

SWITZERLAND'S POSITION TOWARD
CURRENCY DEVALUATION

By

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P R E F A C E

The nature of this thesis requires the extensive use of statistical material. A part of it was available at the library of Oklahoma A. & M. College; some of it had to be obtained by means of the inter-library loan from the Princeton University and the University of Minnesota. The latest current data about Switzerland originated from a monthly issue published by the Economic Department of the Swiss Government.

As the author of this thesis is an exchange student from Switzerland, he is well acquainted with the economic conditions of that country. Thus, the use of statistical material and literature in German or French languages did not hinder the research work. More difficulties were presented in the redaction of this thesis in the English language.

For various suggestions and helpful assistance, the author feels greatly indebted to Dr. R. Trenton.

Emanuel Dettwiler

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Chapter I

INTRODUCTION

In September, 1949, the British Chancellor of Exchequer, Sir Stafford Cripps, announced in a radio speech the devaluation of the pound sterling. This announcement was received with surprise, as the probability of a devaluation had been denied repeatedly. On the other hand, everybody had become aware of the growing acuteness of the British exchange problem. The British reserves were dwindling constantly. The trading community lost more and more its confidence in the sterling and fled from the pound to gold and dollars. This capital flight made the situation more difficult. Sir Stafford Cripps stated:

"Time is now so short and our reserves have got so low that a change in the dollar rate of exchange is the only way in which we can get our prices down quickly enough. We had hoped that a growth of our productivity and other improvements would have made this unnecessary, but events have moved too fast."¹

This reduction of the official valuation of 30% in terms of gold spread out wavelike over most members of the sterling bloc and other Western European countries. Within a short period the following countries readjusted their exchange rates: Austria, Denmark, Egypt, Finland, Iceland, India, Iraq, Ireland, New Zealand, Norway, Sweden, Union of South Africa and United

¹"The Currency Devaluations," Monthly Letter on Economic Conditions and Government Finance, October, 1949, p. 109.
The National City Bank of New York.

Kingdom with 30.5%, Netherlands 30.2%, France 21.8%, Western Germany 20.8%, Portugal 13%, Belgium-Luxembourg 12.3%, Canada 9.1% and Italy 8%. Other countries, for instance Argentina, proceeded later to a partial readjustment of the rates.²

There is no evidence that the United States objected to these measures taken in Western Europe. The opposite seems rather to be true, since these measures could be considered a necessary post-war readjustment which had to take place sooner or later. The main economic policy of the United States has always been liberalization of trade between all countries and cooperation of different economies. One of the handicaps toward this goal lay, however, in the differences of the level in prices, wages and productivity in the different countries. A readjustment of this level by adapting the exchange rates meant, therefore, a step forward towards liberalization and cooperation, at least within the European area.

In such circumstances where world economy is dominated by events such as this devaluation and the effect of the application of the Marshall Plan, one may wonder what is happening to the Swiss economy. Seen from the outside, it very often appears to obey rules of its own and to remain apart from the great international currents. The question may come up, whether this isolated character of Switzerland is typical, or whether

²International Financial Statistics. International Monetary Fund, (January, 1950), pp. 8-9.

Switzerland is bound up with the economic evolutions of her commercial partners and if so, to what extent.

It is the object of this thesis to draw a picture of the facts which characterize both the special economic conditions of Switzerland and influence of exchange rate adjustments on her economy. An attempt shall be made to answer the question, why Switzerland, in September, 1949, did not follow the general devaluation trend and whether a devaluation of the Swiss franc will be advisable or not in the near future.

Summarizing in short the presentation of the work, Chapter II illustrates the development of the Swiss economy to the present state which conditions its particular position within the European economy. Only those facts which contribute to a better understanding of the following investigation are dealt with in detail. Chapter III deals with the relationship of the price level in Switzerland as compared with the price level abroad, wherein the respective price relationship before the devaluation of the Swiss franc in 1936 is used as a basis for comparison. Chapter IV explains the different factors which are inherent in the foreign economic relations of Switzerland and which would govern to a large extent the expected results of an assumed actual devaluation of the Swiss currency. The final conclusion in Chapter V summarizes and interprets the previous statements made in connection with the question of devaluation.

Chapter II

THE ECONOMY OF SWITZERLAND

1. The Development of the Swiss Economy in the Last Century.

Switzerland has been very fortunate to stay out of war for more than a century, and not being handicapped in this way, the Swiss people have been able, by their diligence and ingenuity, to raise the country to a level of prosperity difficult to realize, since there are neither raw materials nor a seacoast to facilitate trade.

As to raw materials, the only reliable resource is the salt-working in the Rhine valley above Basle and the Rhone valley near Bex. Another resource, though of almost no importance, is the iron ores which are worked in Gonzen and in Fricktal; any other ores are not worthy of mention. The exceedingly small coal mines of former days were set working again in times of scarcity during the two World Wars; a small amount of brown coal was obtained in some parts of the country, and the Valais produced some anthracite. A more productive source was peat-cutting in the upland moors and ancient lake-bottoms. These were, however, mere emergency occupations which cannot be taken into account as permanent factors in the economy of the country.

There is, however, one gift of nature which, in combination with modern techniques, can be fully exploited, namely, water power. Numerous power stations, some of them on the largest scale, transform the energy of mountain ^{river} torrents and

rivers into electricity. The total productive capacity reached after the World War II was 2.4 million units (kw.) The production of electric energy increased from the yearly average of 1930-35 from 5.1 billion to 10 billion kw-hr in 1945-46, a part of it, between 10 and 20 percent, being exported.¹ New power stations have been completed since World War II, others are at the moment under construction, and still others are planned within the next ten years, so that the ever-increasing consumption of energy can be satisfied by an adequate production. In this way the so-called "white coal" is becoming more and more important as a source of wealth to the country.

Another source of wealth which can be called a gift of nature, is the natural beauty of the country. In its small area of 15,944 square miles* it includes a variety of landscape such as cannot be found anywhere else in so small a space. The land changes from the wild glacier country to the southern mildness of the Rhone valley and the Ticino plain, and north of the Alps to the broader, but hilly midland with its fertile fields. The Jura is again a totally different kind of mountain range, partly covered with soft meadows. Over forty lakes contribute to this variety. Thus, Switzerland has made for herself the reputation as a holiday center and health resort not only because of the beauty of the landscape, but also because of the quality of her climate and

¹Statistisches Jahrbuch der Schweiz. Eidg. Statistisches Amt. (1946), pp. 192-193.

*State of Oklahoma: 70,057 square miles.

Figure 1: Map of Switzerland with some cities and the three zones: Jura, Midland, and Alpine Region.

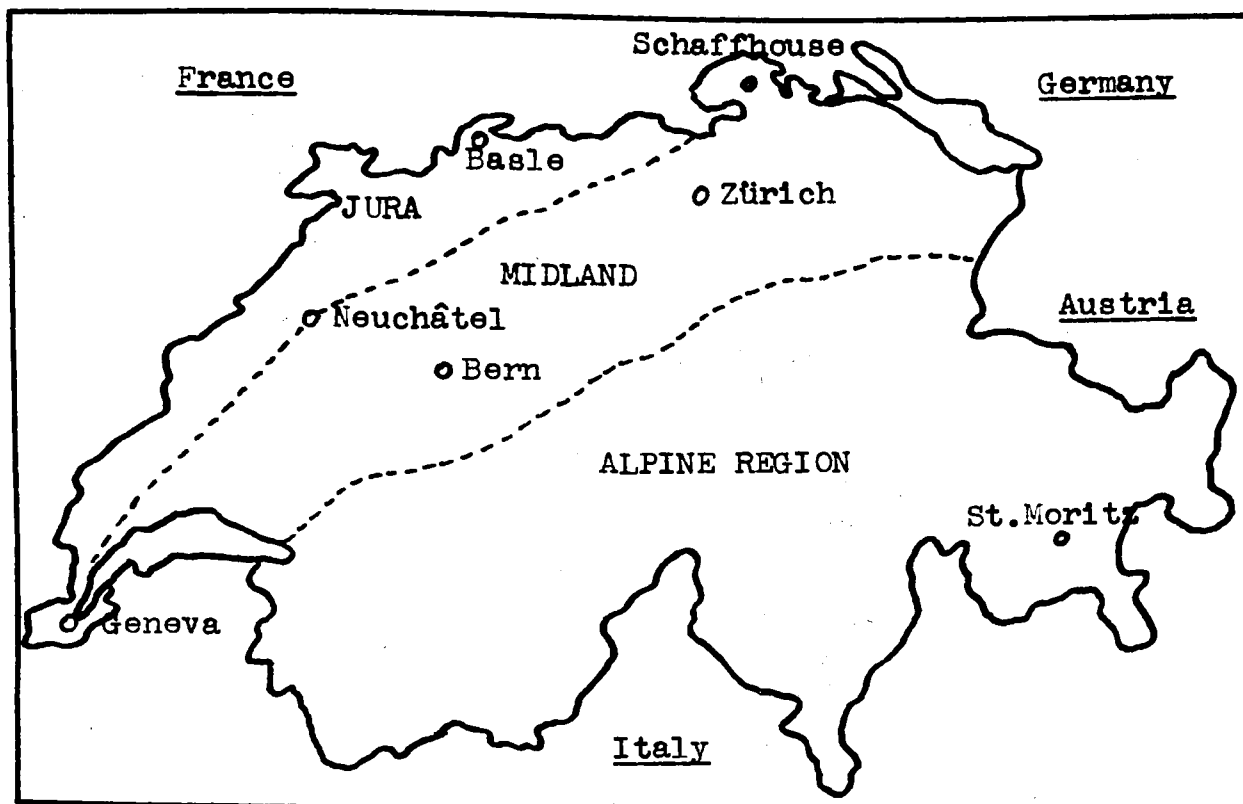
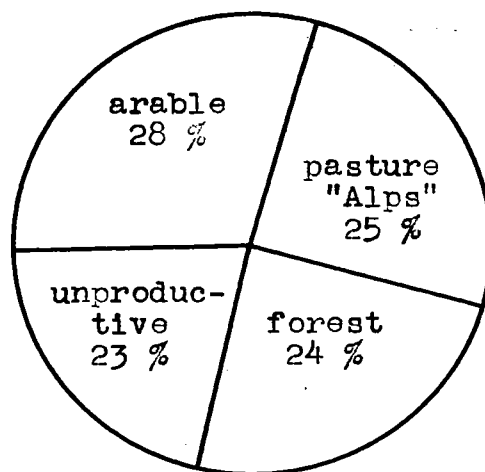


Figure 2: Productivity of the soil, percentages of total surface of Switzerland.



mineral springs.

The very same beauty which brought to Switzerland its reputation constitutes, however, a deterrent from the point of view of agriculture. The high mountains which form the most impressive part of the landscape mean that a considerable part of the land is bare rock, covered with ice and snow, never to be brought under the plough. Of the 15,944 square miles which make up the area of Switzerland, the Alpine region occupies about three-fifths of the country, the Jura one-tenth, and the modest remainder of less than one third constitutes the midland. (See Figure 1.) From the point of view of the productivity of the soil, the total surface can be divided into four types, as shown in Figure 2.³

The unfavorable topographic conditions of the arable land was causing an increasing handicap to the application of modern agricultural technology. The transportation facilities made it possible to import foodstuff more and more cheaply from foreign markets, and the maintenance of a Swiss agriculture appeared to become a burden to the whole economy. Only the two World Wars and the emergency created by the difficulties of importation brought farming into the foreground again. The position which the Swiss agriculture occupies today within the whole economy is partly due to the protective interventions by the Government.

³Statistische Erhebungen und Schätzungen. Schweizerisches Bauernsekretariat. (1948), p. 19.

The fact that the cultivation of the soil could not be pushed so far as to feed and support the ever-increasing population of today, 4.3 million, had been realized in the past centuries. The people were forced either to leave the country or to look for other occupations. Thus, industrialization appeared in the 16th century, though being at that time merely an occasional and auxiliary occupation and source of income in the homes. The textile industry and the watchmaking had their original roots in the homes of rural villages and only later became partly centralized in factories. The rural character of the Swiss industrial settlements is to be attributed partly to this fact that industry began with cottage industries, and, as the mechanization of the factories progressed, they were located where skilled labor was to be found. This tendency was strengthened by the use of water power, which is actually more readily available away from cities; and finally, the lack of raw materials liberated industry from the necessity of concentration on the spot where they are found.

For a long time it was the textile industry which employed the largest number of workers. In the 20th century, however, the manufacture of machinery took the lead. Originally a mere subsidiary to the textile industry for the manufacture of the necessary machines and tools, the machine industry has gradually taken an independent status and opened up new fields. Watchmaking is allied closely to the machine industries, but requires much more skilled labor. It has its origin in Geneva

and Neuchatel and spreads out gradually all over the Jura reaching Schaffhouse. An offspring of this industry is the origin of other works of precision, including the jewelry industry.

A very striking feature of the national economy is the growth of the chemical industry which has mainly taken place in the present century. Its importance is to be judged less from its employment figures than from the prominent place it takes in Swiss exports.

The dairy industry, the clothing trade, the shoe industry, and transportation and communication have places of no less importance within the Swiss economy. Thus, the original population of farmers and artisans has changed to a population with a large diversity of occupations, the country being changed to a highly industrialized one, in which the farming activity represents no more than 20%.

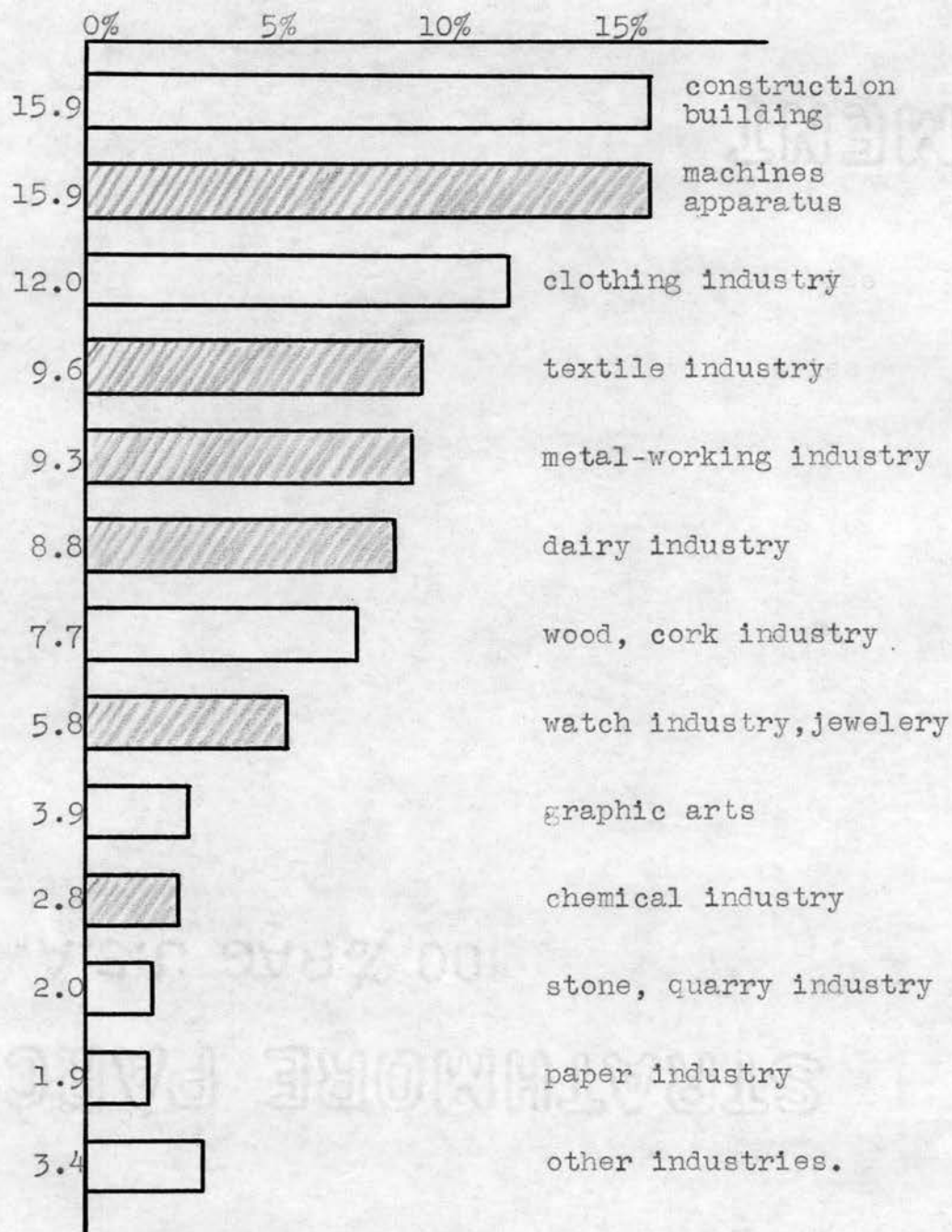
2. The Main Industries of Today.

Of the ^{5,660,000} 4.26 million people of Switzerland in 1941, ^{48.7%} 48.7% were considered the labor force. The following Table 1 subdivides this working population first into different industries, while Figure 3 pays special attention to the manufacturing industries and subdivides them further into their components.

In an examination of the proportional importance of the industries within the national economy, three different points of view are considered adequate:

1. Proportional employment figures, as shown in Table 1 and Figure 3;

Figure 3: The importance of the manufacturing industries as a percentage of employment, 1941.



Source: Statistisches Jahrbuch der Schweiz, Eidg. Statistisches Amt, (1946).

Explanation: The shaded bars present the main export industries.

2. Proportional contribution to the national product;
3. Proportional share of the total exports, as in Table 2.

Table 1.
The Industries of Switzerland Subdivided Proportionally
to Employment Figures, Census, 1941.

Manufacturing industries	43.5%
Agriculture and forestry	20.8%
Commerce, Banking and Insurance	10.0%
Public and private services	7.4%
Hotels and restaurants	4.3%
Transportation and Communication	3.8%
Others	10.2%

Source: Statistisches Jahrbuch der Schweiz, Eidg.
Statistisches Amt. (1946), p. 56.

3. The Export Industries.

It would be beyond the scope and the purpose of this work to pay equal attention to each one of these industries. For our purpose, we must concentrate on the export industries. Figure 3 indicates them by the shaded bars; their relative importance is illustrated in the following Table 2.

The metal-working and machine industries stand at the head of all Swiss industries for the number of workers employed and also for their share of the total exports. They have progressed, as mentioned, from the manufacture of spinning machines in the 19th century to that of water-wheels and turbines, and finally to the construction of steam engines, locomotives, and embroidery machines. In more recent years, Switzerland has

Table 2.
Principal Export Products in Percent of the Total Export Value
in the Yearly Average 1937-38 and 1949.

	1937-38	1949
Products of metal-working and machine industry	29%	31%
Watches, parts of watches	17%	20%
Textiles	16%	12%
Chemical products	17%	15%
Products of food industry (dairy)	6%	2%*
Other products	15%	20%

*Cheese only

Source: For 1937-38, computed from Statistisches Jahrbuch der Schweiz, Eidg. Statistisches Amt., (1946), pp. 342-343. For 1949, computed from Kommission für Konjunkturbeobachtung, Mitteilung Nr. 86., p. 33.

played a leading part in the electrification of railways. Agricultural machines are exported to countries with similar topographic conditions, and for some time, this country was the second largest exporter of aluminum.

The textile industry, being dependent on the change of fashion, has seen many vicissitudes. The fame of the silk ribbon of Basle, like that of the embroideries of Eastern Switzerland, has declined, but new possibilities are being opened up with the manufacture of artificial fibres. The greatest decline in employment figures from the beginning of the present century is shown in embroidery, silk and cotton, while other branches, such as wool, actually show an increase. The textile industry is very sensitive to price changes in

foreign markets.

The watch industry is the one that depends most on exports. It is said that between 90 and 95% of the whole production is being exported.* The United States became the most important customer of Swiss watches and parts of watches. Many watches in the United States are assembled by an American firm, while the most important part of the watch, its movement, is of Swiss origin. It is rather to the countries less developed industrially than Switzerland can export complete watches.

The dyeing industry has its headquarters and its international research center at Basle. Together with its branches abroad, it supplies an important proportion of the world demand for dyes in the textile, leather, paper, and varnish branches. The pharmaceutical industry has grown up in connection with the Basle dye-works and there is another center in Berne. A new field of development has been opened up for the chemical industry in connection with the increase of farming, namely products to combat insect and plant disease. The inorganic chemical industries are important for their production of salts and acids, and no less important is the electro-chemical industry, which manufactures carbide, sodium and iron alloys.

The food industry has become known abroad for its cheese, chocolate, condensed milk and preserved foods. These exports are, however, not comparable with the food imports, which are far greater in value and amount, since Swiss agriculture is

*No statistical evidence.

not able to provide enough food for the dense population of the country. In peace time almost half of the necessary foodstuff, expressed in calories, has to be imported.

The export industries cannot completely finance the demand for import. The excess of imports over exports, which is a normal feature of Swiss foreign trade, is covered by the so-called invisible payments from abroad. The main part of these invisible payments comes probably from the proceeds of capital invested abroad. Swiss capital, as well as capital managed by Swiss concerns, is invested in large sums in foreign enterprises and participations as well as in short term investments. Another important part is brought in by tourists who spend their money not only on railway tickets and hotel bills, but to a certain extent on Swiss products such as watches, jewelry, etc., the value of which does not appear under export figures. A smaller share of the invisible payments is received by various other services rendered by Switzerland to foreign countries, for instance by insurance, by bank commissions, and by the proceeds of transit traffic on Swiss railways. Especially the insurance business seems to be an economically important and lucrative factor in Swiss world connections - a fact which is mainly due to the stability of the Swiss currency and to the Swiss reliability. Unfortunately, there is no statistical evidence determining the proportional importance of these different sources.

4. The Imports of Switzerland.

The lack of raw material and foodstuffs in Switzerland has

always had a direct influence on the structure of this country's foreign trade. The export of manufactured goods, or in other words, the product of the Swiss labor, is designed to make the import of those essential goods possible. The following Table 3 subdivides the total imports by commodity types.

Table 3.
Principal Components of Imports in Percent of the Total Import Values in the Yearly Average 1937-38 and in 1949.

	1937-38	1949
Manufactured goods	36%	34%
Raw materials	36%	35%
Foodstuffs	28%	31%

Source: See Table 2.

Within these import items, the proportion of manufactured goods is surprisingly high. This can be explained by the fact that even a highly industrialized country cannot be self-sufficient. In the case of Switzerland, the traditionally liberal trade policy leaves domestic industries at free competition with industries abroad.

5. The International Balance of Payments of Switzerland

Concerning the problem of the balance of payments, the most important question cannot be answered: How does Switzerland balance its foreign trade? This enigma seems strange for a country in which foreign trade has such importance. In reality, the Swiss economists made several attempts to approach

this problem without success, since the country has maintained as much free trade as possible, has always had free exchange of foreign currencies, has had no control of capital movements and above all, has always praised the banking secret. To make successful investigation in this direction would also mean considerable reinforcement of the statistical staff, a thing which is not likely to be approved by the Swiss people, because they have the tendency to decrease the number of such "unproductive activities of the Government."

The Balance of Payments Yearbook includes Switzerland and attempts to enumerate some data about the Swiss balance of payments, but makes the following statement:

"Neither official nor private estimates of the balance of payments of Switzerland are available and information concerning most of the country's international transaction is lacking. This dearth of information makes it impossible to construct a statement covering the complex network of operations through which her international accounts are balanced."³

The most recent comments of Swiss economists in this respect have a rather pessimistic tone; the enumeration of the Swiss balance of payments in the mentioned yearbook is viewed critically as being too concise and hence, of doubtful value.*

Figure 4. shows how the imports have been continually above the exports for decades, not considering the last war

³Balance of Payments Yearbook. International Monetary Fund, 1939-1946-1947, p. 319.

*Statement in a letter from Prof. Dr. E. Böhler, Institut für Wirtschaftsforschung, E.T.H., Zürich. March 15, 1950.

Figure 4: Total value of Swiss imports and exports, 1919-49, yearly totals in millions of Swiss francs.

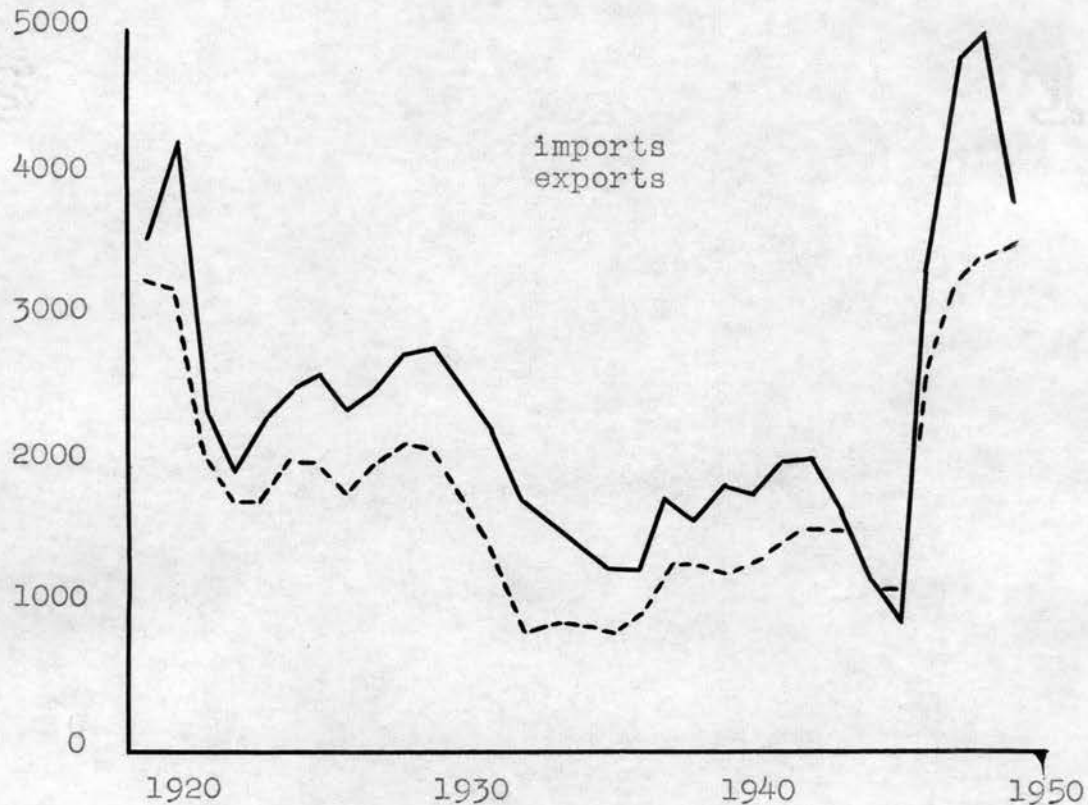
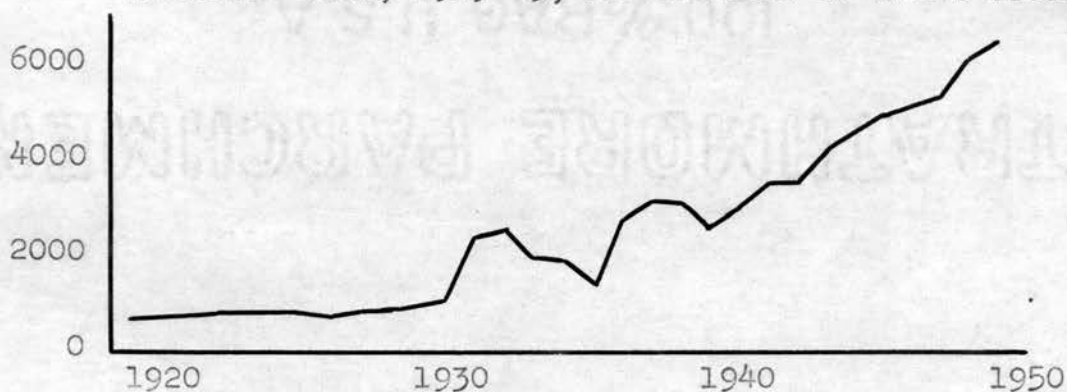


Figure 5: Reserves in gold and foreign assets at the Swiss National Bank, 1919-49, in millions of Swiss francs.



Sources for both figures: Statistisches Jahrbuch der Schweiz, Edg. Statistisches Amt, (1946), and for the years 1946-49, Kommission für Konjunkturbeobachtung, Mitteilung Nr 86.

period. There is no indication that the country is running out of reserves, such as gold and foreign assets as shown in Figure 5. It seems to be normal that, in the long run, the imports exceed the exports with 25-30%, or exactly with 28%, for the period 1919-1949, the exports taken as 100%. How much the capital movements contribute, either negatively or positively, to the balance of payments cannot be answered.

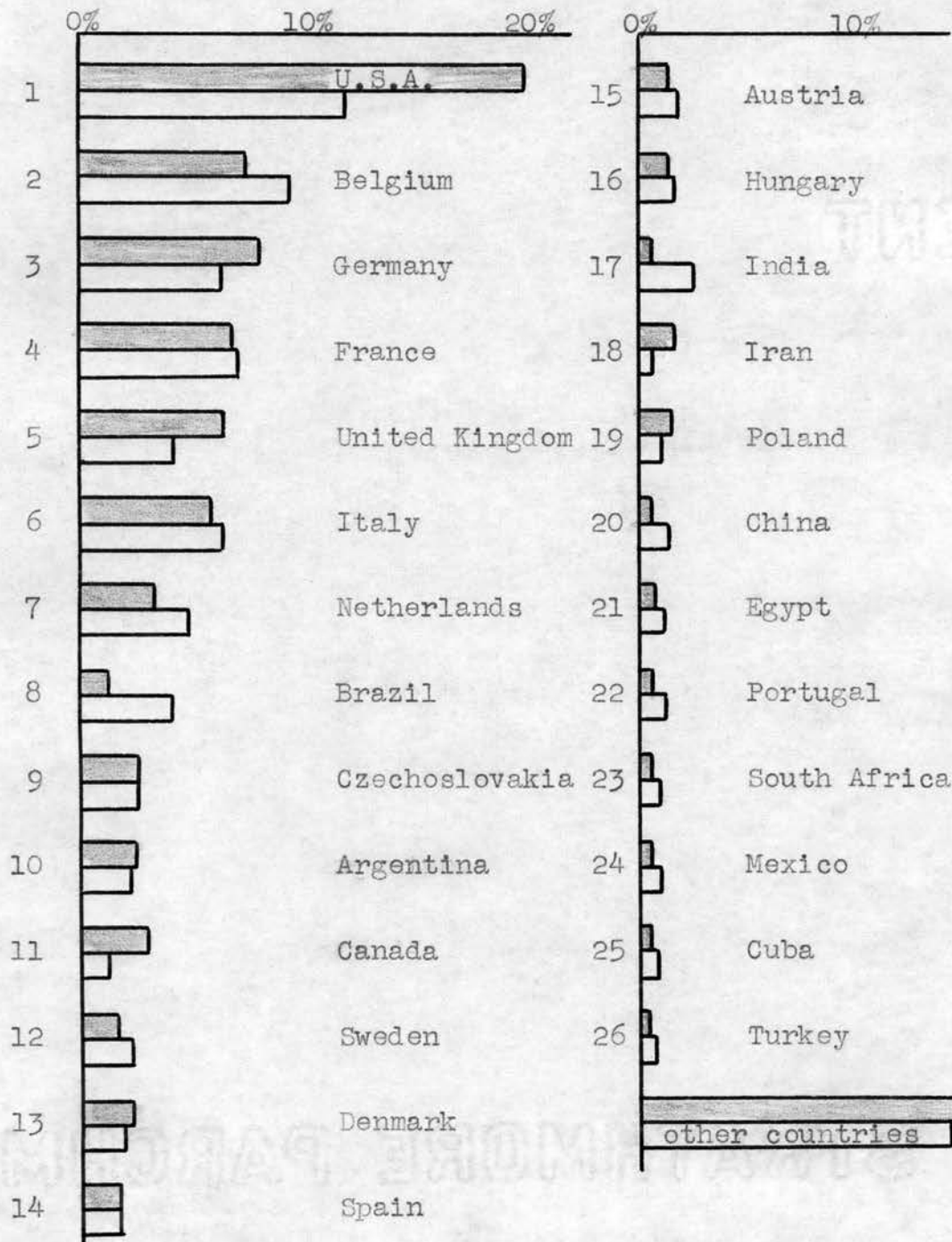
There was certainly an influx of capital, probably a "Hot money flow" into the country in 1946-47. This is of temporary importance; in the long run, there is no visible evidence of whether Swiss capital goods abroad are being built up further by foreign trade or of whether these capital goods are gradually decreasing in helping to make up a part of the balance of payments.

6. Switzerland's Most Important Trading Countries.

It would be beyond the scope of this work to go into details and to enumerate the origins of each import product to Switzerland and the destinations of each Swiss export product. This description of Swiss foreign trade is limited to 26 foreign countries in the order of their importance. Figure 6. gives a picture of the relative share in percentage which each of these countries has of the total Swiss exports and imports.

The first place of the United States is probably only of a temporary nature and will be challenged sooner or later by Germany. This country had the first place among all countries before World War II, as presented in the following Table 4.

Figure 6: Switzerland's trading countries in the order of their importance to Swiss foreign trade, 1949.



Source: Computed from, Kommission für Konjunkturbeobachtung, Mitteilung Nr. 83, 84, 85, 86.

Explanation: Swiss imports, Swiss exports as a percentage of total Swiss imports and exports.

Table 4.
Importance of the United States and Germany as Trading Countries
to Switzerland, shown in percent of total Swiss trade.

	Imports		Exports	
	from U.S.A.	from Germany	to U.S.A.	to Germany
1938	7.8%	25.6%	6.8%	13.2%
1948	19.1%	6.2%	13.2%	1.9%
1949	20.2%	8.8%	12.4%	8.8%

Source: Computed from Kommission für Konjunkturbeobachtung, Mitteilung Nr. 83, 84, 85, 86.

The development of trade with postwar Germany indicates the Swiss exports to this country took a continually increasing proportion within the total Swiss exports and reached in the last quarter of 1949 the same share as the United States with 13.8%.

Table 5.
Development of Swiss trade with Germany, per quarter for 1948-49,
as a percentage of the total Swiss trade.

	Imports from Germany	Exports to Germany
1948: I. Quarter	4.5%	0.8%
II. "	5.7%	2.4%
III. "	7.4%	1.9%
IV. "	7.3%	2.6%
1949: I. "	7.7%	4.7%
II. "	9.0%	8.1%
III. "	9.5%	8.8%
IV. "	9.0%	13.9%

Source: Ibid.

In the geographical distribution of the Swiss foreign trade between Europe and overseas, the share to the countries overseas increased considerably compared with prewar figures. There is, however, a newly declining trend, although at the moment it is not of importance.

Table 6.
Geographical distribution of Swiss trade as
Between Europe and overseas countries.

	Swiss imports from		Swiss exports to	
	Overseas	Europe	Overseas	Europe
1938	19.0%	81.0%	28.2%	71.8%
1948	45.0%	55.0%	40.2%	59.8%
1949	43.2%	56.8%	38.8%	61.2%

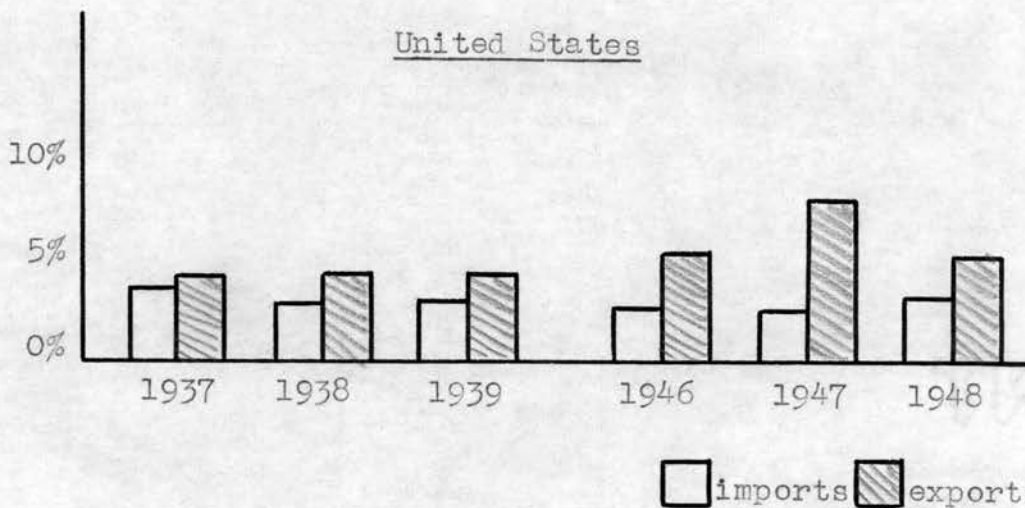
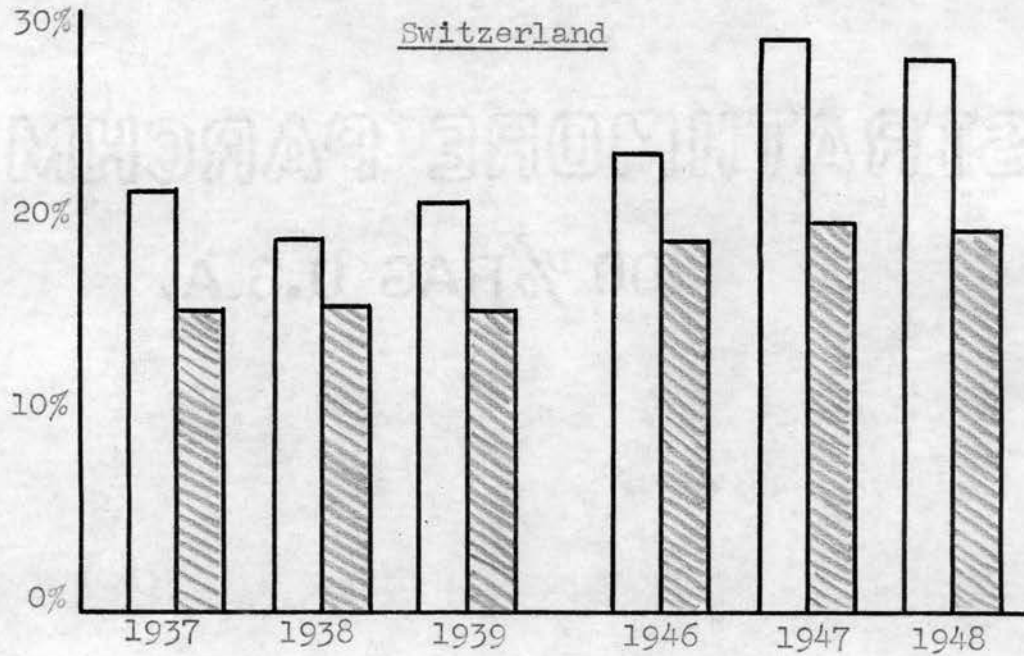
Source: Computed from, Loc. cit.

A further downward movement of Swiss trade with overseas countries can be expected as a result of the increasing productivity of the European countries and also as a result of the recent devaluation in Europe.

7. The Importance of Foreign Trade for Switzerland.

From the several preceding illustrations of the particular circumstances faced by the Swiss economy, one can easily understand why this country is forced to participate intensively in foreign trade. The reasons for the dependence of the Swiss economy on trade from abroad are summarized as follows: the small size of the country, the dense population with high income per capita, the high industrialization and the lack of raw materials.

Figure 7: Exports and imports as percentages of the national income, current prices for each year.



Source: International Financial Statistics, International Monetary Fund, (Feb. 1950).

In the question of how the importance of foreign trade for a country can be measured best, two ratios are most widely used for this purpose: the values of imports and exports as a percentage of the national income and the values of imports and exports per capita. The first ratio is used in Figure 7. in a comparison between the United States and Switzerland. The high percentage of Swiss foreign trade is characteristic of many small European countries, such as Belgium, Norway, Denmark, etc. The second measure is used in the following Table 7. representing a few important trading nations.

Table 7.
Exports and Imports of Major Trading Nations
on a per capita Basis in 1938.

	Per Capita Values in \$	
	Exports	Imports
1. New Zealand	140	136
2. Denmark	88	93
3. Belgium/Luxembourg	83	89
4. Switzerland	72	86
5. Sweden	75	83
6. Netherlands	65	89
7. United Kingdom	55	95
8. France	21	32
9. United States	24	15

Source: Compiled from The Network of World Trade, League of Nations, 1942.

Both illustrations prove the importance of foreign trade for Switzerland; it can be said that foreign trade represents the key for the well-being of the country from the point of view of insuring the real income of the nation as well as from the point of view of employment and general economic activities.

8. The Devaluation of the Swiss Franc in September, 1936.

Switzerland was one of the last countries which during the great depression of the thirties proceeded to a devaluation of its currency. This country's economy suffered relatively less during this period; however, its depression did not come to an end after the general recovery abroad; it kept on in the following years. This particular behavior of the Swiss economy could be explained only by the general disparity of costs and prices in relation to the rest of the world which resulted from the currency devaluation of the Sterling bloc and the Dollar area. Many Swiss export products could no longer compete efficiently on the foreign market; only Swiss specialties could keep their position and even increase it with the general recovery abroad. In the expectation of a coming devaluation, Swiss capital fled from the country, and interest rates increased and produced a tight situation on the banking system. The devaluation in 1936 was not considered to be the cause, but the pre-requisite for a recovery of the Swiss economy which kept on as long as there was a boom abroad.

Chapter III

Price and Cost Relationship of Switzerland with Foreign Trading Countries.

The following investigation, as well as the one in Chapter IV, are based upon theories which are generally accepted. Yet, their practical application presents heavy difficulties for the following reasons: first, the theories here applied make use of complex factors. It is not possible in practice to single out accurately any one influence. A multitude of restrictions by governments and other agencies, as well as the control and planning of economic activities, greatly alter the results we might expect from the free play of economic interaction. Second, the available statistical data are not always comparable between countries and represent only an approximation to the problem, not an exact answer.

For the purpose of simplification, the theoretical outline precedes the statistical evidence of each chapter.

1. Price and Cost Equilibrium.

In a discussion about the conditions of international monetary equilibrium, Nurkse states:

"...there should be some more or less generally accepted notion as to what constitutes 'equilibrium' or 'disequilibrium' in regard to international exchange rates.

"...Today it is realized that the purchasing-power-parity theory cannot provide a definition of the equilibrium rate of exchange; that it can provide only a pseudo-definition in terms which themselves require definition.

"...The only satisfactory way of defining the equilibrium rate of exchange is to define it as that rate which, over a certain period of time, keeps the balance of payments in equilibrium."¹

Nurkse goes on to explain the meaning of the period considered and the other component elements of this definition. It is, however, equally clear that the concept of the purchasing-power-parity holds a significant spot in the practical determination of a situation of disequilibrium. Whenever a balance of payments fails to adjust to the equilibrium position, the possibility of improvement of the situation by means of changing the exchange rate can be determined on the basis of any change of the purchasing power which may have occurred since the last existing equilibrium situation. If no significant change of purchasing power has occurred, the equilibrium cannot be restored through changing the exchange rate. The cause of the disequilibrium must be found and either eliminated or otherwise counteracted. But, if disequilibrium in the balance of payments is accompanied by changes in imports and exports in opposite directions on the basis of new international price relationship, purchasing power comparisons can be made to good advantage and will form the base for decision on the establishment of a new equilibrium rate of exchange.

The investigations concerning our problem are based on

¹Radgar Nurkse. "Conditions of International Monetary Equilibrium." Readings in the Theory of International Trade. pp. 6-7.

this criterion. We shall investigate the question of whether such a price readjustment is necessary in order to overcome a possible price disequilibrium or price disparity* of Switzerland's economy in relation to the foreign market. A consideration will be given to prices on the international level as well as on the internal level.

a. The price equilibrium on the international level.

The effect of a country's price change on the foreign trade is not the same in relation to countries producing competitive goods or in relation to countries producing complementary goods. Highly competitive goods originating from several countries are likely to have the same prices on the international market. Thus, countries with a great similarity in their structure of production are more linked together in their price relationship than are other countries having a rather different structure of production.

Switzerland is privileged in approaching to a small extent a monopoly position with its watch-making industry and other industries of precision work and specialties, but with the important limitation, that the individual firms are highly competitive with each other. Others, the textile industry especially and the machine industry to a certain extent, meet heavier competition abroad. In commodities which are mass-produced abroad, especially in the United States, the Swiss

*Price disequilibrium and price disparity are used here as synonymous.

industries could not compete.

From the point of view of trading countries, there is no doubt that the countries whose structure of production has most similarity to Switzerland's structure offer most competition to the Swiss industries on both the home market and the foreign market. An investigation of Switzerland's price relationship with these countries is of much higher value than an investigation of the relationship with any other country of which the structure of production is different. The countries having the most similar structure of production are at the same time the most important trading partners of Switzerland, namely the United States, the United Kingdom, Germany before the war, and Belgium to a certain extent.

b. The internal price equilibrium.

Not all goods representing the price level of a country enter the foreign market. Since a larger part is traded in the domestic market, it seems inadvisable to compare the price level of the whole economy with that of the foreign market. There is, however, a close relation between the prices of export goods and the prices of domestic goods because of the comparable level of wages and other costs of factors of production in all industries. The prices of internationally traded goods and those of domestic goods remain at a parallel distance as long as there is no disturbance from abroad and as long as the productivity of the domestic and export industries progresses at a similar rate. Thus by means of the internationally traded

goods, the prices of domestic goods are indirectly connected with each other, especially among countries with similar structure of production.

The internal price relationship between internationally traded goods and domestic goods can heavily be disturbed by a price change from abroad. Such a feature is especially important in a country like Switzerland, which depends to a large extent on foreign trade. Assume a price drop takes place on the foreign market; import prices drop first, and, in the case of Switzerland, the prices of raw materials. If, as a result, the prices of manufactured goods would decrease at the same rate, which means, in the case of Switzerland, a drop in the export prices, a new equilibrium in the price relationship with abroad would be established at a lower level and the balance of payments is hardly disturbed.

However, the very important factor of production, labor, is also the least flexible price type. The wages will hardly decrease, and the manufactured goods become cheaper only to the extent of the cheaper raw materials used for its production. There is an increasing gap in the trend of import prices and wages as shown in Figure 11 before the Swiss devaluation in September, 1936. The Swiss export of competitive goods decreased considerably, and a partial unemployment and a general depression might have followed if not stopped.

c. Fiscal measures which restore the price equilibrium.

Before a country undertakes any measures to restore a

price equilibrium, it should be well aware of the difference between a temporary price drop abroad which is followed sooner or later by an inversed fluctuation, and a permanent price change which has resulted either from a devaluation in several foreign countries or from a general higher productivity abroad.

In the first case, any fiscal measures of permanent character would be precipitate. In the short run, there are other measures in both places, at home to overcome the situation of a partial unemployment, and in foreign economic relations to make up the difference in the balance of payments.

In the case of a permanent price change abroad, the country is forced to readjust its own price level. Such a readjustment can be obtained by means of four possibilities, namely deflationary policy, currency devaluation, measures to increase the productivity, and selective import restrictions.

A deflationary policy can hardly be realized in its positive sense, since any downward pressure upon the price level of a country hurts the economic activities seriously. The deflationary policy can be realized practically only in its negative sense in checking any further increase of prices and wages.

The currency devaluation is the simplest and quickest way to adjust a price level. Its effect is, however, limited by a number of factors explained later.

To increase the productivity within a country is a measure which takes time, but is, nevertheless, as important as any other measures. A special paragraph deals with the problem

of the productivity.

It should be emphasized here that all four of these mentioned possibilities can be applied at the same time. A devaluation, for instance, results in many cases in an inflationary tendency of the internal prices. A policy to check such an inflation would help to make the previous devaluation more effective.

d. The productivity.

The term productivity is generally meant the output of physical goods per man hour of labor. The use of such an exact term would render our investigations too involved. For this reason productivity is not applied with practical figures but is mentioned as an important factor to be taken into consideration.

A practical application in using concrete figures seems hardly possible. In any comparison of the price trends in different countries, the period of time chosen in consideration is short enough so that the mistakes arising from the difference in the progressing productivity is small. In other words, we assume that the productivity over a short period of time advances at a very similar rate; its practical consideration can, therefore, be neglected.

e. Measurement of a disequilibrium in the price level between countries.

With the above made assumption of equal productivity rate, there is a price equilibrium as long as the price relationship

between countries doesn't change. This does not mean that prices have to be the same everywhere according to the concept of price parity. Due to tariffs, transportation cost, the prices will remain at a constant distance; the price relationship remains untouched as long as this distance remains constant over a period of time. The transportation costs are especially important in the case of Switzerland which has no free access to a seaport. Under condition where tariffs and transportation costs remain unchanged, any shift of the prices will result in either a growth or a diminution of this distance. Similarly, the internal price relationship may show either a diverting or a converging trend of prices. It is this price disparity which gives a measurable indication, how much the disequilibrium has grown.

The most important question in this connection is, however, at what point of time was the price relationship in equilibrium, or in other words, what was the normal distance of the prices in consideration. As the term "price equilibrium" is rather an ideal case which never can be reached, we have to refer to such periods of years which appear to approximate best normal conditions of price relationship and foreign trade. For our purpose and for reasons explained later, the year 1929 and the year 1937 are points of time representing the only two periods which can be referred to in measuring price changes in the case discussed here.

2. The Available Measures of a Country's Price Level.

In the foregoing illustration about the cost and price

equilibrium, the term "price level" has been used repeatedly without a precise, concrete determination of this term. Among the statistical data available from a country, there are several measures representing more or less accurately the general price level of a country. These data are wholesale price, retail price or cost of living, wages, import and export prices. Since these figures will be applied for the purpose of comparison, their respective index numbers can be used freely. A closer consideration in the light of their validity for our special purpose shall be given to each one of these measures.

a. Wholesale price index.²

This index represents in many respects the key for all other subsequent price types; its main components are foodstuff and raw material. For the purpose of comparison with other countries, the validity of the Swiss wholesale price index is, however, questionable. First, 44% of the index weight is imported goods; any price change abroad will reflect automatically a change in the wholesale price at home. Second, 39% of the total weight of the index is agricultural products, partly imported, but raised by an extremely efficient protection policy to a much higher price level which is independent and disconnected from the actual price relationship. Third, a comparison of the wholesale price indices of different

²For closer description, see International Financial Statistics, International Monetary Fund, January, 1950, pp. 185-186.

countries involves some discrepancies, because the components of these different indices are different or differently weighted. If, nevertheless, a comparison is made in Figure 8, it is to be emphasized that its validity as a measure of price disparity is limited.

b. Index of cost of living.

This index is representative of the prices of consumer goods. Although some import goods are included, it is a better indicator for the general price level of the country, and gives a more adequate picture in any comparison with other countries. The index of cost of living contains a much smaller part of imported goods than the index of wholesale prices. A change of the internal price level in relation to the price level abroad will reflect a disparity between these two indices. A more adequate illustration of such a disparity is obtained, if one subdivides the wholesale price index into two components, the price index of imported goods and the price index of domestic goods. The disparity between the index of imported goods and the cost of living is an approximate measure of the internal price disequilibrium.

c. Wages.

A comparison of wages in different countries appears to be another adequate measure of price and cost disequilibrium. In comparison with other factors of production, the wages are subject to inflationary tendencies which take usually an independent course in each country; they represent at the same

time a very important factor cost within any production. Cost fluctuation of capital seem to follow a similar pattern in countries which have reached a comparable stage of industrial development. In addition, the larger part of the raw materials used in the Swiss industries is imported and, therefore, priced in accordance with the price level abroad. In any comparison between countries, the wages represent that factor of production which depends the least on foreign influences. As the wages are inflexible in the sense that they increase easily, but decrease with difficulty, it is the difference in the wage increase which is compared between countries.

However, some limitation to the perfect validity of the wage indices as a measure of price and cost disequilibrium cannot be neglected. The components of the wage indices in different countries are different. For instance, this index may increase in the United States as a result of strikes in the mining industries; this increase affects the wholesale price index positively and only to a small extent the prices of manufactured goods. Thus, in the comparison of the wage indices between the United States and Switzerland, a disparity occurs which does not necessarily mean a change of the price relationship between the two countries.

Here is also the place where the difference in the progressing productivity comes in. As formerly explained, an increase of the wage level remains without any effect on the prices of manufactured goods, if the productivity increases at the same time with the same rate.

d. Export and import price indices.

The use of the import price index has been explained in connection with the index of cost of living.

The export price index has less validity in measuring a price disparity. Before the devaluation of the Swiss currency in 1936, some of the Swiss export products had been subsidized in order to overcome the disadvantage in the foreign competition. Thus, the export prices appear below their real price level which resists in adjusting itself to a lower price level abroad. The opposite may be the case in a situation in which the export prices adjust themselves to a higher level on the foreign market and thus appear above the real price level representing the country.

e. The currency unit to be used in price comparison.

Due to currency devaluations, the comparison of any price trend over a longer period of time and in different countries brings up a difficult problem: which is the most adequate currency unit to be used? The February publication of the International Financial Statistics³ deals with the same question for a similar purpose. As a general rule in the following and further presentations, any price trend is referred to the currency which remained most stable during the period under consideration.

³International Financial Statistics. International Monetary Fund, February, 1950, p. 3.

3. The Practical Application.

Based on the preceding elaborations, we can now proceed to the comparison of real price trends which were dominant in the two periods 1929-1939 and 1937-1949. These two periods are characteristic for important differences which contribute in turn to the wanted illustrations.

a. The price equilibrium on the international level.

For reasons already explained, comparisons are made only with countries of similar structure of production, the United States and the United Kingdom. For Germany, no adequate recent figures are available, and if so, any comparison would be questionable. As the two countries, United States and United Kingdom, participate in a large share of the world trade, the rough assumption can be made, that their prices lead also for countries other than Switzerland and thus, represent to a certain extent the dominant price pattern for all important trading countries.

For the prewar period, the year 1929 has been chosen as the basic period of time, since this is the last year before the appearance of the great depression. For the other period, the years 1937 or 1938 have equal merit, they are between two economic unstable periods. For practical convenience, the year 1937 is used, because the most important source for data, the International Monetary Fund, bases most of its statistics upon this year.

An important explanation is necessary with regard to the

monetary unit used during the period 1929-1939. Any relative comparison of price trends based on Dollars, Sterling and Swiss Franc would yield a real picture, if the exchange rates within these currencies would remain unchanged. The mentioned currencies underwent heavy changes, however, in relation to each other, which cannot be neglected. The following table illustrates the procedure of correcting the changes in exchange rates based upon the current value of the currencies as a percentage of their gold parity in 1929.

Table 8.
Example of a Correction of the Wage Index for the Use of Comparison with Switzerland's wage index.

Year	Wage Index	Gold Parity		Correction Factor	Comparable Wage Index
	U.S.A.	Swiss Franc	Dollar		
	A	B	C	$B/C = D$	A/D
1929	100	99.9	100.0	0.995	100
1930	93	100.5	100.0	1.005	93
1931	83	100.6	100.0	1.006	83
1932	68	100.6	100.0	1.006	68
1933	66	100.2	80.7	1.241	53
1934	72	100.0	59.6	1.680	43
1935	78	100.0	59.4	1.684	46
1936	83	92.6	59.2	1.564	53
1937	91	70.2	59.1	1.188	77
1938	83	70.0	59.1	1.184	70
1939	90	69.0	59.1	1.167	77

Source: Data A, B, and C from Statistical Yearbook, 1939-40, League of Nations.

The same procedure is undertaken for all other indices used

for comparison of both, the United States and the United Kingdom, whereby the British indexes are, of course, corrected by the gold parity value of the Sterling. The disparity of the three curves in each figure for the period 1929-1939 does not disappear completely after the Swiss devaluation in 1936, partly because the Swiss currency has not been depreciated to the extent of the former gold parity in 1929.

The changes in the exchange rates during the second period were not so evident, since the whole price relationship between the three countries was disrupted during the War and was coordinated again only in the last few years. A correction would become necessary for the indices of the United Kingdom after its devaluation in September, 1949. If, however, any comparison would be made with indices of France for the same period, the use of the actual index numbers in French terms would yield a completely false picture due to the rapid inflation. In such a case, a correction is easily possible in relation to a stable currency, such as the Dollar or the Swiss Franc, in using their respective percentage change of the exchange rates instead of the gold value.

The following Figures 8, 9 and 10 compare the trends of three price indices, the wholesale, the cost of living, and the wages, for the mentioned periods 1929-1939 and 1937-1949. The wholesale price indices in Figure 8 cannot be considered as evidence of a price disparity for reasons explained before. The first period rather indicates that the Swiss index strongly joins the trend in the U.S.A.; the respective index of the U.K.

had to be left out, since it covered with small variations this one of the U.S.A. The second period, however, indicates the mentioned disrupting of the price relationship between the three countries due to the special conditions of the War. The rapidly increasing trend of Switzerland's index at the beginning of the War had two main causes: first, the exceedingly high import prices due to the almost prohibitive transportation and insurance costs; and second, the expansion of the Swiss agriculture which had to produce foodstuff at any price. In general, however, the figures during the War years are not very reliable.

Both Figure 9 and 10 represent a better picture of the price relationship between the three countries. The price disparities beginning in 1932 and lasting to the Swiss devaluation in September, 1936, were the reasons that Switzerland during this period could not compete efficiently on the foreign market, while at the same time, her domestic market had been flooded with foreign goods. A price adjustment through devaluation of the currency seemed to be reasonable. The figures of the second period need some precautionary remarks. The subsidizing policy of the foodstuff, and some additional measures to check the inflation after the War has kept the indices especially in the U.K. artificially low. The high wage level in the United States is partly a result of the recent wage request in the mining and steel industries; thus the index is not exactly comparable. On the other hand, the higher increase of the wages can be justified approxi-

mately by an assumed equal increase of the productivity. The war has certainly had a stimulating influence upon the productivity in the U.S.A., but to a lesser extent in Switzerland and in the U.K. The fact that the cost of living in the U.S.A. did not increase at the same rate is partly an indication of the more advanced productivity which allows a relatively cheaper production of consumer goods.

Without paying too much attention to the exact level of the Swiss indices of wages and cost of living in relation to the two other countries, one can say that the trend of the Swiss price level during and after the war and up to the present remained consistent with the price level in the United States and the United Kingdom. The manner in which the recent devaluation of the Sterling changes the picture is dealt with later.

b. The internal price relationship.

The internal price relationship in Figure 11 illustrates a true reflection of the price trends on the international level. In both periods, the price trend of the imported goods represents the most influential factor on other prices, while the wages take their own course. They remain almost stable in the first period; in the second period they increase partly as a result of the high demand for labor after the war, which gave to labor the opportunity to make successful requests for wage increases above the level of the cost of living. In a comparison of the price situation in the year 1936 before

the devaluation and at the end of 1949, an exactly opposite picture becomes evident with the exception of the wages. In 1949 the imported goods are highest and the cost of living lowest, while the opposite was the case in 1936. So far there is no evidence with regard to this situation to devalue the Swiss currency.

c. The most recent development.

The few months which are past since the general devaluation in Europe and the Sterling area represent too short a period of time to come to definite conclusions about the results. There are, however, some points worthy of mention which are significant for the present tendencies of the price trends.

First, the general price drop of imports did not occur to the extent that was expected, because some of these countries, such as the U.K., increased the prices on those export commodities which are essential for other countries, but over which they have sufficient control. Thus, some countries depending on such essential goods are forced to pay higher prices in terms of their currency for two reasons: first, because they devaluated; and second, because the original prices had increased. Switzerland's import prices dropped about 10% since the devaluation, as seen in Figure 13.

Most of the devaluating countries report an increase of their wholesale prices, followed by a slight increase of the cost of living. A further trend upwards of these two prices, and later, of the wages is expected. This general tendency

in most of the devaluating countries is shown in Figure 12 for the U.K. for the period from January, 1949, to January, 1950. The first rise of the wholesale prices of about 5% and of the cost of living of about 2% resulted from a changed subsidy policy. The second rise, however, is a result of the devaluation which made the imports accordingly more expensive. It should be noted here that in this Figure 12 no correction has been made for the last four months as is done in previous figures for the purpose of the comparison of the price relationship. The same Figure 12 represents the corresponding price trends of Switzerland which take an opposite course. The downward tendency of the wholesale prices is due, primarily, to the imports which generally dropped in their prices throughout the year 1949. The devaluation abroad stimulated this trend with an additional drop, as shown in Figure 13. The domestic goods, the prices of which are not directly connected with those of the imports, also indicate a slight decline, and the cost of living follows a similar pattern while the wages remained stable.

How are the Swiss prices put into the new price situation after the devaluation abroad? Because of three factors, the devaluating countries with which Switzerland does trade, the extent of their devaluation and finally their relative share within Switzerland's foreign trade, the relative appreciation of the Swiss currency amounted to 16.5% as a result of the

devaluation abroad.⁴ This percentage has already diminished and will later become smaller to the extent as the price level in the devaluating countries increases and in Switzerland decreases. Thus, the disadvantageous effect of the devaluation abroad upon Switzerland is reduced to a minimum. In reality, there was no influence upon the amount of total exports from Switzerland in the recent period. In dividing the Swiss trading partners into devaluation countries and others, there can be noted a change in Swiss imports coming from devaluation countries to 63% in December, as against 56% in September, 1949. On the export side, no notable shift has occurred as up to date.⁵

⁴More adequate illustration of the relative depreciation and the relative appreciation in International Financial Statistics, January, 1950, International Monetary Fund, pp. 8-9.

⁵Kommission für Konjunkturbeobachtung, Mitteilung Nr. 86, p. 12.

Sources and Explanations

Figures 8---13

Sources:

Figures 8---10:

First period: All data from Statistical Yearbook, 1939-40, League of Nations.

Wage index: for U.S.A. and U.K., weekly earnings of skilled and unskilled men and women; for Switzerland, hourly earnings of skilled and semi-skilled men.

Cost of living: Components in the different countries as indicated in the Yearbook.

Wholesale price index: Total index.

Second period: All data from International Financial Statistics, International Monetary Fund, February, 1950.

Type and components of the indices as indicated there.

Except: Wholesale price of Switzerland, from Statistisches Jahrbuch der Schweiz, Eidg. Statistisches Amt., and for the most recent data, Kommission für Konjunkturbeobachtung, Mitteilung Nr. 86.

Figure 11:

First period: Wages and cost of living from Statistical Yearbook, 1939-40, League of Nations.

Domestic goods and imported goods, copied from Dr. Hans Böhi, Grundsätze und Methoden zur Ermittlung der richtigen Währungsrelation zum Ausland.

Second period: Wages and Cost of living from International Financial Statistic, February, 1950, International Monetary Fund.

Imported and domestic goods, Kommission für Konjunkturbeobachtung, Mitteilung Nr. 86.

Figure 12:

U.K. data from International Financial Statistic, February, 1950, International Monetary Fund.

Switzerland's data from Kommission für Konjunkturbeobachtung, Mitteilung Nr. 86.

Figure 13:

Same source as in Figure 11, Second period.

Explanations:

Figures 8---10: The dashed lines in the first period are the non-corrected index in terms of the currency base of the country in question, while the solid lines represent the corrected trend.

Figures 11---13: Imported goods are defined as goods actually imported, the index corresponds to the Unit Value of Trade of the International Monetary Fund; Swiss expression: Aussenhandelspreisindex für Import; the index is wholesale.

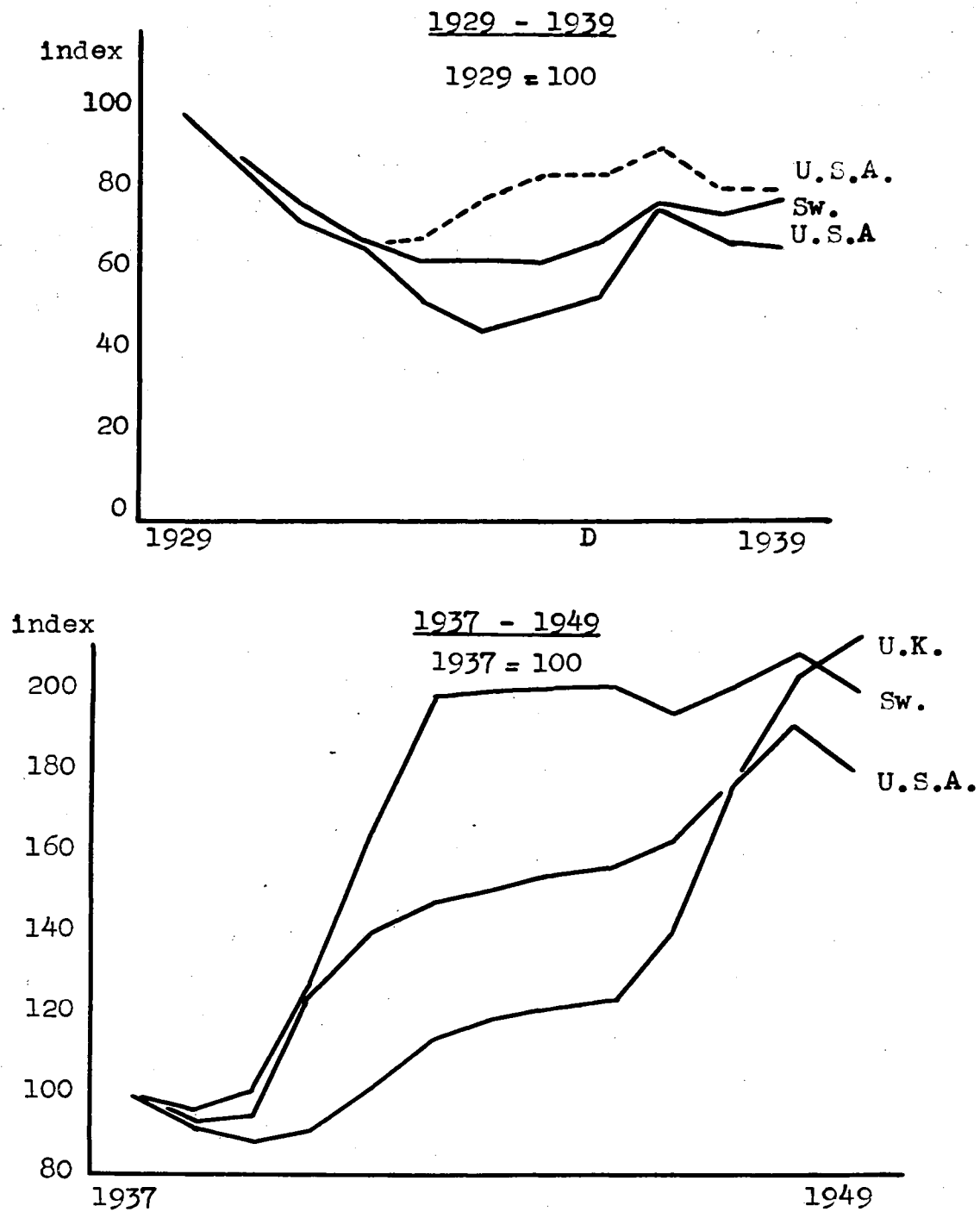
Domestic goods are defined as goods of which the origin is mainly domestic, the index is wholesale.

Swiss expression: Inlandwaren.

The index of imported goods and domestic goods is based upon 1939=100.

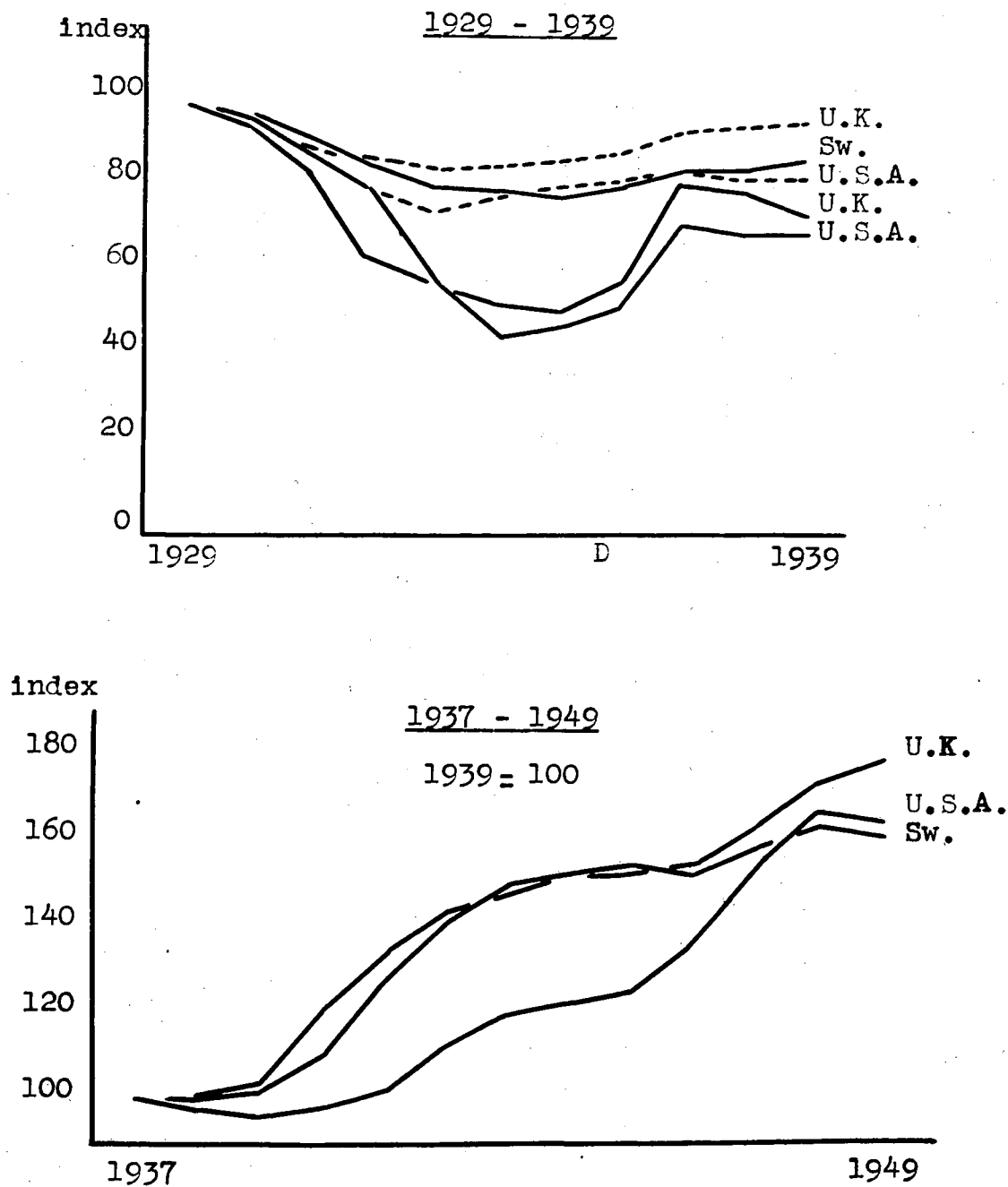
The index of wages and cost of living are based upon 1937=100. A correction to the equal base was not necessary.

Figure 8: Disparity of the wholesale price indices in the United States, the United Kingdom and Switzerland.



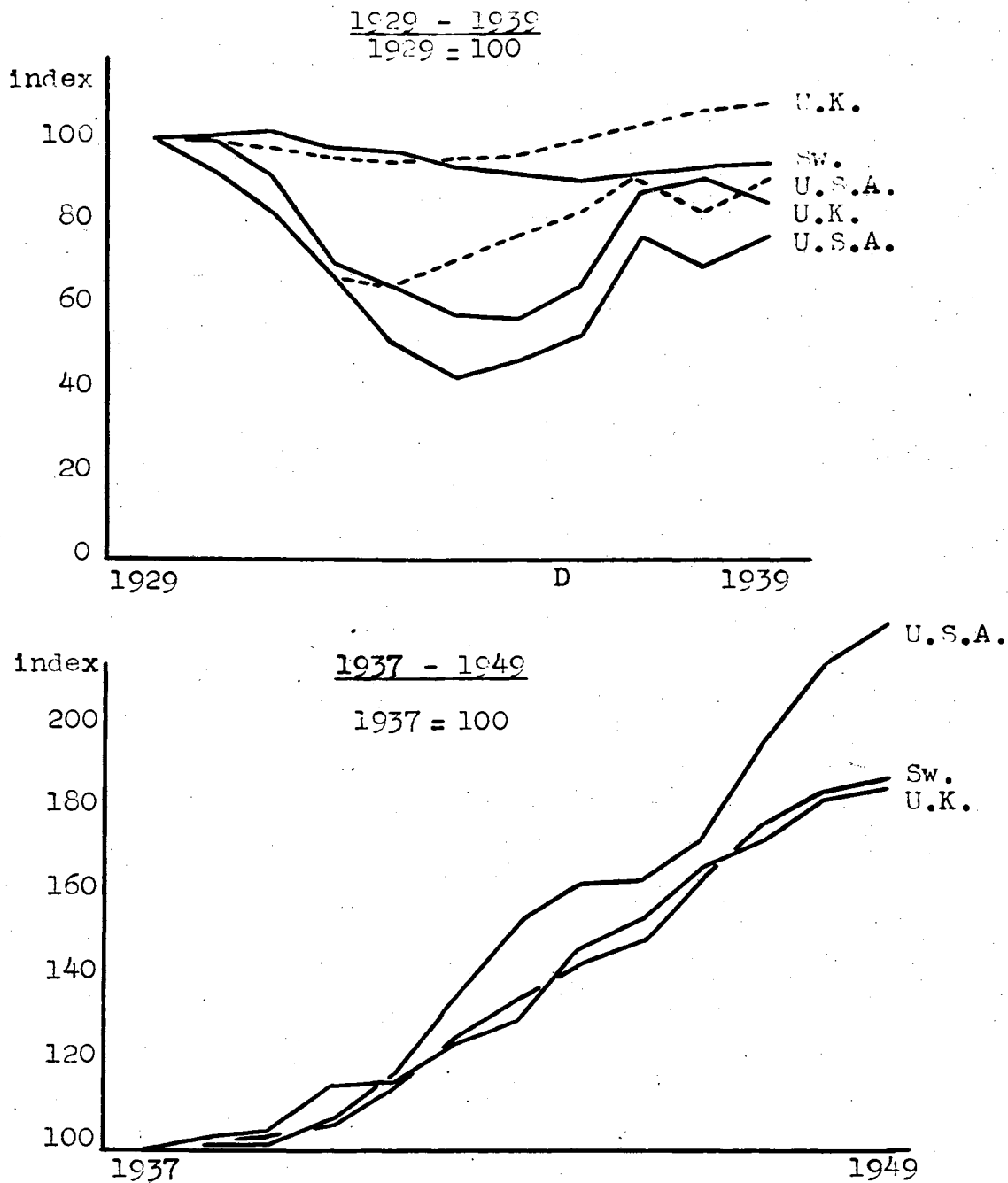
Sources and explanation: see preceding page.

Figure 9: Disparity of the cost of living indices in the United States, United Kingdom and Switzerland.



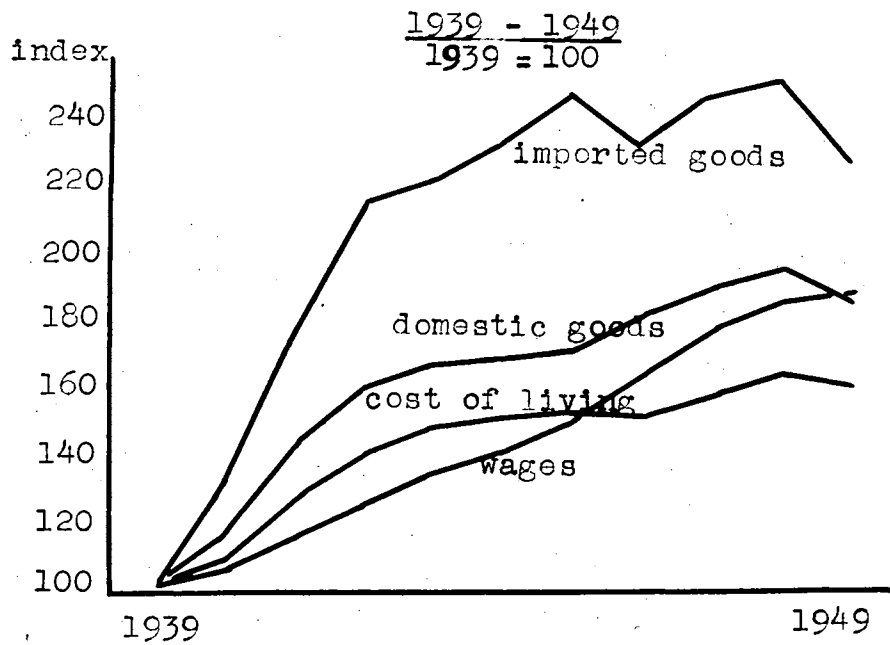
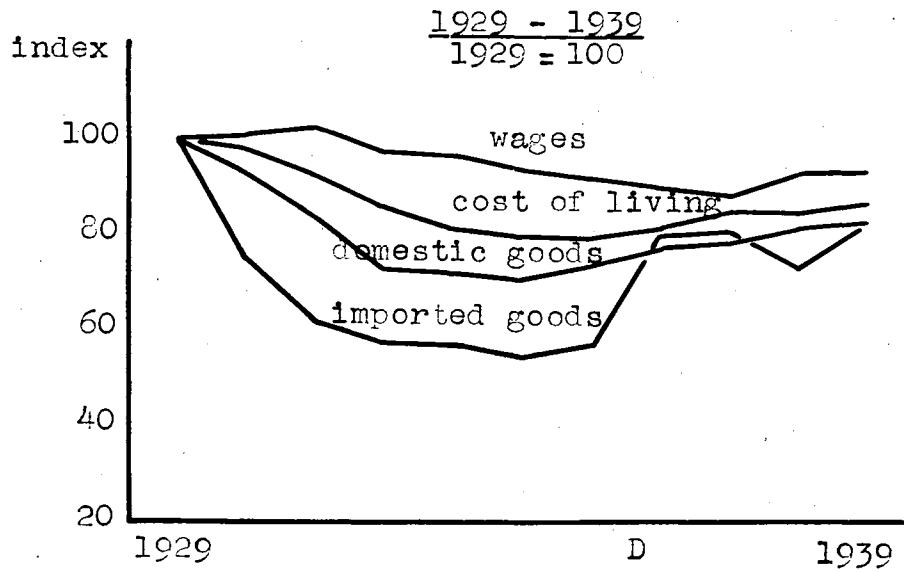
Sources and explanation: see page preceding Figure 8.

Figure 10: Disparity of the wage indices, in the United States, the United Kingdom and Switzerland.



Sources and explanation: see page preceding Figure 8.

Figure 11: Internal price disparity of Switzerland.



Sources and explanation: see page preceding Figure 8.

Figure 12: Index trends of cost of living and wholesale prices of the United Kingdom and Switzerland.

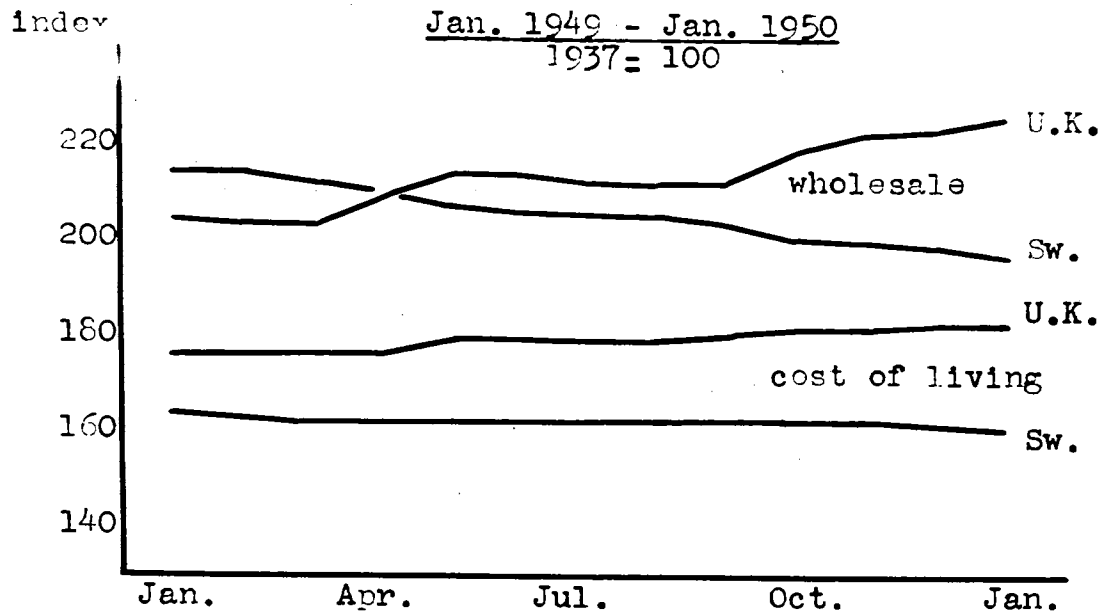
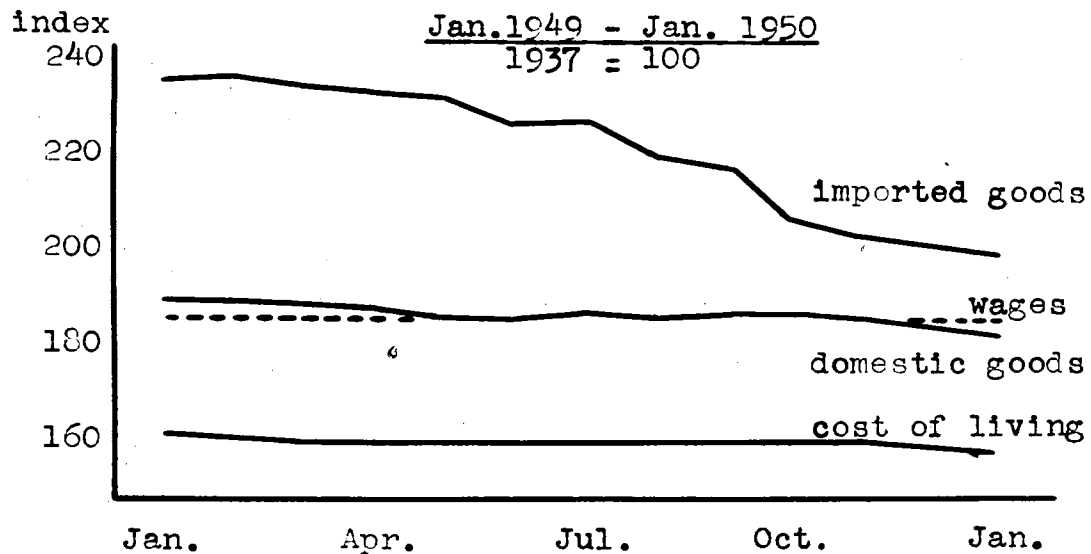


Figure 13: Internal price trends of Switzerland.



Sources and explanation; see page preceding Figure 8.

Chapter IV

Factors determining the dependence of a country's economy on foreign relations.

The extent of dependence of a nation's economy is determined by the following factors:

1. Price elasticity of demand for imports to Switzerland and for exports from Switzerland.
2. Share of Swiss trade within the total world trade.
3. Marginal propensity to import in Switzerland.
4. Income elasticity of demand for imports to Switzerland and for exports from Switzerland.

In the following investigation, these factors are treated separately for the purpose of clarity, although in reality, they are interdependent on each other.

1. The price elasticity.

The classical theories of foreign trade assume that in a disequilibrium in the balance of payments between two countries, a readjustment of the price level will take place automatically, either by a change of the internal price level or by a readjustment of the exchange rate of the currencies in question. As seen in the preceding chapter, the most important price factor within an economy is the very inflexible wages. Thus, the ultimate way to restore a price equilibrium appears to be the changing of the exchange rates. The country undertaking such a procedure should be well aware of the degree of elasticity of its exports and imports. In the ex-

treme case where both exports and imports are highly inelastic, a devaluation may lead to the opposite of what was expected.

The price elasticity of demand for a commodity depends on the character of its use and on the degree of competition on the part of other countries. In applying these two criteria to the circumstances of Switzerland, imports and exports are different in their behavior with regard to price elasticity. The Swiss imports, consisting of two-thirds of essential goods, such as raw materials and foodstuffs, will hardly show any response to price changes. The amount of raw materials is likely to increase with a higher production level in the country; the amount of foodstuffs will more or less remain the same, while the imports of manufactured goods will decline insofar as there is sufficient competition from the domestic producers. Whether the total Swiss imports will increase or decrease as a result of a devaluation depends, first, on the proportion of these three commodity types, and, second, on the extent of their particular elasticity.

The behavior of the Swiss exports is different in this respect. Many of the export commodities meet serious price competition abroad, textiles probably being in first place. Other commodities, such as watches, pharmaceuticals and specialties in machinery, meet less competition; they are, however, non-essential in their use and for this reason rather subject to income elasticity. In a situation where prices and income changes at the same time, it is not possible to

determine exactly to what extent the Swiss export products are subject to price elasticity and to what extent to income elasticity.

2. Share of Swiss trade within the total world trade.

Switzerland's share within the total world trade is of small importance compared with the share of foreign trade which the U.S.A. or U.K. occupies. Expressed as a percentage of the total world trade, the Swiss share ranges from 1.3 to 1.7 percent for the imports and from 1.2 to 1.4 percent for the export, while similarly the United States percentage in 1949 amounts to about 12% for imports and 21% for exports, and those of the United Kingdom to approximately 13% and 10% respectively.*

The share of world trade plays the role of a significant factor with regard to the following two terms:

3. The marginal propensity to import.

The marginal propensity to import is the ratio of the change of imports over the change of income. In the practical sense it gives an indication how much any domestic policy that is attempting to improve the national income and thus to revive and stimulate the internal economic activities will suffer from too much "leakage" of spending on additional

*Percentages in 1937: U.S. imports, 11.3%; exports 13.2%
U.K. imports, 18.6%; exports 11.7%

imports. In the case of Switzerland, the preliminary statement can be made, that the average propensity to import is very high, amounting to 20 - 25% of the national income. Little can be said about the marginal propensity to import unless there is a significant change of the national income. This latter difficulty will render questionable a practical attempt in computing this ratio. For one thing, since Switzerland's share of world trade is very small, there is no multiplier effect abroad caused from the additional import to Switzerland, and therefore, no favorable repercussion can be expected from abroad upon the exports from Switzerland.

4. The income elasticity of demand for imports.*

While the above-mentioned term is a ratio of absolute values, the income elasticity of demand for imports is a ratio of two percentage changes. This concept gives an indication how much other countries may profit or suffer from the change of an income which occurred in the country in question, in which its share of world trade is again a significant factor. In the case of Switzerland, its own income elasticity of demand for import has no influence on foreign countries. The importance of this term lies, however, on the side of the Swiss exports. In other words, it is important for Switzer-

*For more adequate illustration of the concepts of marginal propensity to import and the income elasticity of demand for imports, see Keynes' theory on foreign trade in Harris, New Economics, pp. 264-280. Chapter by R. Nurkse, "Domestic and International Equilibrium."

land to know how much its exports depend on the national incomes of its trading partners. A decrease in the amount of exports may be simply the cause of a general depression abroad and will recover again with the revival abroad.

Among the commodity types of the Swiss exports, the non-essentials are especially subject to change as the income level abroad changes. Although price elasticity and income elasticity are two different concepts, their influences upon some non-essential goods are of the same kind. A change of price as well as a change in income actually means a change in the purchasing power; it is the degree of this purchasing power which influences the amount of non-essential goods bought. A good illustration of such evidence is given by the export of Swiss watches and watch parts, the amount of which was at its lowest level in 1932 and increased gradually with the disappearance of the great depression. After the devaluation of the Swiss franc in 1936, the export of watches and watch parts took an additional trend upwards due to better price relationship.

As mentioned before, the same products can be subject to both types of elasticity, however, with a different degree. It is hardly possible to separate the effects of each elasticity type on a commodity, as price change and income change take place mostly at the same time. For this purpose, it would be necessary to have at one's disposal, first, a period of years during which the prices remain stable and the income changes, and afterwards, a period of years in which the income

remains stable while the prices change. Such an ideal situation is a utopia.

5. Computation of the price elasticity
of demand.

To compute the price elasticity for the foreign trade of a nation, it is necessary to consider a period of time in which a significant price change has occurred. For our purpose, the period before and after the devaluation of the Swiss franc in 1936 fulfills best this requirement. While history does not repeat itself, the study of the repercussions of the Swiss devaluation in 1936 remains significant today. The changes in the foreign trade caused by the recent war appear to be of a temporary nature only, as far as the Swiss foreign trade is concerned. In the following computations, a comparison is made between the years 1935-36 and 1937-38. The two-year period before the devaluation has been chosen in order to lessen the effects of short-term influences which may have occurred just before or after the event. The period after the devaluation should be extended to three or four years in order to include fully all the changes which resulted from the devaluation. The year 1939 was, however, already heavily influenced by preparation for the war and by the war itself, so that it can no longer be included in our considerations.

The devaluation took place on September 26, 1936, but any significant changes of imports or exports would appear only after a certain delay. For this reason the last quarter

Figure 14: Percent increase of the Swiss exports,
1937-38 as compared with 1935-36.

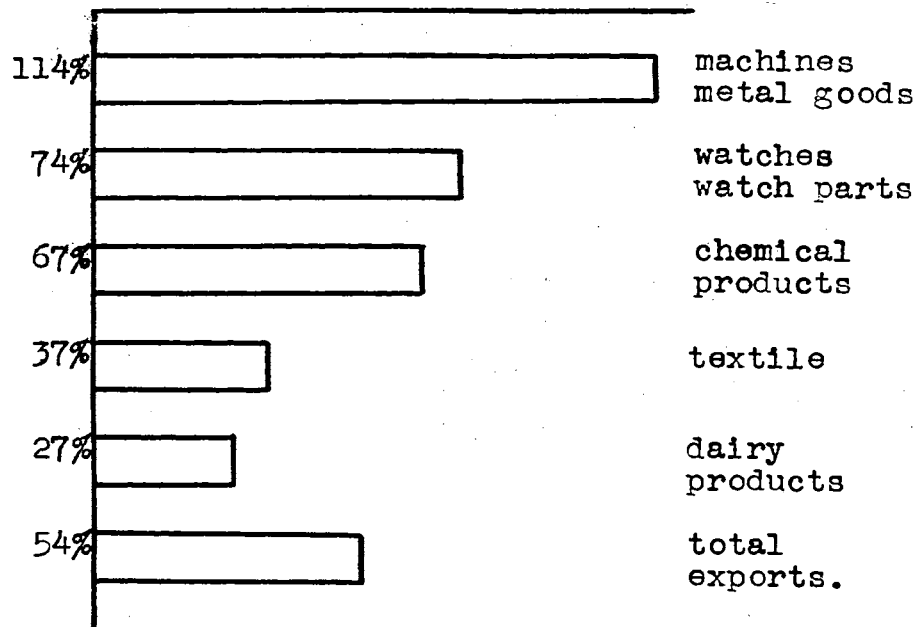
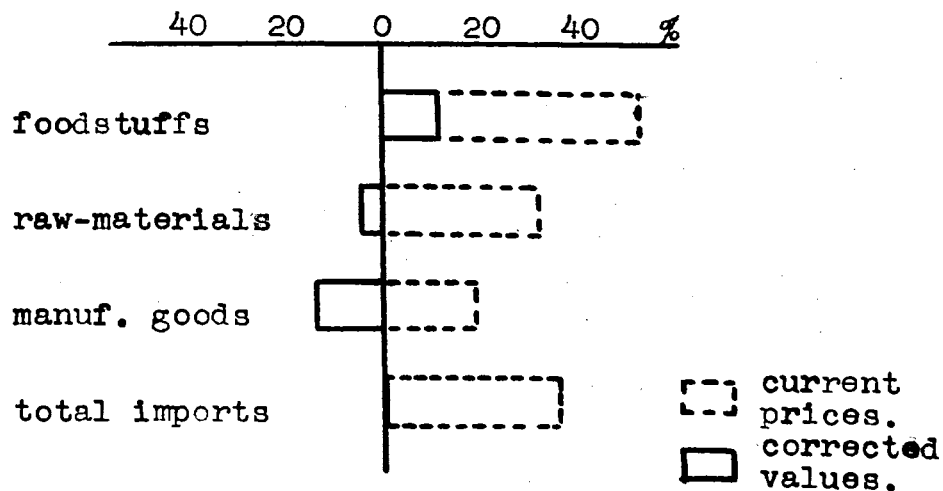


Figure 15: Percent increase or decrease of Swiss imports
1937-38 as compared with 1935-36.



Sources for both figures: Computed from, Statistisches Jahrbuch der Schweiz, Eidg. Statistisches Amt, (1946)

of 1936 has been included in the pre-devaluation period, except in one case mentioned below.

a. Price elasticity of the Swiss exports.

Figure 14 illustrates the percentage increase of the exports of the most important commodity types during the years 1937-38, the amount of export in 1935-36 being 100%. These percentages are simply based upon data expressed in terms of the Swiss franc, for which no correction of any kind has been attempted. One example of the computation shall be given here:

	Export of watches ¹ and watch parts in million francs	total for each period francs	%
1935	124.5		
1936	151.6	276.1	100
1937	240.4		<u>increase 74%</u>
1938	241.3	481.7	174

In this example the Swiss export appears to be highly elastic, the exports of the machine and metal-working industry increased from 100% to 214%, the total export from 100% to 154%, both as the result of a 30% devaluation.

Such a conclusion would be hasty without considering some other factors which may have influenced the export values during these two periods. A first question arises, whether a general income change in Switzerland's trading countries

¹ Statistisches Jahrbuch der Schweiz, 1946. Eidg. Statistisches Amt.

has occurred with a certain influence upon Swiss exports. It is not practical to attempt to determine for each country on the Swiss export list the change of demand for Swiss goods caused by a change in domestic national income of that country. Since the total world trade figures are necessarily a function of the combined influences of changes of the national income of trading nations, these world averages have been used as the basis for comparison in this study.

A second point to take into consideration is the question of whether the export value in terms of Swiss francs represents adequately the physical amount of exports. The term "price elasticity" is a change of physical goods demanded as a result of a price change, both expressed as a percentage. There was no significant price change of the export commodities during the period 1935-38, and thus, no correction is needed in this respect and can be neglected in considering the money value as the true measure of the exports.

A final consideration is necessary with regard to devaluations of other countries which might have reduced the effect of the Swiss devaluation. Some important trading partners of Switzerland, such as France, Italy and Belgium, undertook similarly a currency devaluation, so that for instance Italy's price level was lower than before.² The

² Countries which devaluated, too, during this period were for instance Greece, Romania and Czechoslovakia. Their importance for Switzerland's foreign trade is small.

For the extent of devaluation in these countries, see Statistical Yearbook, 1939-40, League of Nations.

share of trade with these three countries within the total Swiss trade was around 20%, the relative depreciation amounted to around 24%, computed in the same manner as that used by the International Monetary Fund.³

After these rather complicated considerations, it is possible to proceed to a more adequate computation of the elasticity of the Swiss export.

Table 9.
Computation of the price elasticity of the Swiss exports.

	Swiss export,* based on francs, index 1935 100 A	World trade,** based on gold \$ index 1935 100 B	Correction $\frac{A \cdot 100}{B}$
1935	100	100	100
1936	107	108	99 199 99.5 ---
1937	158	133	119 <u>increase: 129.1</u>
1938	160	116	138 257 128.5 ---

Sources: *Statistisches Jahrbuch der Schweiz, 1946, Eidg. Statistisches Amt.

**Statistical Yearbook, 1939-40, League of Nations.

The corrected increase of the exports in the years 1937-8 as against the years 1935-6 amounts to 29%, while the actual currency depreciation was 24%. As a result of this very disputable procedure, the elasticity of the Swiss export is above unity.

³International Financial Statistics, January, 1950, International Monetary Fund, pp. 8-9.

It would be meaningless to apply the same procedure to each commodity type indicated. Each commodity has its own elasticity pattern with regard to foreign trade during a certain period. The textile exports, for instance, and especially this one of silk products did not profit very much from the effect of the devaluation, since the main competitor countries of these industries, France and Italy, devaluated too. A closer investigation in this regard as well as with the other commodity types would lead too far and would be so involved that they would present more problems.

b. The price elasticity of the imports.

A short glance at the statistics of the Swiss import figures before and after the devaluation might cause some erroneous conclusions. Figure 14 illustrates with dotted bars the percent increase of the import values expressed in terms of the current Swiss franc from the year 1935-36 to the years 1937-38. Such an increase requires more detailed explanation, as it presents a picture opposite to what was expected after a currency devaluation.

The Swiss imports are not depending on the trend of the world trade; they are rather a function of the internal situation of the country. In order to determine the degree of price elasticity of the imports, one can safely neglect to take into account the possibility of repercussions from a change in national income in Switzerland. It does require a longer time to feel the repercussion of the income effect and to note its result in the import statistics.

With regard to price change, however, an important correction becomes necessary. After the devaluation, the imports had to be paid at a price which is 133% of the former level.⁴ Thus, the same amount of imported goods after the devaluation is represented by an import value which is 33% higher than before in terms of Swiss francs, if one assumes that no price changes abroad had occurred. During the period 1935-38 the price level in the world trade underwent some changes; it rose considerably from 1935 to 1937 and dropped again in 1938. The index of the import prices to Switzerland reflects with accuracy the summation of both the price change due to the devaluation and the change of the general price level abroad.

The third point to take into consideration is the relative depreciation mentioned in connection with the export elasticity and is here equally important.

After these different considerations, the procedure to compute comparable figures for the periods before and after the devaluation would be as presented in Table 10. The 1% increase of the imports computed in this table is not reliable as being an exact measure of the high inelasticity of the Swiss imports. Nevertheless, it is justified to make the statement that the Swiss imports as a whole are highly inelastic.

⁴The par value of the Swiss franc was devaluated to 70% of its former value. Thus, value of foreign currency, for instance the dollar, rose reciprocally in terms of Swiss francs, as follows: $\frac{100.100}{70}$ 143%. The above 133% is obtained in the same way, but considering the relative depreciation of 24%.

Table 10.
Computation of the price elasticity of the
Swiss imports.

Year	Total imports*		price index** of Imports C	corrected data B/C	
	million frs. A	index B			
1935	1283	100	100	100	
1936	1266	99	108	92	av: 96
1937	1807	141	142	99	
1938	1607	125	131	<u>95</u>	av: 97

Increase of imports from the yearly averages 1935-36 to 1937-38: 1%.

Sources: *Statistisches Jahrbuch der Schweiz, 1946, Eidg. Statistisches Amt.

**See Hans Böhi, Grundsätze und Methoden zur Ermittlung der richtigen Währungsrelation zu Ausland, p. 176.

Explanations: The indices use 1935 as base for computing facilities.

The imports of the last quarter of 1936 had been paid with devaluated francs, which caused an average price increase of the total imports of this year with about $33\% : 4 = 8\%$.

In Figure 14 on page 58 the bars representing the three commodity types of imports have been shortened by an equal correction of 36%, the average price increase for both years 1937 and 1938. Such an equal correction is not completely sound, since these commodity types are subject to unequal price changes abroad. In addition, the relative appreciation of 33% of the imports in terms of Swiss francs can be used only for the total. In breaking down the total imports into different commodity groups, it would become necessary to con-

sider the relative depreciation of the Swiss franc in relation to the currencies of each country from which the commodity group in question mainly originated.

6. The determination of the marginal propensity to import.

The marginal propensity to import is mathematically determined by the ratio of change in imports divided by change in national income, in which both expressions are absolute values. The practical computation of this ratio requires the use of a much more extended time period than has been used formerly for the determination of the price elasticity. The price change, as denominator in the ratio of the price elasticity, was subject to a sudden change as a result of the devaluation. A change in the national income as denominator in the ratio of the marginal propensity to import is a slower process as it takes place during an entire upswing or downswing of economic activities. Thus, it becomes necessary to take periods into consideration, such as the years 1929-36 representing a downswing and the years 1937-49 representing an upswing.

The mathematical procedure would be, for instance, for the period 1929-36, to determine the average yearly decrease of the Swiss national income and the resulting average yearly decrease of the Swiss imports. The average ratio on a yearly basis of these two values according to the above definition would yield the wanted result.

Yet, the important question arises whether the values of

import and income changes are comparable. A number of computations in this matter for our purpose has shown, however, that this is not always the case. The question becomes clearer when one looks at the national income in the light of its purchasing power. During the two periods in consideration, the purchasing power in the domestic market and in the foreign market fluctuated independently, since the values of income and imports are based upon different price trends. Nevertheless, the purchasing power in its total is a function of both price levels, at home and abroad. Because of this interdependence, the mathematical procedure to correct in a simple manner the national income by the index of the cost of living, in order to get the real income, and to correct the import values by the import price index, in order to get the real imports, appears logically questionable. It seems more adequate to correct for each year both the imports and the income by a common price index which is composed of the index of cost of living and the import price index. The weight of these two indices is different each year according to the amount of national income spent for imports. Such a procedure would be unnecessary if the purchasing power at home and for imports would have remained relatively the same during the two periods 1929-36 and 1937-49.

A determination of the marginal propensity to import for the second period appears particularly difficult because of the special influences of the war. But even if it were possible to compute easily a number representing the marginal

propensity to import, which might be $1/3$, $1/2$, 2, or 3, it is not possible to indicate whether this propensity is low or high. Similar computations for other countries are missing; thus no relative comparison can be made. Therefore, an adequate computation of the marginal propensity to import for Switzerland would become a very involved problem and would require investigations, the scope of which would give plenty of opportunities for another thesis.

There is, however, one way left to come to some approximate conclusions in this respect. If the marginal propensity to import is high, any fiscal measures such as a currency devaluation will suffer from too much "leakage" by spending a large part of the increased income abroad. Thus, instead of determining the marginal propensity to import, it is preferable to look at some resultant economic features which serve as indicators for the degree of the propensity. The data in Table 11 give a good picture of some of these indications.

The years from 1929 show that the real national income never had been subject to heavy changes; thus, those differences which are considerable between the absolute yearly incomes are rather the result of price changes. The real income grew after the devaluation in 1936 to a level which was slightly above the level of 1929, although the percentage of unemployment remained relatively higher in 1937-38 than in 1929. This higher real income with a lower employment in 1937-38 can be explained by two possibilities: growth of the

Table 11.
Some features of the economic situation
of Switzerland in 1929 - 1939.

Year	National income in million frs		cost of living index * and #	wage index* real#	unemploy- ment## %
	absolute **	real#			
1929	9469	8233	115	91	3.4
1932	7685	7763	99	104	9.1
1933	7698	8189	94	108	10.8
1934	7599	8260	92	107	9.8
1935	7429	8164	91	106	11.8
1936	7457	8018	93	102	13.8
1937	8160	8327	98	96	10.0
1938	8292	8461	98	100	8.6
1939	-- **	--	99	101	6.5

Sources: *Statistisches Jahrbuch der Schweiz, 1946. Eidg. Statistisches Amt.

##Statistical Yearbook, 1939-40. League of Nations.

**Statistische Erhebungen und Schätzungen, 1948. Schweiz, Bauernsekretariat.

Explanations:

#Index of average 1929-39 = 100, the real income and wages are corrected by the index of cost of living.

##In the recent international publications, the figures of the Swiss national income had been revised back to the year 1937. The unrevised figure for 1939 was not available. For detailed composition of the former values of the Swiss national income, see National Income Statistics, 1938-47. Statistical Office of the United Nations. The nature of the revision undertaken by this Office has not been published yet.

total labor force and increase of productivity.

A more accurate illustration of this feature can be shown with the help of the year 1932, in which the index of cost of living and the percentage of unemployment was little different from the later figures after the devaluation. The increase of the real income amounted to about 600 million francs during this period of 6 years. A part of this increase resulted, however, from additional public spending, which kept the national income artificially high in these latter years, especially in 1935-36. Such spending increases the real income without an increase of the real wages. For that reason, the real wages in 1932 were by some index points higher than in 1937 especially.

Although there are these limiting considerations, it is still possible to recognize a reciprocal trend in the real income as compared with the percentage of unemployment. Thus, there is no question about the fact that the devaluation in 1936 yielded some positive results with regard to unemployment and real income. The improvement of the economic situation can clearly be seen, yet it appeared to take place very slowly. Even in the third year after the devaluation, where the influence of the war preparations became apparent, the approximate full employment level, as in the year 1929, had not been reached.

This evidence may lead to the assumption that the marginal propensity to import must be high, since the increased exports after the devaluation were not able to bring about the expected recovery of the Swiss economy.

7. The determination of the income elasticity of demand for imports.

In the preceding investigations, this term had been mentioned on several occasion and perhaps needs further clarification.

There is little value of computing Switzerland's income elasticity of demand for imports, since this country's share in the world trade is very small. The practical computation of this expression would meet the same difficulties as the marginal propensity to import, because this latter ratio is a part of the former expression.

It is more important to know how much the Swiss exports are subject to the income elasticity of demand for imports in Switzerland's most important trading partners. Since the same commodity is subject to both the price elasticity and the income elasticity, it is hardly possible to state which elasticity is more influential in a situation in which at the same time prices and income change.

In the preceding computation of the price elasticity of Switzerland's exports, the export values of the years in consideration had been corrected by the trend of the world trade in order to get better comparable figures. This has been done under the assumption that the Swiss exports are in the same degree as the total world trade, subject to the influence of an increase or a decrease of the total world income. This assumption remains open to question for two reasons: first, the total world income is not synonymous with the total income

of Switzerland's most important trading countries. Second, the character of the Swiss exports are mainly manufactured goods and thus not comparable with the world trade composed partly of raw materials.

This inconsistency resulting from the above statements leads to the focal point which is the question, what is the range of the variation of Switzerland's exports in relation to the range of the variation of the world trade? Any attempt to determine such a variation in the ratio between the Swiss exports and the world trade for the period 1929-1939 yielded no practical results because of too many variables in the form of price changes. In addition, during such a long period of time, several other exogenous factors, for instance the change of export subsidies, the change of import restrictions, the change of trade agreements, appear in their full vigor to such an extent that any differences between the two variations are lying within the relatively large limits of error.

Instead of such an exact ratio, again we have to be satisfied with a rather rough picture presented in the following Table in which the trend of the Swiss exports and some characteristic export items, based on Swiss francs, are compared with the trend of world trade, based on gold values. No price corrections or any other corrections have been made. Similar to the world trade, the total Swiss exports as well as the export commodities decreased commonly from 1929 to 1931. In 1932 all Swiss figures dropped considerably as a result of the unfavorable price relationship between Switzerland and

Table 12.
Trend of Swiss exports in general and some particularly important export items in comparison with the trend of the World trade, 1929-1936, index 1929 = 100.

Year	World trade	Silk	Swiss Machines	Export of: Watches parts of	Chemic. prod.	Total export.
1929	100	100	100	100	100	100
1930	81	81	97	76	89	84
1931	63	65	66	47	86	64
1932	53	28	39	28	66	38
1933	52	33	40	31	71	41
1934	55	30	42	36	71	40
1935	58	23	44	40	72	39
1936	61	24	49	49	83	42
% increase 1936 over 1932	15%	-14%	26%	75%	26%	10%

Sources: World trade: Statistical Yearbook, 1939-40. League of Nations.

Other figures: Statistisches Jahrbuch der Schweiz, 1946, Eidg. Statistisches Amt.

abroad which began in this year. From this point of time up to 1936, the export of machines, watches and chemical products increased at a percentage which is higher than the increase in the world trade, while the export of silk did not recover and rather declined more and more. These four most characteristic items include around 40% of the total exports, which take a similar trend, although to a smaller degree than the total world trade. The silk products seemed to be left completely

at the play of the price elasticity due to the high competition abroad, while the chemical products, which include to a certain extent raw materials, were the commodity type with the least price elasticity.

If the world trade is taken as a relative measure of comparison, the silk products are the least and the watches the most income elastic commodity type. The income elasticity of the total Swiss exports appears, however, smaller than the income elasticity of the world trade; the total Swiss exports increased only by 10%, while at the same time, the world trade increased by 15%.

In the computation of the price elasticity of the Swiss exports, it has been assumed that its income elasticity is equal to the income elasticity of the world trade. According to the above results, the income elasticity appears lower and, thus, the price elasticity would be higher than formerly assumed. There is, however, no evidence to prove this fact more adequately.

Chapter V

Conclusions

The economic developments resulting from the currency devaluation of last fall in the Sterling area and Western Europe are still in the first stage. Thus, any definite statement about the position of Switzerland's economy would be hasty. There is, however, much evidence indicating that a similar devaluation of the Swiss currency would have yielded no positive results.

From the point of view of price disparity, Switzerland's price level before the devaluation in September, 1949, did not appear out of line in relation to the dominating price levels in the United States and the United Kingdom. The evidence of this statement has been illustrated with several figures of price trends in which the present price relationship between Switzerland and abroad is compared with the price disparity after the great depression in the thirties. A comparison of the internal price disparity between the two points of time, September, 1936, and September, 1949, proves similarly the completely different price situation. Under present conditions, there is no such price disparity which may necessarily lead to a devaluation of the Swiss currency, as was the case in 1936. It seems, rather, that the recent devaluation of other countries brings about a necessary price adjustment.

The relative appreciation of the Swiss currency in September, 1949, amounted in the beginning to about 16 percent. This

relative difference between Switzerland's price relationship and foreign countries was reduced during the first four months following the devaluation. In most of the devaluation countries, there occurred a slight increase of the wholesale price due to the imports of essential commodities. A subsequent increase of the cost of living and wages is expected, although efforts to check monetary and credit inflation have become quite effective. On the other hand, Switzerland's price level remained stable, or rather has the tendency to drop due to cheaper imports.

The question arises, should Switzerland, too, devalue to the extent of its relative currency appreciation? And if so, would such a measure yield any positive results?

The answer to the questions is partly found, if one considers how little effect such a measure had in the years following the devaluation of the Swiss franc in 1936. Several factors were responsible for the economic development at that time: the Swiss imports appeared highly price inelastic, the marginal propensity to import was probably high, and the exports are income elastic as well as price elastic. Assuming that these factors have approximately equal value today as they had after the Swiss devaluation in 1936, an actual devaluation of about 15 percent would yield today no results for various reasons.

First, the Swiss export would increase to a smaller extent than the export price elasticity would indicate. In many foreign countries, the Swiss exports are still grouped

under the "non-essentials" and for this first reason under restriction. The second reason is that Switzerland belongs to the hard-currency countries from which the exports are reduced to the absolute amount necessary. In spite of these various restrictions, Switzerland's exports in 1949 were only 9 percent below the value of her imports, whereby an average difference of 28 percent between export and import value has been assumed as normal. Thus, any attempt to increase the exports by a currency devaluation would be inappropriate.

It would be equally unreasonable to devalue the Swiss currency in order to improve the internal economic situation. At present, there is practically no unemployment in Switzerland. An over-employment would easily lead to unhealthy requests for higher wages and thus become the source of an increase of the internal price level. A proposed devaluation would also increase the import prices and thus, together with the higher wages, create an inflationary tendency which soon would paralyze any positive results from the original devaluation.

The argument that the Swiss exports might be exposed to a price disadvantage on the foreign market should not lead to a pessimistic outlook in the future. Important export commodities of Switzerland are not only price elastic, but also income elastic. As the European economy is still improving, the Swiss export products will become more and more accessible to the markets in European countries. The recovery of Germany

especially is of considerable importance for Switzerland's foreign trade.

Whether the Swiss exports really are exposed to a price advantage abroad can, at present, not be proved. It seems rather that the devaluation around Switzerland can be considered a necessary price relationship which enables the devaluation countries to lift many import restrictions for Swiss commodities without running into a "Swiss franc shortage." In this light, it is an advantage for Switzerland to stay away from any devaluation of her currency with the conclusion that the present price relationship constitutes a preliminary step leading toward freer and improved trade relations with the devaluation countries.

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