period (1931).....	100	38	38	39	44	54
Later in period (1934 to 1935).....	100	40	34	34	39	49
End of period (1936 to 1937).....	100	49	41	37	39	45
	Exports					
Early in period (1931).....	100	35	35	37	39	47
Later in period (1934 to 1935).....	100	38	38	35	39	50
End of period (1936 to 1937).....	100	37	36	33	31	35

*The countries included are:

Early: Sweden, the United Kingdom, Japan.

Later: Belgium, Czecho-Slovakia.

End of period: France, the Netherlands, Switzerland.

(table 14). This conclusion is not entirely justified, since the number of countries in some groups was inadequate. The first two groups included 8 and 11 countries, respectively. The third and fourth groups included only 4 and 3 countries, respectively. Furthermore, as is stated earlier in this memoir (page 4), agricultural countries vary considerably and are hardly comparable with one another. Diverse movements in the trade

TABLE 14. TIME OF CURRENCY DEPRECIATION AND FOREIGN TRADE FOR AGRICULTURAL COUNTRIES*

(Index numbers of the value of imports and exports of 26 agricultural countries, classified according to the time when they first depreciated their currency relatively to 1929 gold parity, 1933 to 1937. 1929=100)

Time of currency depreciation	1929	1933	1934	1935	1936	1937
	Index numbers of value of imports and exports					
	Imports					
Early in period (1930 to 1931).....	100	28	28	30	34	43
Later in period (1932).....	100	29	30	32	34	43
Later in period (1933).....	100	32	37	41	47	57
End of period (1936) or not at all.....	100	28	27	27	29	39
	Exports					
Early in period (1930 to 1931).....	100	38	38	40	44	54
Later in period (1932).....	100	33	35	36	42	51
Later in period (1933).....	100	50	42	46	54	61
End of period (1936) or not at all.....	100	35	36	34	39	52

*The countries included are:

Early (1930 to 1931): Argentina, Brazil, Mexico, Peru, Uruguay, Venezuela, Australia, New Zealand.

Later (1932): Denmark, Finland, Greece, Norway, Portugal, Canada, Chile, British India, British

Malaya, Ceylon, Egypt.

Later (1933): Colombia, Cuba, Philippine Islands, Union of South Africa.

End of period: Poland and Danzig, Turkey, Dutch East Indies.

of the various countries, due to other factors, may have obscured any effects which the time of depreciation might have had.

Summary

As has already been pointed out, there is great variation among countries with respect to type of economy, financial status, policies followed, and many other factors. Because of this, many countries are hardly comparable with one another, and this is especially true of many agricultural countries. Consequently, any conclusions based on the preceding analysis must necessarily be in the nature of broad generalizations.

Prior to 1933, the relative severity of the depression and the price decline in the different countries was apparently the dominant factor in determining the relative changes in the foreign trade of those countries, obscuring whatever influence currency depreciation may have had.

From 1932 to 1933, there was some tendency for exports of depreciated-currency countries to decline less than did those of non-depreciated-currency countries. Exports of manufactures from the depreciated-currency exchange-control countries even showed a slight increase.

From 1933 to 1935, the countries that depreciated recovered considerably more in both imports and exports than did the countries that did not depreciate.

This trend was apparently reversed during 1936-37. The countries that depreciated in this period were mainly those of the "gold bloc". Most of the countries in the non-depreciating group had depreciated previously, and had reached a higher level of prosperity by 1936 than had the countries of the "gold bloc". The latter group made substantial recoveries after devaluation, and from 1936 to 1937 both their imports and their exports increased by approximately the same amount as the average increase for all countries.

Devaluation seems to have been more effective in exchange-control countries than in free-exchange countries with respect to trade in finished manufactures. Exports relatively to imports for depreciating exchange-control countries were better than for depreciating free-exchange countries, and also were better than for non-depreciating exchange-control countries.

On the whole, the effects of depreciation on industrial countries were more striking than were the effects on agricultural countries, especially with respect to trade in manufactures.

In industrial countries, the exports of manufactures relatively to the imports were better for the depreciating than for the non-depreciating countries.

Recovery in trade started earlier in the countries that depreciated during the first half of the period 1929 to 1937 than in the countries that depreciated during the second half of the period. Also, in the case of industrial countries, those that devalued early generally reached a higher level of trade by 1937 than did those that devalued later.

IN THE UNITED STATES

A detailed study was made also of the effects of currency depreciation in 42 other countries on their trade with the United States over periods of varying duration. The results seemed to indicate that the effects of

depreciation, though immediate, do not work themselves out in one year, and may be even more noticeable in the second year. From the classification on the basis of time of depreciation, it seemed probable that the effects continued for a considerable length of time.

For the countries considered in this study, the effects of depreciation on their trade with the United States were substantially the same as those on their total trade, except for minor differences occasioned by the particular nature of the United States foreign trade. The tables and description concerning these effects are therefore omitted from this report.

EFFECTS OF CURRENCY DEPRECIATION ON BUSINESS ACTIVITY

RELATION OF INDUSTRIAL PRODUCTION TO FOREIGN TRADE

The volume of industrial production in a country is an important factor in its foreign trade.

Changes in foreign trade that occurred with changes in industrial production were examined for 17 countries for the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937. For each period, the countries were divided into two approximately equal groups according to the percentage change in the volume of industrial production from the earlier to the later year. For each group of countries, the changes in foreign trade during the corresponding periods were then calculated.

During the first period, 1929 to 1933, in the 8 countries where the volume of production declined the least the value of exports dropped, on the average, 61 per cent, as compared with 68 per cent for the 9 countries that suffered the largest losses in volume of production (table 15).

During the next period, 1933 to 1935, the 8 countries whose production

TABLE 15. INDUSTRIAL PRODUCTION AND CHANGES IN FOREIGN TRADE

(Percentage changes in the value of imports and exports for 17 countries,* classified according to the percentage change in volume of industrial production from the earlier to the later year in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Industrial production†	Imports			Exports		
	1929 to 1933	1933 to 1935	1935 to 1937	1929 to 1933	1933 to 1935	1935 to 1937
	Per cent change in value			Per cent change in value		
Countries where production declined the least or increased the most.....	-67	3	44	-61	5	37
Countries where production declined the most or increased the least.....	-65	-8	27	-68	-5	21
All 17 countries.....	-65	-3	38	-67	-1	32

*The 17 countries for which industrial-production indexes were available are: Belgium, Czechoslovakia, Denmark, Finland, France, Greece, Italy, Norway, the Netherlands, Sweden, the United Kingdom, Canada, the United States, Chile, Australia, New Zealand, Japan.

†The average per cent changes in the volume of industrial production for the two groups of countries during the three periods were:

	1929 to 1933	1933 to 1935	1935 to 1937
High group.....	4	28	22
Low group.....	-24	10	8

increased the most experienced a 5-per-cent gain in exports, whereas the 9 countries that had the smallest increase in volume of production experienced a 5-per-cent loss.

During the third period, 1935 to 1937, the margin in favor of the countries whose production increased the most was even larger (37 per cent, as compared with 21 per cent for the countries whose production increased the least).

During the first period, 1929 to 1933, the decline in imports was about the same for both groups of countries. During the next two periods, however, imports increased considerably more for the countries where production improved the most (3 and 44 per cent, respectively, as compared with -8 and 27 per cent for the countries where production improved the least).

When only the 10 industrial countries were considered, during all three periods the changes in both imports and exports were more favorable for those countries where the changes in industrial production were the more favorable (table 16).¹⁷

TABLE 16. INDUSTRIAL PRODUCTION AND CHANGES IN FOREIGN TRADE IN INDUSTRIAL COUNTRIES*

(Percentage changes in the value of imports and exports of 10 industrial countries, classified according to the percentage change in volume of industrial production from the earlier to the later year in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Industrial production†	Imports			Exports		
	1929 to 1933	1933 to 1935	1935 to 1937	1929 to 1933	1933 to 1935	1935 to 1937
	Per cent change in value			Per cent change in value		
Countries where production declined the least or increased the most.....	-59	0	42	-64	-4	41
Countries where production declined the most or increased the least.....	-70	-11	32	-69	-5	21

*The 10 industrial countries included are:

1929 to 1933:

High group: France, the Netherlands, Sweden, the United Kingdom, Japan.

Low group: Belgium, Czecho-Slovakia, Germany, Italy, the United States.

1933 to 1935:

High group: Germany, Italy, Sweden, the United Kingdom, Japan.

Low group: France, the Netherlands, Belgium, Czecho-Slovakia, the United States.

1935 to 1937:

High group: Czecho-Slovakia, Germany, Sweden, the United States, Japan.

Low group: France, the Netherlands, the United Kingdom, Belgium, Italy.

†The average per cent changes in the volume of industrial production for the two groups of countries during the three periods were:

	1929 to 1933	1933 to 1935	1935 to 1937
High group (5 countries).....	-7	26	25
Low group (5 countries).....	-34	8	13

When the values of imports and exports of raw materials and finished goods were segregated from the total trade and examined separately, significant differences appeared (table 17). During the first two periods,

¹⁷The 10 industrial countries were classified also into two equal groups according to the level of industrial production in each year relatively to 1929. In all the years, relatively to 1929 the values of both imports and exports of the 5 countries with the highest level of production were considerably above those of the 5 countries with the lowest production. (The data are omitted here.) The same relationship was found to exist also when changes from one year to the next were analyzed.

TABLE 17. INDUSTRIAL PRODUCTION AND CHANGES IN IMPORTS AND EXPORTS OF RAW MATERIALS AND FINISHED GOODS IN INDUSTRIAL COUNTRIES*

(Percentage changes in the value of imports and exports of raw materials and finished goods in 10 industrial countries, classified according to the percentage change in volume of industrial production in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Industrial production	Imports			Exports		
	1929 to 1933	1933 to 1935	1935 to 1937	1929 to 1933	1933 to 1935	1935 to 1937
	Per cent change in value			Per cent change in value		
	Raw materials			Raw materials		
Countries where production declined the least or increased the most.....	-60	5	45	-64	-7	32
Countries where production declined the most or increased the least.....	-70	-6	51	-64	-8	32
	Finished goods			Finished goods		
Countries where production declined the least or increased the most.....	-63	-5	41	-63	-3	48
Countries where production declined the most or increased the least.....	-70	-19	27	-70	-2	23

*The countries included in each group in each period are the same as those given in the first footnote to table 16.

the changes in imports of raw materials were more favorable for those industrial countries where the changes in production were the more favorable. During the last period, this trend was reversed.¹⁸ In the case of exports of raw materials, there was no difference as between the two groups of countries.

The percentage changes in imports and exports of finished goods were consistently more favorable in those countries where the changes in production were the more favorable. The only exception occurred from 1933 to 1935, when exports in both groups of countries declined slightly.

DEPRECIATION AND PRODUCTION

For the three periods

For each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937, the 17 countries¹⁹ were divided into two groups according to the degree of currency depreciation from the earlier to the later year in each period. The percentage change in the average index of industrial production in each of the three periods was then calculated for each of the two groups of countries.

During the first period, 1929 to 1933, the countries with a considerable degree of currency depreciation suffered an average decline of only 2 per cent in industrial production, as compared with an average decline of 26 per cent in the countries where moderate or no depreciation occurred (table 18). During the second period, 1933 to 1935, the countries where

¹⁸This was owing primarily to the very large increase in imports of raw materials by the Netherlands, Belgium, and Italy in 1937, from the excessively low levels in 1936.

¹⁹The 17 countries are those listed in the first footnote to table 15.

TABLE 18. CURRENCY DEPRECIATION AND CHANGES IN INDUSTRIAL PRODUCTION

(Percentage changes in the volume of industrial production in 17 countries,* classified according to the degree of currency depreciation from the earlier to the later year in each of the three periods 1929 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation†	1929 to 1933	1933 to 1935	1935 to 1937
	Per cent change in production		
Considerable depreciation.....	- 2	21	18
Moderate or no depreciation.....	-26	12	15

*The countries are those listed in the first footnote to table 15.

†The average per cent depreciation for the two groups of countries during each of the three periods was:

	1929 to 1933	1933 to 1935	1935 to 1937
	Per cent depreciation		
Considerable depreciation.....	43	18	24
Moderate or no depreciation.....	3	2	0

the currency was depreciated considerably experienced an average increase of 21 per cent increase in production, as compared with 12 per cent for the countries where moderate or no depreciation occurred.

However, in the countries that depreciated considerably during the last period, 1935 to 1937, production improved only slightly more than in the countries where moderate or no depreciation occurred during this period (18 and 15 per cent, respectively). This was owing largely to the fact that the countries which depreciated considerably during this period did so for the first time,²⁰ whereas the countries that depreciated only moderately or not at all during this period had depreciated previously and were now experiencing a considerable improvement in production.

The results for 9 industrial countries²¹ differed somewhat from those for the 17 countries (compare table 19 with table 18). Since none of the 9 industrial countries depreciated their currency prior to 1931, it seemed more nearly correct to use 1931 to 1933 for the first period instead of 1929 to 1933.

From 1931 to 1933, the average change in production in the countries that depreciated considerably was an 8-per-cent increase, as compared with a 10-per-cent decrease in the countries where moderate or no depreciation occurred.²² Likewise, during the second period, 1933 to 1935, the countries that depreciated considerably experienced a much larger increase in production than did the countries that depreciated moderately or not at all (23 and 8 per cent, respectively).

During the last period, 1935 to 1937, production increased somewhat less in the countries that depreciated considerably than in the countries with moderate or no depreciation. This was owing largely to the fact that changes in production usually lagged somewhat behind changes in the

²⁰With the exception of Czecho-Slovakia, where some depreciation occurred in 1934.

²¹The 9 industrial countries are: Belgium, Czecho-Slovakia, France, Italy, the Netherlands, Sweden, the United Kingdom, the United States, Japan. Germany was excluded because its exchange was very rigidly controlled, especially since 1933. For Switzerland no data on industrial production were available.

²²If the period 1929 to 1933 had been used, the corresponding changes would have been -11 and -27 in the two groups of countries, respectively.

TABLE 19. CURRENCY DEPRECIATION AND CHANGES IN PRODUCTION
IN INDUSTRIAL COUNTRIES*

(Percentage changes in the volume of industrial production in 9 industrial countries, classified according to the degree of currency depreciation in each of the three periods 1931 to 1933, 1933 to 1935, and 1935 to 1937)

Degree of currency depreciation†	1931 to 1933	1933 to 1935	1935 to 1937
	Per cent change in production		
Considerable depreciation.....	8	23	18
Moderate or no depreciation.....	-10	8	20

*The countries included are: Belgium, Czecho-Slovakia, France, Italy, the Netherlands, Sweden, the United Kingdom, the United States, Japan.

†The average per cent depreciation for the two groups of countries during each of the three periods was:

	1931 to 1933	1933 to 1935	1935 to 1937
	Per cent depreciation		
Considerable depreciation.....	42	17	24
Moderate or no depreciation.....	3	7	0

gold value of the currency,²³ and, as has been pointed out, most of the countries that depreciated their currency during the period 1935 to 1937 did so for the first time in 1936. Most of the other countries had depreciated earlier, and, on the average, to a greater extent.

Data on industrial production were available for only a few agricultural countries, most of which depreciated early and to an approximately equal degree. However, indexes of the volume of goods carried on railroads were available for 21 agricultural countries.²⁴ Changes in these indexes were compared with changes in the exchange rates over the three periods 1929 to 1931, 1931 to 1933, and 1933 to 1935 (table 20). During each of

TABLE 20. CURRENCY DEPRECIATION AND CHANGES IN VOLUME OF GOODS CARRIED
ON RAILROADS IN AGRICULTURAL COUNTRIES*

(Percentage changes in the volume of goods carried on railroads for 21 agricultural countries, classified according to the degree of currency depreciation from the earlier to the later year in each of the three periods 1929 to 1931, 1931 to 1933, and 1933 to 1935)

Degree of currency depreciation	1929 to 1931	1931 to 1933	1933 to 1935
	Per cent change in volume of goods carried on railroads		
Considerable depreciation.....	-11	2	16
Moderate or no depreciation.....	-18	-13	8

*Source of data: Statistical Yearbooks of the League of Nations.

The countries included are: Argentina, Chile, Mexico, Uruguay, Canada, Australia, New Zealand, Philippine Islands, British India, Dutch East Indies, Union of South Africa, Egypt, Bulgaria, Denmark, Finland, Greece, Hungary, Norway, Poland, Rumania, Yugoslavia.

²³This point is brought out more clearly in table 23 (page 24), in which year-to-year changes in production and exchange rates are compared.

²⁴Since railroads were relatively unimportant in some of the 21 countries and were very important in others, the statistics on railroad transportation not only are unsatisfactory as a measure of business activity in some countries but also are not quite comparable as among the various countries.

the three periods, the percentage change in the volume of railroad transportation was the more favorable for the group of countries that depreciated their currency considerably.

Relatively to 1929

Up to 1935, the levels of industrial production in industrial countries that devalued their currency were, on the average, much above those in countries that did not devalue (table 21). By 1936 all of these industrial

TABLE 21. CURRENCY DEPRECIATION AND THE LEVEL OF PRODUCTION IN INDUSTRIAL COUNTRIES*

(Index numbers of the volume of industrial production in 9 industrial countries, classified in each year according to the degree of currency depreciation since 1929, from 1931 to 1937. 1929 = 100)

Degree of currency depreciation	1929	1931	1932	1933	1934	1935	1936†	1937†
	Index numbers of volume of industrial production							
Some depreciation.....	100	90	90	97	101	103	115	127
No depreciation.....	100	82	68	74	77	85	84	94

*The countries included are those listed in the first footnote to table 19.

†All the countries included had depreciated their currency by the end of 1936. The division for 1936 and 1937 was thus based on most and least depreciation relatively to the 1929 gold parity.

countries had depreciated their currency relatively to the 1929 gold parities, and so the comparison could not be carried on after 1935. However, during 1936 and 1937 the average level of production in the countries where the currency was devalued the most remained substantially above the level in the countries where the currency was devalued the least.

With respect to the 21 agricultural countries (table 22), during the whole

TABLE 22. CURRENCY DEPRECIATION AND RAILROAD TRANSPORTATION IN AGRICULTURAL COUNTRIES*

(Index numbers of the volume of goods carried on railroads in 21 agricultural countries, classified in each year according to the degree of currency depreciation since 1929, from 1929 to 1937. 1929 = 100)

Degree of currency depreciation	1929	1930	1931	1932	1933	1934	1935	1936	1937
	Index numbers of volume of goods carried on railroads								
Most depreciated.....	100	96	89	76	82	89	95	102	113
Least depreciated.....	100	94	82	75	74	79	78	82	98

*The countries included are those listed in the footnote to table 20.

period 1929 to 1937 the volume of goods carried on railroads remained at a somewhat higher level in those countries where the currency was the most depreciated relatively to the 1929 gold parity.

Year-to-year changes

A considerable relationship was found also between year-to-year changes in the gold value of the currency, and changes in production, in industrial

countries. In countries where the gold value of the currency declined from one year to the next, the corresponding changes in industrial production were consistently more favorable than was the case in countries where no depreciation occurred in the corresponding year (table 23). The year

TABLE 23. CURRENCY DEPRECIATION AND CHANGES IN PRODUCTION^{*}
IN INDUSTRIAL COUNTRIES^{*}

(Year-to-year changes in the volume of industrial production in 9 industrial countries, classified in each year according to the degree of currency depreciation from the preceding year, 1931 to 1937)

Degree of currency depreciation†	1930 to 1931	1931 to 1932	1932 to 1933	1933 to 1934	1934 to 1935	1935 to 1936	1936 to 1937
	Per cent change in volume of industrial production from preceding year						
Some depreciation.....	- 6	0	11	12	13	4	13
No depreciation.....	-11	-17	6	1	5	11	9

^{*}These countries are the same as those included in tables 19 and 21, but the classification is different.
†The average depreciation from the preceding year for the two groups of countries was:

	1931	1932	1933	1934	1935	1936	1937
Some depreciation.....	-5	-31	-15	-15	-10	-7	-22
No depreciation.....	0	0	0	- 1	- 2	1	- 1

1935-36 was the only exception. But the countries that did not depreciate their currency in that year had depreciated previously. The countries that depreciated in 1936 did so for the first time and to a moderate degree only. However, in the next year, 1937, the same countries further depreciated their currency relatively to 1936, and experienced a larger increase in production than did the countries that did not depreciate. From table 23 it is evident also that changes in production tended to lag somewhat behind currency depreciation.

Depreciation was by no means the only factor that affected production, but from the above comparisons it is evident that there was a high degree of relationship between currency depreciation and production. When this relationship is considered in conjunction with the relationship between production and trade, it seems highly probable that to a considerable extent the effects of depreciation on trade were due to the effects of depreciation on production.

This conclusion is further strengthened by a consideration of the nature of the changes in trade that occurred with depreciation. In the depreciated-currency countries, imports of raw materials relatively to exports of raw materials increased and remained high during the years 1931 to 1935 (table 24). In the non-depreciated-currency countries, the ratio declined and remained low.

With respect to finished goods, imports relatively to exports were high in the gold-standard countries and low in the depreciated-currency countries. That is, in the depreciated-currency countries, with increased business activity more raw materials were needed and less were available for export relatively to the situation in the gold-standard countries; on the other hand, with high production more finished goods were imported

TABLE 24. RELATION OF IMPORTS TO EXPORTS OF RAW MATERIALS AND OF FINISHED GOODS FOR DEPRECIATED- AND FOR NON-DEPRECIATED-CURRENCY COUNTRIES*

(Index numbers of the ratio of value of imports to value of exports of raw materials and of finished goods for 9 industrial countries, classified in each year according to the degree of currency depreciation since 1929, from 1931 to 1935. 1929 = 100)

Degree of currency depreciation	1929	1931	1932	1933	1934	1935
	Index of imports relatively to exports					
Raw materials						
Some depreciation	100	115	125	127	130	118
No depreciation	100	90	85	87	85	92
Finished goods						
Some depreciation	100	126	87	80	85	85
No depreciation	100	112	123	122	113	119

*The countries included in the respective depreciation groups each year are the same as in table 21.

but even more were available for export. In the gold-standard countries, because of the lower level of industrial production, relatively less finished goods were imported but exports dwindled even more.

The countries of the "gold bloc" devalued their currency after 1935 and the reverse trends became noticeable. In France, the Netherlands, Italy, and Belgium, the ratio of imports to exports of raw materials improved from an average of 92 in 1935 (1929 = 100) to an average of 105 in 1937 (table 25). This corresponded with the increases in industrial production.

TABLE 25. RELATION OF IMPORTS TO EXPORTS OF RAW MATERIALS AND OF FINISHED GOODS FOR MOST-DEPRECIATED-CURRENCY AND FOR LEAST-DEPRECIATED-CURRENCY COUNTRIES*

(Index numbers of the ratio of value of imports to value of exports of raw materials and of finished goods for most-depreciated-currency as compared with least-depreciated-currency industrial countries, 1935 to 1937. 1929 = 100)

Degree of currency depreciation subsequently to 1934	1929	1935	1936	1937
	Index of imports relatively to exports			
Raw materials				
Most depreciated	100	92	97	105
Least depreciated	100	118	128	136
Finished goods				
Most depreciated	100	119	114	108
Least depreciated	100	85	88	91

*The degree of currency depreciation was measured according to depreciation of the currencies subsequently to 1934.

Most-depreciated-currency countries: France, the Netherlands, Italy, Belgium.

Least-depreciated-currency countries: the United Kingdom, the United States, Sweden, Japan, Czecho-Slovakia.

Relatively to 1929, the currencies of the latter countries were generally the most depreciated by 1937. However, since 1935 no depreciation had occurred in the latter countries (except in Czecho-Slovakia), whereas the former countries had devalued considerably.

On the other hand, imports of finished goods relatively to exports declined from an average of 119 in 1935 (1929 = 100) to an average of 108 in 1937.²⁵

In the countries that had devalued earlier, imports of raw materials relatively to exports of raw materials continued improving during the period 1935 to 1937. Imports of finished goods relatively to exports of finished goods increased somewhat (from an index of 85 in 1935 to 91 in 1937), in contrast to the decline during the preceding years.

Furthermore, the higher level of trade in 1937 (relatively to 1929) reached by the countries that devalued their currency early in the period as compared with those that devalued later, seems to correspond with the relative levels of production in the two groups of countries.

However, differences in the price levels, which are examined in the following section, may have been responsible for a part of the differences in trade.

SUMMARY

It is evident that during the period 1929 to 1937 the foreign trade of countries was affected materially by the respective levels of the internal industrial production of the countries. Generally, countries where production was at a relatively high level imported and exported more than did countries where production was at a relatively low level.

It is evident also that there was a considerable relationship between currency depreciation and production in various countries. Production in countries that depreciated their currency was generally more favorable than was production in countries that did not depreciate.

Furthermore, considering the nature of the changes in trade that occurred with depreciation, it seems highly probable that the effects of depreciation on production were largely the cause of the changes in trade.

EFFECTS OF CURRENCY DEPRECIATION ON PRICES

During the period 1929 to 1937, wide fluctuations in prices occurred. Because of varying flexibility, some prices changed more rapidly and by larger amounts than did others. This was especially the case during the early years of the period, when prices declined severely.²⁶

Prices of agricultural commodities and raw materials declined, on the average, more than did prices of manufactures, and prices of consumers' goods declined more than did prices of producers' goods. On the whole, indexes of commodity prices declined more than did indexes of the cost of living and indexes of wages.

During the subsequent price recovery, the more flexible prices again rose the faster.

Thus, in comparisons between depreciated-currency and non-depreciated-currency countries, it seemed desirable to compare not only various indexes of commodity prices, but also costs of living and wages.

Up to March 1933, the discrepancy between agricultural prices and prices of manufactures, especially of manufactured producers' goods, con-

²⁵Excluding France, which did not experience any marked improvement in production, imports of manufactures relatively to exports declined from 117 in 1935 to 91 in 1937.

²⁶Pearson, F. A., and Myers, W. I. The importance of equilibrium in the price structure. *Farm Econ.* (Cornell Univ., Dept. Agr. Econ. and Farm Mgt.), no. 110, Nov.-Dec. 1938.

Buchanan, Mark T. Price flexibility and price movements in the United States and other countries. *Cornell Univ. Agr. Exp. Sta. Memoir* 239. 1941.

Means, Gardiner C. The structure of the American economy. Part I. Basic characteristics, p. 122-152. *Natl. Resources Com.* 1939.

tinued to widen.²⁷ Since 1933 it has gradually narrowed. This price discrepancy was reflected in the relative price movements in agricultural and industrial countries, particularly in their import and export prices.

For agricultural countries, the import prices are mainly prices of manufactures and the export prices are mainly prices of agricultural commodities and raw materials. For industrial countries, the situation is reversed. Thus, over the period 1929 to 1937, import prices in the agricultural countries were not comparable with those in the industrial countries. Similarly, export prices in the agricultural countries, and to a lesser extent wholesale prices and costs of living, were not comparable with those in the industrial countries.

For the industrial countries, import prices were considerably lower than export prices because of the fact that up to March 1933 the import prices for those countries (that is, mainly the prices of agricultural commodities and raw materials) declined the faster.²⁸ For the agricultural countries, import prices were considerably higher than export prices because of the fact that the import prices for those countries (that is, mainly prices of manufactures) declined the more slowly (figure 1). Since 1933, these

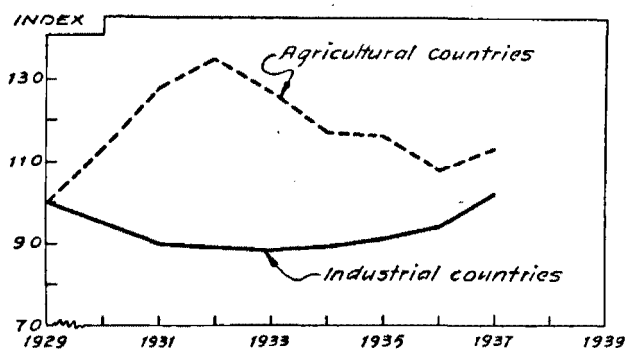


FIGURE 1. PURCHASING-POWER PARITY OF IMPORT PRICES IN TERMS OF EXPORT PRICES, 1929 TO 1937 (1929 = 100)

10 industrial countries (Czecho-Slovakia, France, Germany, Italy, the Netherlands, Sweden, Switzerland, the United Kingdom, the United States, Japan) are compared with 15 agricultural countries (Denmark, Finland, Norway, Yugoslavia, Argentina, Brazil, Canada, Chile, British India, British Malaya, China, Dutch East Indies, Australia, New Zealand, Union of South Africa).

In the agricultural countries, prices of commodities imported were as much as 35 per cent higher than the prices of articles exported. In the industrial countries, prices of articles imported were only about 88 per cent of the prices of articles exported.

trends in both the agricultural and the industrial countries have been reversed and a better balance has been restored.

Wholesale prices (in terms of gold) also declined considerably more in the agricultural countries than in the industrial countries²⁹ (figure 2).

²⁷World economic survey, 1932-33. League of Nations, Geneva, Switzerland.

²⁸Though the industrial countries import mainly raw materials and foods, and export mainly manufactures, they also import considerable quantities of manufactures and export considerable quantities of raw materials. Their trade is generally much more diversified than that of the agricultural countries. This explains largely why import prices relatively to export prices did not decline so much as might have been expected from the decline in agricultural prices relatively to prices of manufactures.

²⁹Since all but 5 of the 25 agricultural countries included in this comparison had depreciated their currency by the end of 1932 and most of the industrial countries had not, a part of the discrepancy in wholesale prices as between the two types of countries may have been due to the effects of depreciation.

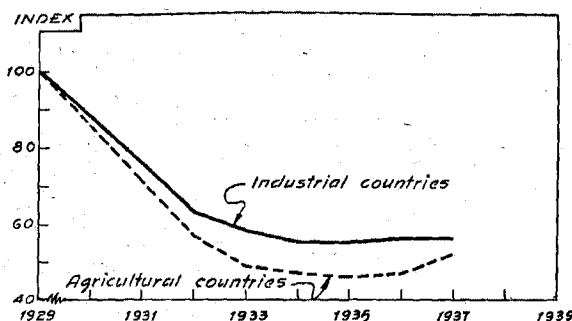


FIGURE 2. INDEX NUMBERS OF WHOLESALE PRICES (IN GOLD) IN 11 INDUSTRIAL COUNTRIES COMPARED WITH THOSE IN 25 AGRICULTURAL COUNTRIES, 1929 TO 1937 (1929 = 100)

Wholesale prices of all commodities declined more in agricultural than in industrial countries. Since 1933 the margin has narrowed, but it had not yet disappeared by 1937. (Source of data: Statistical Yearbooks of the League of Nations)

Because of these divergent price movements, it was deemed desirable to distinguish between the industrial and the agricultural countries in examining the effects of currency depreciation on prices.

IN INDUSTRIAL COUNTRIES

During the period 1929 to 1937, an average of the indexes of the cost of living in the industrial countries that depreciated their currency the most corresponded closely to a similar index for the industrial countries that depreciated their currency the least³⁰ (figure 3).

Likewise, an index of wages in the most-depreciated-currency countries corresponded closely to a similar index in the least-depreciated-currency countries, with the exception of 1935 when wages were about 10 per cent higher in the former group of countries than in the latter group³¹ (figure 3).

Wholesale prices of all commodities in the least-depreciated-currency countries declined rapidly from 100 in 1929 to 69 in 1932, and then declined gradually to 65 in 1934 (figure 3). In the most-depreciated-currency countries, the decline in wholesale prices was terminated by 1931-32, and beginning in 1932-33 a considerable increase occurred.

An index of wholesale prices of 40 basic commodities³² in the least-depreciated-currency countries declined to 59 in 1933-34 (when 1929 = 100), whereas in the most-depreciated-currency countries a low point of only 71 was reached in 1932 (figure 3). By 1937 the price index was 102 in the latter group of countries (figure 3), as compared with 81 in the former group.

³⁰The 11 industrial countries included in this comparison were classified each year into two groups on the basis of the degree of depreciation of their currency since 1929. During the years 1931 to 1933 inclusive, the United Kingdom, Sweden, and Japan were the only countries in the most-depreciated group. In 1934 the United States was shifted to this group. In 1935 Czecho-Slovakia, and in 1936 Belgium, were transferred to the most-depreciated group. In 1937 the United Kingdom, Sweden, Japan, the United States, and Italy were included in the most-depreciated group, and Germany, the Netherlands, Czecho-Slovakia, Belgium, Switzerland, and France were in the least-depreciated group.

³¹Germany was excluded from 1933 on. Since that year, wages have been artificially maintained at a level considerably below that in any of the other countries.

³²General-Motors-Cornell indexes of wholesale prices of 40 basic commodities for various countries, original tabulations.

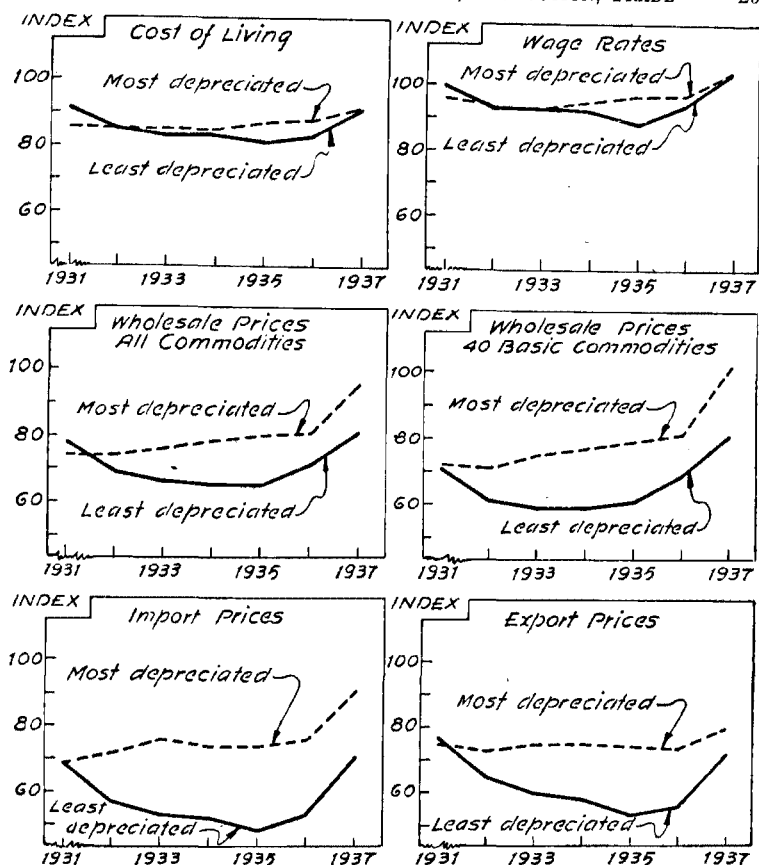


FIGURE 3. INDEX NUMBERS OF THE COST OF LIVING, WAGE RATES, WHOLESALE PRICES OF ALL COMMODITIES AND OF 40 BASIC COMMODITIES, IMPORT PRICES, AND EXPORT PRICES, IN 11 INDUSTRIAL COUNTRIES CLASSIFIED EACH YEAR ACCORDING TO THE DEGREE OF CURRENCY DEPRECIATION SINCE 1929, FROM 1931 TO 1937

The countries included in the respective depreciation groups each year are indicated in footnote 30 on page 28.

Cost of living and wage rates were only slightly higher in the most-depreciated- than in the least-depreciated-currency countries, whereas commodity prices were considerably higher.

In the case of import prices, in the least-depreciated-currency countries the index declined to 48 in 1935 (when 1929 = 100). In the most-depreciated-currency countries, a low point of only 69 was reached in 1931. By 1937 the index was 91 in the latter group of countries, as compared with 71 in the former group.

The movements of export prices in the two groups of countries were similar to those of import prices, except that export prices did not decline nearly so much during the early part of the period and did not increase so much subsequently (figure 3).

These comparisons would indicate that commodity prices declined less rapidly in the most-depreciated-currency countries, and reached the lowest

point earlier, than in the least-depreciated-currency countries. By 1937, commodity prices were at a considerably higher level in the most-depreciated-currency countries than in the least-depreciated-currency countries.

In order to obtain a more nearly precise idea of the extent to which exchange depreciation affected the various price series, the ratio of commodity prices in the most-depreciated-currency countries to those in the least-depreciated-currency countries was compared with the currency prices of gold in the former group of countries relatively to the currency prices of gold in the latter group.³³ For this comparison, only the 7 free-exchange industrial countries were used.³⁴

The average currency price of gold in the most-depreciated-currency countries, expressed as a per cent of a similar average for the least-depreciated-currency countries, increased from 142 in 1932 (when 1929=100) to a peak of 167 in 1934, declining thereafter to 121 in 1937 (figure 4). The corresponding per cent for the prices of 40 basic commodities increased from 123 in 1932 to a peak of 139 in 1935, and then declined to 117 in 1937.

Thus, in 1932, prices of basic commodities were 23 per cent higher in the most-depreciated-currency countries, whereas the currency price of gold was 42 per cent higher; that is, by that year the relative rise in prices that occurred with currency depreciation was 55 per cent of the relative rise in the currency price of gold. In other words, the "degree of adjustment" of prices to currency depreciation was 55 per cent. By 1934 the degree of adjustment was 48 per cent, by 1935 it was 63 per cent, and by 1937 it was 81 per cent.

The average of import prices in the most-depreciated-currency countries, expressed as a per cent of a similar average for the least-depreciated-currency countries, was 128 in 1932, 137 in 1935, and 104 in 1937 (when 1929=100) (figure 4). Compared with the corresponding ratios of the currency prices of gold in the two groups of countries, the degree of adjustment of prices to depreciation was 67 per cent by 1932, 43 per cent by 1934, 51 per cent by 1935, and 19 per cent by 1937.³⁵

When the relative export prices in the two groups of countries were compared with the relative currency prices of gold (figure 4), the degree of adjustment of prices to depreciation was 52 per cent by 1932, 46 per cent by 1934, 51 per cent by 1935, and 46 per cent by 1937.³⁶

A similar comparison for the cost of living and wage rates in the industrial countries would show that currency depreciation affected them not at all or only to a slight extent.³⁷

By 1937 the degree of adjustment of prices to depreciation was much closer to parity for basic commodities than for imports and exports, and

³³That is, prices in the most-depreciated-currency countries were expressed as a per cent of prices in the least-depreciated-currency countries. These percentages were then compared with the corresponding exchange values of the currencies of the latter group of countries for those of the former group.

³⁴Since 1932 the foreign exchange in Germany has been subjected to rigorous control. This has been the case also, although to a lesser extent, in Czechoslovakia and Japan since 1932 and in Italy since 1934. These 4 countries were therefore omitted in this comparison, in order to make the remaining countries more comparable. The 7 countries included are: the United Kingdom, the United States, Belgium, France, the Netherlands, Sweden, Switzerland.

³⁵The small degree of adjustment in 1937 was due largely to the considerable increase in import prices in France in that year. If France had been included in the most-depreciated group in 1937, the degree of adjustment would have been 52 per cent.

³⁶If France had been included in the most-depreciated group in 1937, the degree of adjustment would have been 63 per cent instead of 46.

³⁷In France the cost of living rose somewhat, and wages rose very considerably, when the franc was devalued in 1936. This, however, was probably owing largely to the political strength of the labor unions.

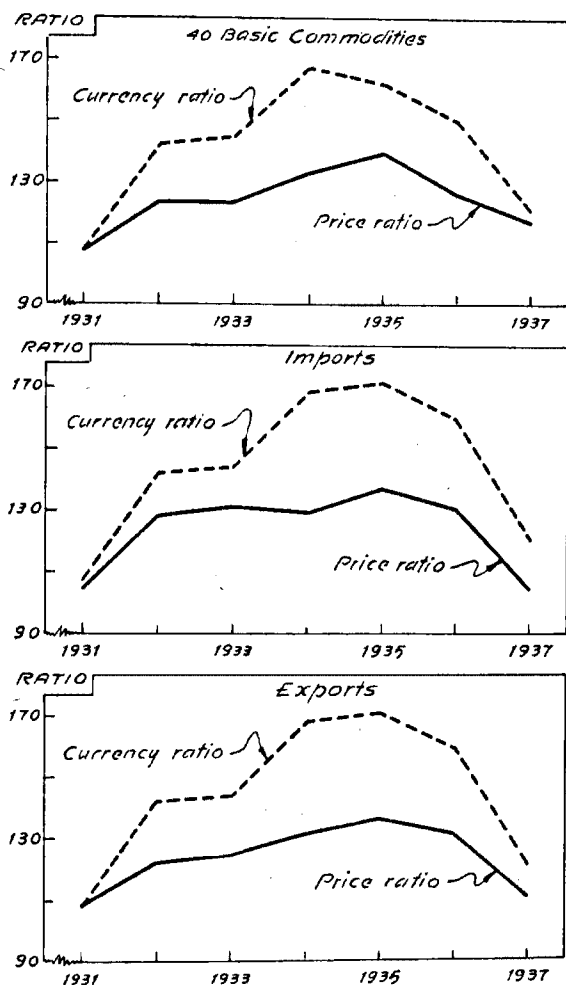


FIGURE 4. PRICE LEVELS AND CURRENCY PRICES OF GOLD IN 7 FREE-EXCHANGE INDUSTRIAL COUNTRIES

Index numbers of commodity prices in the most-depreciated-currency countries in terms of those in the least-depreciated-currency countries are compared with index numbers of the currency price of gold in the former group of countries in terms of those in the latter group, 1931 to 1937 (1929 = 100). The 7 countries are listed in footnote 34 on page 30.

Relatively to the least-depreciated-currency countries, commodity prices in the most-depreciated-currency countries failed to increase to the full extent of the rise in the currency price of gold.

the degree of adjustment for imports and exports was much higher than that for the cost of living and wage rates.

IN AGRICULTURAL COUNTRIES

An average index of the cost of living in agricultural countries that de-

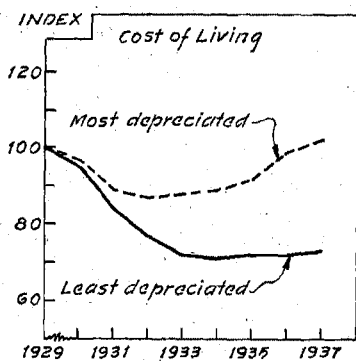
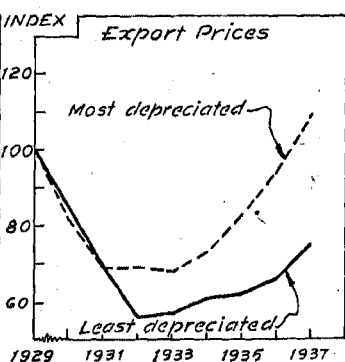
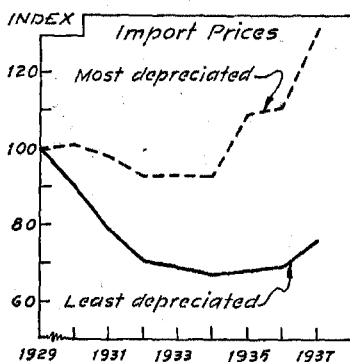
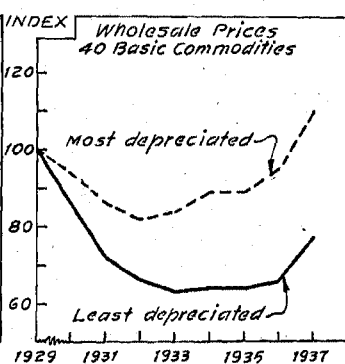
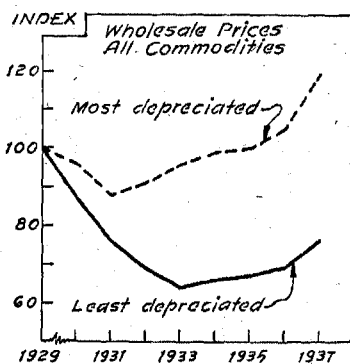


FIGURE 5. INDEX NUMBERS OF THE COST OF LIVING, WHOLESALE PRICES OF ALL COMMODITIES AND OF 40 BASIC COMMODITIES, IMPORT PRICES, AND EXPORT PRICES, IN AGRICULTURAL COUNTRIES CLASSIFIED EACH YEAR ACCORDING TO THE DEGREE OF CURRENCY DEPRECIATION SINCE 1929, FROM 1929 TO 1937 (1929 = 100)

Cost-of-living indexes were available for 18 countries, wholesale prices of all commodities for 25 countries, and of 40 basic commodities for 13 countries, and import and export prices for 15 countries. Cost of living was considerably higher in the most-depreciated- than in the least-depreciated-currency countries, but not nearly to the same extent as were commodity prices.



valued their currency the most, declined to a low point of 87 in 1932 (when 1929=100) and then increased gradually to 102 in 1937 (figure 5). A similar index for the agricultural countries that devalued their currency the least, declined to a low point of 71 in 1934 and thereafter rose only to 73 in 1937. Since 1930, the difference in the cost of living as between the two groups of countries has continually widened.

An average index of the wholesale prices of all commodities in the most-depreciated-currency countries reached a low point of 88 in 1931, increasing thereafter to 119 in 1937 (figure 5). In the least-depreciated-currency countries, a similar index declined to 64 in 1933 and recovered only to 76 in 1937.

In both groups of countries, the wholesale prices of 40 basic commodities declined somewhat more than did those of all commodities (figure 5). However, during the whole period, the prices of basic commodities in the most-depreciated-currency countries were considerably higher than those in the least-depreciated-currency countries.

From 1930 to 1932, import prices in the most-depreciated-currency countries declined only slightly, from an index of 101 in 1930 to 93 in 1932 (when 1929=100), and then they remained constant until 1934 (figure 5). Following 1934, they increased sharply to 131 in 1937. In the least-depreciated-currency countries, import prices declined to an index of 69 in 1934, recovering thereafter to 79 in 1937.

In both groups of countries, export prices were at a considerably lower level than were import prices (figure 5). However, during the early years of the period, export prices in the most-depreciated-currency countries did not decline nearly so much as, and they subsequently increased considerably more than, export prices in the least-depreciated-currency countries did.

These comparisons indicate that prices in the most-depreciated-currency countries declined less rapidly and reached a turning point much earlier than did prices in the least-depreciated-currency countries. By 1937, prices in the most-depreciated-currency countries were at a considerably higher level than were prices in the least-depreciated-currency countries.

In order to obtain a more definite idea of the magnitude of the relative price changes that occurred with currency depreciation, prices in the most-depreciated-currency countries relatively to prices in the least-depreciated-currency countries were compared with the corresponding ratio of the currency prices of gold in the two groups of countries (as was done also in the case of industrial countries).

Prices of 40 basic commodities in the most-depreciated-currency countries expressed as a per cent of those in the least-depreciated-currency countries, increased from 118 in 1931 to approximately 144 in 1936 and 1937 (figure 6). The corresponding percentages that the currency prices of gold in the former group of countries were of those in the latter group in 1931, 1936, and 1937, respectively, were 129, 170, and 166. The differences in the currency prices of gold were greater than the differences in the prices of basic commodities. Thus, in 1931 the relative increase in prices that occurred with depreciation was only 65 per cent of the corresponding increase in the currency price of gold. This amounts to the same as saying that the degree of adjustment of prices to depreciation was, on

the average, 65 per cent by that year. By 1936 the degree of adjustment was 63 per cent, and by 1937 it was 65 per cent.

Import prices in the most-depreciated-currency countries expressed as a per cent of import prices in the least-depreciated-currency countries, increased from 125 in 1931 to 139 in 1934 and to 171 in 1937 (figure 6). The

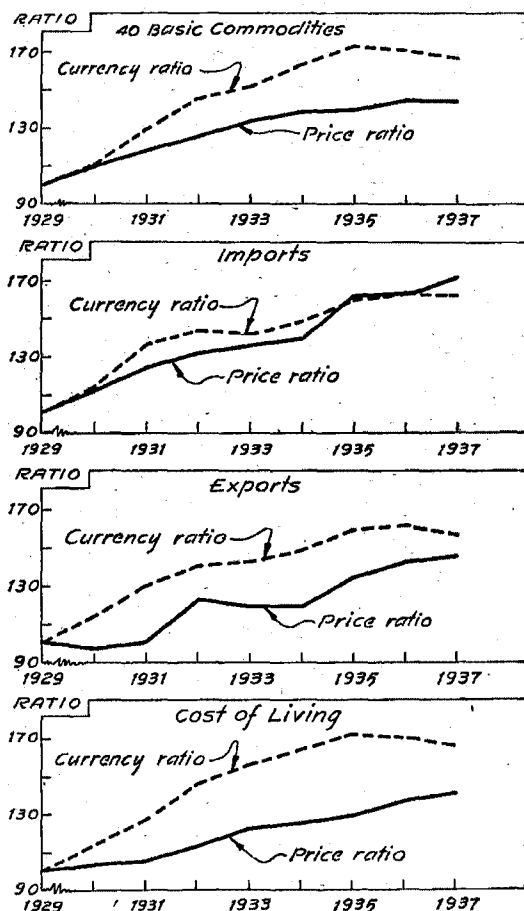


FIGURE 6. PRICE LEVELS AND CURRENCY PRICES OF GOLD IN AGRICULTURAL COUNTRIES

Index numbers of commodity prices in the most-depreciated-currency countries in terms of those in the least-depreciated-currency countries are compared with index numbers of the currency price of gold in the former group of countries in terms of those in the latter group, 1929 to 1937 (1929 = 100). The countries are the same as those represented in figure 5.

Relatively to the least-depreciated-currency countries, commodity prices in the most-depreciated-currency countries failed to increase to the full extent of the rise in the currency price of gold (with the possible exception of import prices).

corresponding percentages for the currency prices of gold, in 1931, 1934, and 1937, respectively, were 136, 148, and 161.³⁸ Thus, by 1931 the degree of adjustment of prices to depreciation was 69 per cent and by 1934 it was 81 per cent. During the years 1935 to 1937 the degree of adjustment was approximately 100 per cent.

Up to 1931, and for the countries included, currency depreciation apparently had very little effect on export prices. In 1932, however, the ratio of prices in the most-depreciated-currency countries to those in the least-depreciated-currency countries was 123, as compared with an exchange ratio of 140 (figure 6). Thus the degree of adjustment of prices to depreciation was about 58 per cent by that year. By 1935 the adjustment was still 58 per cent, but by 1937 it was 81 per cent.

The increases in the cost of living relatively to the increases in currency prices of gold, which occurred with currency depreciation in the agricultural countries, were 19, 39, and 62 per cent, in 1931, 1934, and 1937, respectively (figure 6).

By 1937, in the agricultural countries, the degree of adjustment of prices to depreciation was about at parity for import prices, somewhat less for export prices and for prices of basic commodities, and considerably less for the cost of living.

SUMMARY

In the industrial countries, currency depreciation affected import, export, and basic-commodity prices to approximately the same extent. Wholesale prices of all commodities were affected somewhat less, and the cost of living and wage rates were affected hardly at all.

In the agricultural countries, import prices were affected the most, export and basic-commodity prices somewhat less. The cost of living was affected considerably, but not nearly to the same extent as were commodity prices.

In comparing the industrial with the agricultural countries, it appears that the response of prices to depreciation was greater in the agricultural countries.

The effects of currency depreciation seem to be especially significant in two respects: First, currency depreciation affected wholesale prices of commodities regardless of whether the comparison was made for prices of imports, of exports, of basic commodities, or of all commodities; on the other hand, the cost of living and the wage rates were not affected or were affected only very moderately, especially in the industrial countries; thus the internal price relationships in countries that depreciated their currency were affected very materially. Secondly, commodity prices in the depreciated-currency countries did not increase to the full extent of the increase in the currency price of gold; thus, when commodity prices were converted to a comparable gold basis they were lower in the depreciated-currency countries than in the non-depreciated-currency countries; it has been contended by various authors that, as a result of this discrepancy, currency depreciation exercised a depressing influence on prices in countries that maintained the gold value of their currency at the 1929 parity.

³⁸These percentages differ somewhat from those for the countries included in the calculations for 40 basic commodities, because the countries for which import and export prices were available were not quite identical with those for which prices of basic commodities were available.

INTERNAL AND EXTERNAL PRICE RELATIONSHIPS

INTERNAL PRICE RELATIONSHIPS

The level of commodity prices relatively to the cost of living and wage rates in a country has an important bearing on the production of that country. In order to illustrate this, 10 industrial countries were classified into two equal groups each year. Group 1 included the 5 countries where the purchasing power of prices of 40 basic commodities in terms of wage rates was high relatively to 1929, and group 2 included the 5 countries where the purchasing power was low.

During the whole period 1931 to 1937, the level of industrial production was considerably higher in those countries where the purchasing power of basic commodities in terms of wage rates was high (table 26).³⁹

TABLE 26. RELATION BETWEEN THE PURCHASING POWER OF BASIC COMMODITIES AND THE VOLUME OF INDUSTRIAL PRODUCTION

(Index numbers of the volume of industrial production in 10 industrial countries,* classified in each year according to low or high purchasing power of basic commodities in terms of wages, 1931 to 1937. 1929 = 100)

Purchasing power of basic commodities in terms of wage rates	1929	1931	1932	1933	1934	1935	1936	1937
	Index numbers of volume of industrial production							
Low purchasing power.....	100	82	68	74	78	84	90	94
High purchasing power.....	100	83	78	85	97	106	114	132
All 10 countries.....	100	83	73	79	87	95	102	113

*The countries included are: Belgium, Czecho-Slovakia, France, the Netherlands, Germany, Sweden, Japan, the United States, Italy, the United Kingdom.

In all of the seven years 1931 to 1937, Belgium, Czecho-Slovakia, France, and the Netherlands were classified in the group where the purchasing power of basic commodities in terms of wage rates was low; Germany, Sweden, and Japan were in the group where the purchasing power was high. In 1931, 1932, and 1933, the United States was classified in the low group; Italy and the United Kingdom were in the high group. In 1934 the United States replaced Italy in the high group; and in 1935 Italy replaced the United Kingdom in the high group. The classification remained the same during 1936; in 1937 the United Kingdom replaced the United States in the high group.

Relatively to 1929, the purchasing power of the wholesale prices of 40 basic commodities in terms of wage rates for the two groups of countries was:

	1929	1931	1932	1933	1934	1935	1936	1937
Low group.....	100	67	61	61	62	66	69	77
High group.....	100	77	77	80	83	88	94	103

During the years 1932 to 1937, the purchasing power of the wholesale prices of 40 basic commodities in terms of wage rates was higher in the industrial countries that depreciated their currency the most, as compared with a similar index of purchasing power for the industrial countries where the least or no depreciation occurred (table 27). Similarly, the purchasing power of export prices in terms of the cost of living was higher in the most-depreciated-currency countries.

Coincidentally with these better price relationships, the level of industrial production (relatively to 1929) in the most-depreciated-currency countries was considerably higher than that in the least-depreciated-currency countries (table 28).

Currency depreciation was not the only factor that affected internal price

³⁹The countries were classified also according to the purchasing power of basic commodities in terms of the cost of living, and according to the purchasing power of export prices in terms of the cost of living. In both cases the results correspond closely to those indicated by table 26, and therefore they are omitted here.

TABLE 27. CURRENCY DEPRECIATION AND THE PURCHASING POWER OF BASIC COMMODITIES

(Index numbers of the purchasing power of the wholesale prices of 40 basic commodities in terms of wage rates in 11 industrial countries,* classified in each year according to the degree of currency depreciation since 1929, from 1932 to 1937. 1929=100)

Degree of currency depreciation	1929	1932	1933	1934	1935	1936	1937
	Index numbers of purchasing power of wholesale prices of basic commodities						
Least or no depreciation	100	66	65	66	71	78	84
Most depreciation	100	76	81	82	81	86	99
All 11 countries	100	68	70	72	76	82	92

*The countries included are: the United States, the United Kingdom, Sweden, Japan, Czecho-Slovakia, Belgium, France, the Netherlands, Switzerland, Italy, Germany.
 In 1932 and 1933 the United Kingdom, Sweden, and Japan were the only countries in the most-depreciated group. In 1934 the United States, and in 1935 Czecho-Slovakia, were added to this group. In 1936 the remaining gold-standard countries, with the exception of Germany, devalued their currency, and the countries were classified into most- and least-depreciated. In 1936 Belgium, Sweden, the United States, the United Kingdom, and Japan, and in 1937 Italy, Sweden, the United States, the United Kingdom, and Japan, were included in the most-depreciated group.

TABLE 28. CURRENCY DEPRECIATION AND INDUSTRIAL PRODUCTION

(Index numbers of the volume of industrial production in 10 industrial countries,* classified in each year according to the degree of currency depreciation since 1929, from 1932 to 1937. 1929 = 100)

Degree of currency depreciation	1929	1932	1933	1934	1935	1936	1937
	Index numbers of volume of industrial production						
Least or no depreciation	100	66	72	78	87	89	99
Most depreciation	100	90	97	101	103	115	127
All 10 countries	100	73	79	87	95	102	113

*The countries included in the respective depreciation groups each year are the same as in table 27 except that Switzerland was omitted because no data on industrial production were available for that country.

relationships in these countries. Since 1933, for example, with the inauguration of large-scale expansionistic measures in Germany the policy has been to prevent prices from rising too much.⁴⁰ Relatively to 1929, wage rates were maintained at a level considerably below that in any of the other industrial countries. Though wholesale prices were low, too, control in this field was apparently not quite so effective. Thus, commodity prices relatively to wages were higher than in most other countries, even though Germany did not officially depreciate its currency.

During and subsequently to the devaluation of the dollar in 1933-34, wage rates in the United States were increased considerably through legislative means as well as by labor-union activities. Thus, in spite of a considerable rise in commodity prices, the purchasing power of prices in terms of wages improved only slightly. This factor was probably partly responsible for the relatively slow recovery in industrial production in the United States as compared with the recovery in most of the industrial countries subsequently to depreciation of their currency.

Similarly, when the franc was devalued in 1936-37, wage rates in France were increased almost as fast as prices rose. Thus the purchasing power

⁴⁰Poole, Kenyon E. German financial policies, 1932-1939. Harvard Univ. Press. 1939.

of prices in terms of wages hardly improved, with consequent detrimental effects on industrial recovery.⁴¹

Furthermore, though in the countries studied the relation of the balance in the internal price structure to industrial activity was remarkably consistent, there were occasional exceptions, notably in the Netherlands and in Germany. From 1929 to 1932-33, the ratio of wholesale prices of basic commodities to wage rates, as well as the ratio of export prices to the cost of living, declined more in the Netherlands than in any of the other industrial countries. In spite of this most unfavorable cost-price relationship, the volume of industrial production in 1933 was at a higher level in the Netherlands than in any of the other countries, with the exception of Sweden and Japan.

From 1933 to 1935, the volume of industrial production in Germany increased by more than 50 per cent. Since this was largely because of increasing governmental activity, the relatively favorable cost-price structure which existed during the same time might have been a permissive factor; but it can hardly be considered as the principal cause of the large increase in industrial production in Germany during these and subsequent years.

Nevertheless, in spite of these exceptions, it is clear that currency depreciation generally improved the internal price relationships in a country; or, during the early years of the depression when prices were falling rapidly, it ameliorated the excessive development of internal price disparities.

It is clear also that during this period the level of commodity prices in a country relatively to wage rates and the cost of living was a significant factor in determining the level of industrial production in that country.⁴²

The response of the more flexible prices to currency depreciation was generally fairly immediate, and thus the correction or partial correction of the various price disequilibria was brought about quickly. With depreciation, the purchasing power of commodity prices in terms of wages and the cost of living improved within a short period of time, and thereafter changed only slowly and probably as a result of other factors rather than of depreciation.

The United Kingdom and Sweden devalued their currency in 1931. In these two countries, this prevented the further development of price disparities which were so characteristic of countries that maintained their currency at the 1929 gold parity.

The United States devalued the dollar in 1933 and the early part of 1934. Coincidentally with this, the purchasing power of basic commodities in terms of the cost of living increased by 17 per cent from 1932 to 1933, and by an additional 19 per cent from 1933 to 1934; whereas the average increase for both years for the 10 industrial countries was only 3 per cent. Since 1934 this purchasing power has increased only a little in the United States.

⁴¹From 1935 to 1937, industrial production in France increased less than did that in any of the other industrial countries with the exception of Italy.

⁴²In this study, general indexes of commodity prices were compared with wage rates and the cost of living. Price disparities between these general price groups were only a part of the picture, and thus only one way of measuring price disequilibria. In a recent study on price flexibility, M. T. Buchanan used the purchasing power of products of high frequency of price change in terms of those of low frequency as a measure of the disequilibrium in the price structure. There was a close relationship between this index and an index of industrial activity in each of the four countries for which he made the comparisons. (Buchanan, Mark T. Price flexibility and price movements in the United States and other countries. Cornell Univ. Agr. Exp. Sta. Memoir 239. 1941.)

The experience of Czecho-Slovakia in 1934, of Belgium in 1935, and of France, the Netherlands, and Switzerland in 1936-37, was very similar to that of the United States in 1933-34.

Industrial production, however, though it responded quickly to currency depreciation and improved price relationships, also continued to improve considerably during subsequent years. Thus, while the internal price relationships in countries that devalued their currency only late in the period improved quickly and approximated similar price relationships in countries that devalued earlier, the volume of industrial production in the late-depreciating countries was still far below that in the early-depreciating countries. The situation was the same for foreign trade, which is closely related to industrial production.⁴³

EXTERNAL PRICE RELATIONSHIPS

When commodity prices in the various countries were converted to a comparable gold basis, it was apparent that prices in the most-depreciated-currency countries were lower than those in the non-depreciated- and the least-depreciated-currency countries.⁴⁴ A part of this difference may have been caused by the considerable increases in import restrictions (such as tariffs and import quotas) in the "gold-bloc" countries in 1933-34, particularly for the protection of the agriculture of those countries.⁴⁵ However, it seems highly probable that even if the "gold-bloc" countries had not resorted to such restrictions, a considerable difference in commodity prices would still have existed between the most-depreciated- and the non-depreciated- or little-depreciated-currency groups in the industrial countries.

RELATIVE IMPORTANCE OF INTERNAL AND EXTERNAL PRICE RELATIONSHIPS

With currency depreciation, most prices did not adjust to the full extent of the rise in the currency price of gold. Thus it is obvious that general price indexes in the depreciated-currency countries, when converted to a gold basis, would necessarily show a decline relatively to similar indexes for the gold-standard countries. This decline seems to indicate that currency depreciation was a depressing influence on prices expressed in terms of gold. However, there are two significant aspects to this problem which must be distinguished.

First, within a country, the significance of a decline in commodity prices (in terms of gold) caused by devaluation is very different from that of a decline due to deflationary forces. A decline in commodity prices (in terms of gold) due to deflationary forces resulted in an increase in price disparities, a rapid contraction of industrial production, and declining foreign trade. A decline in commodity prices (in terms of gold) caused by devaluation had the reverse effect.⁴⁶ Price disparities were reduced,⁴⁷ in-

⁴³The relationship between production and trade in the various countries is discussed in an earlier section of this memoir (page 18).

⁴⁴See the preceding section, where depreciation and prices are discussed.

⁴⁵Import restrictions were increased considerably in France, the Netherlands, Switzerland, Czecho-Slovakia, and Germany in 1933-34 (League of Nations, *World Economic Survey, 1933-34*, page 145). Many other factors might also have caused differences in prices—for example, differences in the economic structures of the various countries, differences in the comprehensiveness of the general price indexes, and differences in the importance assigned to various commodities in these indexes.

⁴⁶During a depression period, flexible prices decline faster and by larger amounts than do inflexible prices, thus creating price disparities. With currency depreciation, the more flexible prices increase faster and by greater amounts than do the less flexible prices, thus correcting the price disparities. When prices are converted to a gold basis, this would mean that the gold prices of the less-flexibly-priced commodities were reduced the most.

⁴⁷This would be true only in a period of depression, when price disparities caused by the uneven decline of various prices exist. In normal periods, when the price structure in a country is more or less in equilibrium, depreciation might tend to create price disparities in the opposite direction and the inflationary effects might be only temporary.

dustrial production improved, and foreign trade expanded, all of which conditions ultimately tended to strengthen the gold prices.

Secondly, the problem arises whether the lower gold prices in the depreciated-currency countries would be a depressing influence on prices, and thus on business activity, in the non-depreciated-currency countries.

Since the price structures of the various countries are related to one another through foreign commerce, the balances of payments, and the like, prices in the depreciated-currency countries undoubtedly exerted some influence on prices in the non-depreciated-currency countries. But, by a similar argument, it would follow also that the improved economic conditions in the depreciated-currency countries influenced conditions in the non-depreciated-currency countries.

The problem thus becomes one of determining which of these two tendencies was the stronger: the impulse toward rising prices, increased industrial production, and expanding foreign trade, originating in the depreciated-currency countries, or the depressing influence of lower gold prices of commodities in the depreciated-currency countries on prices, business activity, and trade in the non-depreciated-currency countries.

In general, especially after 1933, the higher levels of industrial production were almost invariably found in the industrial countries where prices in terms of gold were the lowest. Conversely, the lower levels of production were usually in the countries where gold prices were the highest. Similarly, the countries with high levels of industrial production and low prices (in terms of gold) had a large volume of foreign trade.

Because of this high interrelationship between production and prices, it is extremely difficult, if not impossible, to isolate completely the effects of the level of production and the level of prices on foreign trade.⁴⁸ However, some indication of the importance of the level of industrial production as a factor in foreign trade is evident from the nature of the changes in imports and exports associated with different levels of industrial production.⁴⁹

During the period 1931 to 1937, imports of raw materials relatively to exports of raw materials were considerably higher in the 4 industrial countries where production was at a high level than in the 5 industrial countries where production was at a low level (table 29). High-production countries consumed more raw materials, and thus they imported more and had less available for export. Low-production countries needed less raw materials, and thus they imported less and had more available for export. In the latter countries, imports of raw materials relatively to exports continued to decline until 1934.

On the other hand, imports of finished manufactures relatively to exports of finished manufactures were lower in the 4 high-production countries than in the 5 low-production countries (table 30). High-production countries could supply more of their domestic needs and have more available for export. In low-production countries, the opposite tendency prevailed.

The difference between high- and low-production countries was smaller in the case of finished manufactures than in the case of raw materials, especially since 1934 (compare tables 29 and 30). This was probably be-

⁴⁸An attempt was made to do this for the industrial countries. The results seemed to indicate that with respect to imports the level of production was the more important factor, whereas with respect to exports both production and prices were equally significant. Because of the small number of countries available and the numerous subdivisions required, the results are not very significant and are omitted here.

⁴⁹The relation between currency depreciation, production, and changes in foreign trade, is discussed in some detail also in an earlier section of this memoir (pages 18 to 26).

TABLE 29. EFFECTS OF THE LEVEL OF INDUSTRIAL PRODUCTION ON IMPORTS RELATIVELY TO EXPORTS OF RAW MATERIALS

(Ratio of the value of imports to the value of exports of raw materials in 9 industrial countries,* classified according to high or low volume of industrial production, 1931 to 1937. 1929 = 100)

Volume of production	1929	1931	1932	1933	1934	1935	1936	1937
	Ratio of value of imports to value of exports of raw materials							
High production.....	100	107	112	114	130	122	128	137
Low production.....	100	91	88	89	85	94	103	110

*The countries included are: Belgium, Czecho-Slovakia, France, Italy, the Netherlands, Sweden, the United Kingdom, the United States, Japan.

TABLE 30. EFFECTS OF THE LEVEL OF INDUSTRIAL PRODUCTION ON IMPORTS RELATIVELY TO EXPORTS OF FINISHED MANUFACTURES

(Ratio of the value of imports to the value of exports of finished manufactures in 9 industrial countries,* classified according to high or low volume of industrial production, 1931 to 1937. 1929 = 100)

Volume of production	1929	1931	1932	1933	1934	1935	1936	1937
	Ratio of value of imports to value of exports of finished manufactures							
High production.....	100	125	100	97	96	94	95	99
Low production.....	100	109	119	116	105	105	103	98

*The countries included are those listed in the footnote to table 29.

cause of increased import restrictions in some of the "gold-bloc" countries since 1933. These restrictions tended to diminish the imports of manufactures in those countries to such an extent that the ratio of imports to exports declined somewhat in spite of the declining exports of finished manufactures.

From the above comparisons, it seems evident that the high-production countries, to the extent that they imported relatively more raw materials than they exported, would tend to exert an upward influence on raw-material prices. This is especially probable since the production of raw materials, especially of agricultural raw materials, is relatively inelastic.

With respect to manufactures, the situation is somewhat different. The high-production countries were also mainly the low-priced countries (in terms of gold), and were thus in a position to compete more effectively both in their home markets and in "third" markets.⁵⁰ To the extent that the exports of manufactures from the high-priced countries, which were mainly the non-depreciated-currency countries, suffered from this competition, production and prices in these latter countries could have been affected adversely. However, in this respect it is of interest to note that the ratio of imports to exports of finished manufactures in the high-production countries was never more than 6 per cent below parity (when 1929 = 100). Thus the high-production countries, though they exported considerably

⁵⁰The price advantage possessed by the high-production countries could be neutralized very effectively in the domestic markets of the high-priced, low-production countries by means of import restrictions. This did happen to some extent.

more manufactures than did the low-production countries, largely offset the possible detrimental effects of this by also importing considerably more manufactures.

Since the high-production countries were generally the depreciated-currency, low-priced countries, and the low-production countries were generally the non-depreciated-currency, high-priced countries, the above generalizations on high-production as compared with low-production countries would hold true also for comparisons between depreciated-currency and non-depreciated-currency countries.

Thus, though the proof is not conclusive, the indications are that currency depreciation did not, in the long run, have a depressing influence on raw-material prices. It is more likely that, by stimulating industrial production and thus increasing the demand, currency depreciation in general tended to improve raw-material prices.

With respect to manufactured articles, the production of which is relatively elastic, currency depreciation may have tended to lower gold prices. This tendency was partly, though probably not completely, offset by increased imports of manufactures by the depreciated-currency countries.

It has been contended by some authors that import and export prices, relatively to wholesale prices of all commodities, were lower in non-depreciated-currency countries than in depreciated-currency countries, and that this was proof of the depressing influence of currency devaluation on prices in gold-standard countries.⁵¹ Imports and exports generally include a larger proportion of flexibly priced commodities than do "all commodities". Consequently, currency depreciation generally affected the currency prices of imports and exports to a somewhat greater extent than it did those of all commodities. Thus, import and export prices relatively to prices of all commodities were, on the average, higher in the depreciated-currency than in the non-depreciated-currency countries.⁵² But this was only one more aspect of the improved internal price relationships in the depreciated-currency countries,⁵³ and, by itself, can hardly be considered as evidence that depreciation exerted a depressing influence on prices in the gold-standard countries. A direct comparison of prices in the depreciated-currency countries with prices in the non-depreciated-currency countries would constitute a sounder basis for such a supposition.⁵⁴

It has been contended further that the gold-standard countries suffered heavy losses of gold as a result of currency depreciation in other countries, especially when the dollar was depreciated in 1933-34. These gold losses necessitated restrictions of credit, and thus had deflationary effects in the gold-standard countries.

Gold losses by the gold-standard industrial countries were not due primarily to the development of unfavorable trade balances. Import restrictions could be made sufficiently effective to prevent such developments. Difficulties with respect to the balance of payments in the gold-standard countries originated largely in capital movements caused by lack

⁵¹For example, in *Recent Movements in International Price Levels and the Doctrine of Purchasing Power Parity*, by Frank D. Graham. (Amer. Statis. Assoc. Journ. 30: 159-166, 1935.)

⁵²The extent to which this occurred apparently depended also to some degree on the relative economic strength of the various countries. The tendency for import and export prices to be high relatively to prices of all commodities in the depreciated-currency countries was more noticeable in the case of the economically weaker agricultural countries than in the case of the economically stronger industrial countries.

⁵³Similar to the more significant improvement in commodity prices, relatively to wage rates and the cost of living, which occurred with currency depreciation.

⁵⁴This is discussed in the section on the effects of currency depreciation on prices (pages 28 to 35).

of confidence in the economic conditions in those countries, on the one hand, and by the greater security and better economic conditions in the depreciated-currency industrial countries, on the other hand.

To the extent that currency depreciation was responsible for better economic conditions, it did, in a sense, cause the gold movements. However, any other policy, if it had succeeded in bringing about a sounder economic situation in some countries, would have tended to attract capital to those countries.

SUMMARY

It is evident that currency devaluation greatly improved the internal price structures in the depreciated-currency countries. These better internal price relationships had important effects on industrial production and foreign trade in those countries.

On the other hand, it is evident that currency devaluation created, or at least accentuated, price disparities between countries to the extent that commodity prices did not adjust to the full extent of the change in the currency prices of gold.

During the period considered, improved internal price relationships and consequent higher levels of industrial production were generally associated with low gold prices, and, conversely, internal price disparities were generally the worst, and industrial production was the lowest, in countries where prices (in terms of gold) were high. Thus it is impossible to determine conclusively which was the more significant with respect to general prosperity: the tendency toward a better price balance and increased industrial activity originating in the depreciated-currency countries, or the depressing influence of lower gold prices in those countries on business activity and prices in the non-depreciated-currency countries.

There is some evidence, however, that in industrial countries the level of business activity, and thus the degree of internal price balance, were of greater significance in the foreign trade of those countries than was the level of prices (in terms of gold). Increased industrial production improved the demand for raw materials, and so currency depreciation could not, in the long run, have had a depressing effect on raw-material prices. It undoubtedly improved the price of raw materials relatively to the price of manufactures, and to that extent improved the situation for the agricultural and raw-material-producing countries. With respect to manufactures, the non-depreciated-currency industrial countries probably did suffer to some extent from competition with the depreciated-currency industrial countries, but this was partly offset by the increases in imports of manufactures by the latter countries.

GENERAL SUMMARY AND CONCLUSIONS

During the early years of the period 1929 to 1937, the effects of currency devaluation on the value of the foreign trade of countries were largely obscured by price movements due to the depression. The gold value of both imports and exports declined more in the depreciated-currency countries than in the non-depreciated-currency countries. This was owing partly to the fact that the countries which suffered the most from the depression were also the first to devalue their currency, and partly to the fact that currency prices in the depreciating countries relatively to prices in the non-

depreciating countries did not adjust to the full extent of the changes in the currency prices of gold.

During the later part of the period, the gold value of both imports and exports increased faster in the depreciated- than in the non-depreciated-currency countries, and by 1937 it reached a higher level in the depreciated-currency countries.

In general, in the depreciated-currency countries there was a tendency for exports to decline somewhat less, and reach the turning point somewhat earlier, than did imports. Since 1934, however, imports improved somewhat faster than did exports. This may have been owing partly to lower levels of prosperity and increasing import restrictions in the non-depreciated-currency countries (especially against so-called "exchange dumping"), and partly to the considerably higher level of prosperity in the depreciated-currency countries, with consequent higher imports especially of raw materials.

TYPE OF COUNTRY

The effects of currency depreciation were more noticeable in the foreign trade of the industrial countries than in that of the predominantly agricultural countries. This may have been owing partly to the fact that agricultural countries are less comparable with one another than are industrial countries, because the variations among agricultural countries are much greater than those among industrial countries. It may have been owing partly also to the fact that the effects of currency devaluation on the value of foreign trade in manufactures were more noticeable than the effects on the value of foreign trade in raw materials and foods. The price variations were larger, and the variations in production were less consistent, in foods and raw materials than in manufactures.

A division of the countries into creditor and debtor countries largely coincides with the division into industrial and agricultural countries. Since the agricultural, debtor countries generally suffered the most from the depression, this may have been one more factor that tended to obscure the effects of depreciation on foreign trade in those countries.

In the industrial countries, the effects of currency devaluation on the foreign trade in manufactures were somewhat different from the effects on the foreign trade in raw materials. Exports of manufactures relatively to imports of manufactures were generally higher in the depreciated- than in the non-depreciated-currency countries. On the other hand, exports of raw materials relatively to imports of raw materials were generally higher in the non-depreciated- than in the depreciated-currency countries.

EXCHANGE CONTROL

Exchange-control policies affected foreign trade considerably, especially with respect to manufactures. In the industrial countries, currency depreciation proved more effective in stimulating exports of manufactures from the exchange-control than from the free-exchange countries, and, conversely, it diminished the imports of manufactures more effectively in the exchange-control countries.

EFFECTS OF DEPRECIATION OVER VARYING LENGTHS OF TIME

When the degree of currency depreciation was measured over one-year periods, the corresponding changes in the value of foreign trade showed

practically no relationship with depreciation. This was owing largely to the statistical difficulties involved in making comparisons of this kind. Countries depreciated at various times of the year, and depreciation in some was quick and in others was drawn out over a long period. Furthermore, the effects of currency depreciation lasted for a considerable length of time, so that the countries which devalued early and then stabilized their currency could not be validly contrasted with the countries which devalued late.

When depreciation and changes in trade were measured over two-year periods, the relationship was considerably improved. However, the objections to comparisons over one-year periods were to some extent applicable also to comparisons over two-year periods.

When depreciation was measured relatively to 1929, the gold value of the foreign trade of the most-depreciated-currency countries was at a higher level by 1937 than was that of the foreign trade of the least-depreciated-currency countries.

Furthermore, the foreign trade of the industrial countries that devalued early began increasing earlier, and reached a considerably higher level by 1937, than did the foreign trade of the industrial countries that devalued late. This seemed to indicate that the effects of depreciation on foreign trade were largely indirect, through increased business activity.

FOREIGN TRADE, PRODUCTION, AND INTERNAL PRICE RELATIONSHIPS

The general level of industrial production in a country was an important factor in determining the level of the foreign trade of that country. Changes in production, measured over periods of varying duration, were reflected in corresponding changes in foreign trade.

In the countries studied, currency depreciation improved internal price relationships very considerably, and the degree of equilibrium in the internal price structure of a country was a highly important factor in determining the volume of industrial production in that country.

The effects of depreciation on some prices were fairly immediate, and the resulting improvement in internal price relationships in depreciated-currency countries had an enduring influence on production. Thus, while most countries had depreciated their currency to a considerable extent by 1937, and the degrees of equilibrium in the internal price structures of a majority of the countries were approximately the same, the differences in the levels of production were still considerable and very much in favor of the countries that devalued early.

Similarly, by 1937 the foreign trade of the countries which devalued early was still ahead of that of the countries which devalued later.

INTERNATIONAL PRICE DISPARITIES

Along with the improvements in internal price relationships, currency depreciation tended to create, or at least to increase, price disparities between countries, particularly between the industrial countries. Prices (expressed in terms of gold) were considerably lower in the depreciated-currency than in the non-depreciated-currency industrial countries. Taken in conjunction with the better cost-price relationships in the depreciated-currency countries, these lower gold prices apparently gave the

latter countries a competitive advantage. This competition might possibly have been detrimental to business activity and prices in the non-depreciated-currency industrial countries.

Thus there seem to have been two opposing tendencies: (1) a tendency toward a more balanced price structure and increasing industrial production originating in the depreciated-currency countries; and (2) the depressing effect of lower prices (expressed in terms of gold) in the depreciated-currency countries on business activity and prices in the non-depreciated-currency countries.⁵⁵ It is impossible to determine whether the lower gold prices in the depreciated-currency countries adversely affected business activity and prices in the non-depreciated-currency countries, and, if they did, to what extent. However, it seems reasonable to expect that, if such a tendency existed, it would be evident in the merchandise trade between the various countries.

From various comparisons of the industrial countries, there were indications that the level of industrial production in a country was of greater importance in determining the volume of its imports than was the price level (in terms of gold). With respect to exports, the evidence was inconclusive.

Furthermore, there was some indication that currency depreciation could not have had a depressing influence on prices of raw materials. With respect to finished manufactures, depreciation may quite possibly have exerted a depressing effect on business activity and prices in the non-depreciated-currency countries, which was not completely offset by the larger imports of manufactures by the depreciated-currency countries.

A consideration of the relative price flexibility of raw materials and of manufactures seems to confirm these conclusions. Since the prices of raw materials are relatively flexible, depreciation affected their prices (in terms of gold) less than it did the less flexible prices of manufactures.

In view of these conditions, it seems justifiable to conclude that the probable adverse effects of currency depreciation on the non-depreciated-currency industrial countries could not have been nearly so great as would be indicated by a consideration of the price disparities between the countries alone. Furthermore, when the pronounced economic recovery in practically all of the depreciated-currency countries is taken into consideration, it seems justifiable to conclude that the effects of currency depreciation were, on balance, favorable.

When the problem is considered from the point of view of the alternatives to currency devaluation, the above conclusion is strengthened still further.

By 1932-33, price disparities had developed to such an extent that they had become almost self-perpetuating.⁵⁶ Recovery could not set in until these price disparities were reduced, either by raising the prices that had fallen the most or by reducing the sticky prices. The latter method was at best a slow process, and the extent to which it became necessary to reduce such prices made it, politically at least, impossible of achievement in most countries. Currency depreciation proved to be an easier method of breaking the stalemate. The upward trend in currency prices generated by

⁵⁵In the analysis of this problem, only industrial countries were considered. The differences between industrial and agricultural countries are so great that the two types of countries are not comparable. In addition, agricultural countries themselves are not very comparable with one another (see pages 4 and 16).

⁵⁶World economic survey, 1932-33. League of Nations, Geneva, Switzerland.

depreciation was most effective on precisely those prices that had previously declined the most.⁵⁷

The general level of prices in itself is of lesser significance. The relationships between the various price categories are of vital importance. Prices in the depreciated-currency countries were more nearly in equilibrium than were prices in the non-depreciated-currency countries. Thus, it seems more nearly correct to assume that the price levels in the non-depreciated-currency countries were too high, rather than that the price levels in the depreciated-currency countries were too low. In other words, it was not so much a case of "undervaluation" of currency in the depreciated-currency countries, but rather one of "overvaluation" of the currency in the non-depreciated-currency countries.

It should be pointed out that these conclusions refer only to the period 1929 to 1937, that is, to the efficacy of currency depreciation during this period in relieving the severity of the depression and in stimulating economic recovery. They would not be applicable to a more normal situation where prices are in approximate equilibrium.

Whether the procedures followed by the various countries were the best or not, and whether the countries depreciated more or less than was necessary or desirable, are further problems not considered in this study. There were, undoubtedly, many errors and undesirable aspects in connection with the policies followed, among them being the lack of cooperation between countries and the uncertainties created by fluctuating exchanges. However, these considerations do not affect the basic principles involved in currency depreciation as such.

Early discussions of currency depreciation were limited to isolated instances of devaluation, or otherwise based largely on reasoning from the general theory of international trade and finance.

Prior to 1929, currency and exchange depreciation had almost invariably occurred in conjunction with wars and the consequent currency and credit inflations. Thus depreciation became largely associated with inflation. The widespread currency depreciation since 1929, however, was of a different nature. It occurred during a period of severe economic recession, and was unique also in that currency depreciation was, for the first time, deliberately resorted to as a means of combating deflation. During this period there has been a vast, although largely unorganized, amount of experimenting with currency depreciation, out of which some broad principles may evolve.

With the growing complexity of modern economic organization, rigidities in the economic structure have become more and more important. The vital importance of balance in the internal price structure of countries has been brought out strikingly by the severe depression subsequent to 1929. The attempts at relieving depression and correcting price disparities, and the role played by currency depreciation, would indicate that the problem of managed currencies may become of even greater importance in the future.

⁵⁷Converted to a gold basis, the sticky prices were reduced the most.