CRISES, INFLATION AND RELATIVE PRICES
INVESTIGATIONS INTO PRICE STRUCTURE STABILITY IN SWEDISH INDUSTRY 1913-80

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CONTENTS

I INTRODUCTION

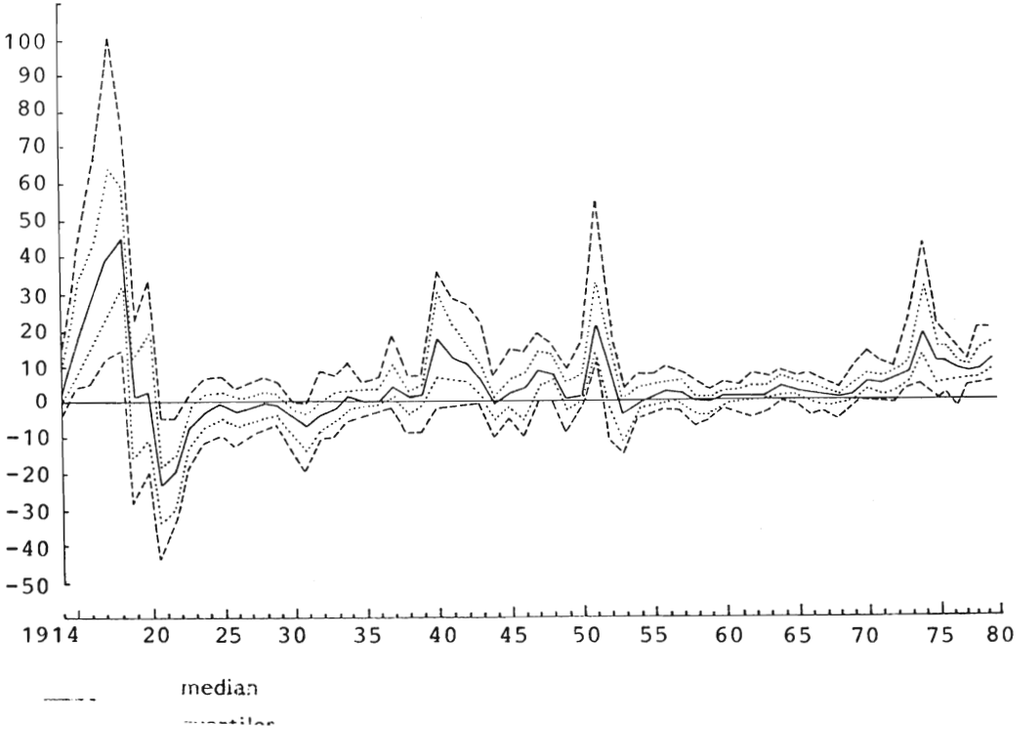
Like most industrialized countries, Sweden experienced a shift upwards in the rate of inflation during the seventies. Since 1972, the average annual increase in the general price level has exceeded 8 percent. This is not only the highest rate of inflation since the Korean boom in 1951, but also the longest peacetime inflationary period in Sweden since the industrialization process started.

Aggregate price indices are, however, only rudimentary representations of what has happened to prices in the Swedish economy. Behind the figure on inflation there is a broad spectrum of diverging price movements. Between 1970 and 1980 industry prices on average increased 151 per cent in Sweden.[1] In some industries prices went up considerably more, for example in the oil industry (+ 406 percent), the cement industry (+ 244 percent), the glass industry (+ 226 percent), the sawmills (+ 229 percent) or the candy industry (+ 214 percent). On the other hand prices in the mining industry only rose 86 percent, in the steel industry 122 percent, in the shipyards 101 percent, in the dairy industry 89 percent and in the milling industry 68 percent.

The 70s are of course not unique in this respect. On the contrary the whole period treated in this paper is characterized by strongly diverging price movements in different industries. A picture of this diversity is given in Figure 1, which shows the median, quartiles and deciles in yearly price changes in 42 industries. Thus a point on the bottom curve delimits those four industries that experienced the lowest rate of change in prices that year.

Figure 1 illustrates that the aggregate inflation figure conceals large differences among industries. It also points to the role of prices in the industrial transformation process. In a market economy, the fundamental task of the price system is to communicate information to those who participate in the market process, producers as well as customers. They need the information in order

Figure 1 **Prices in Swedish industry 1913-77**
(Annual percentage change in prices in 42 industries: median, quartiles and deciles)



to decide what to produce and how, as well as what to buy. The efficiency with which a working price system performs this task and coordinates the fragmentary knowledge possessed by the participants in the market process makes it indispensable in a working market economy. (See, for example Hayek, 1949.)

The price signals relevant for resource allocation, are, however, not the nominal prices but the changes in relative prices. This paper focuses on relative prices as the most important part of the information system in a market economy. Changes in relative prices indicate a need to reallocate resources in one way or another. A short-run temporary change indicates a need to reallocate resources over time, but within the given production framework. If, however, a change in relative prices reflects or is interpreted as reflecting long-run changes in the supply and/or demand conditions we have what might be called a transformation pressure, i.e. a need for long-run adjustments.[2]

Interpretations and expectations are keywords in this context since they form the basis for decisions taken by the economic agents. Temporary changes in relative prices may be wrongly interpreted as reflecting a transformation pressure, and thus may lead to errors investment. This was for instance the case in the Swedish shipyards during the first half of the 70s. Difficulties to discriminate distinguishing between price signals may also have contributed to the widespread uncertainty characterizing the business world at the beginning of the 80s.

The reshuffling of factor and product prices that has been the result of the two oil price hikes of the 1970s provides a good example of transformation pressure with repercussions throughout the economy. One reaction among economic agents has been to reallocate resources towards energy saving. In the U.S., for example, there has been a shift in demand from large domestic cars to smaller imported cars that use less gasoline.

The rest of this paper is organized as follows.

First, we start with a brief discussion of the factors determining the development of relative prices in the market process.

Second, we study the short-run stability of industrial prices in Sweden, especially the relationship between annual relative price dispersion and inflation.

Third, a more long-run perspective is taken with focus on transformation pressure. The relationship between long-run relative price movements and the inflation rate is examined.

Fourth, we study the development and stability of industry prices in the Swedish industry during periods of "abnormal" imbalances -- during the two world wars and their aftermaths, the great depression of the 30s, and the stagflationary crises of the 70s.

II RELATIVE PRICES IN THE MARKET PROCESS - AN INTRODUCTORY DISCUSSION

A characteristic feature of economic development is the movement from one set of disequilibria to another. Under certain assumptions and conditions we can construct "virtual" equilibria at any point in time. We may perhaps also assume that these equilibria indicate the direction in which the economy would be heading, given no change in other market conditions.

Although never attained in reality, such hypothetical equilibria are a useful conceptual tool. We therefore start by assuming that the economy is in a state of long-run equilibrium. All economic agents are omniscient and have full knowledge of tastes, technical possibilities, etc. All expectations and actions are consistent with ruling prices and quantities that are associated with the equilibrium.

Regarding prices, this means that in each product market the prices of the products correspond to their cost of production, including the cost of capital. This can be expressed as

$$P_i = c_i$$

where $i = 1,2,....,n$

The cost of production of product i can be expressed as

$$c_j = \sum_{j=1}^{m} v_{ij} P_j$$

where

$i = 1,2,....,n$

v_{ij} = requirement of factor j in the production of product i

P_j = price of factor j

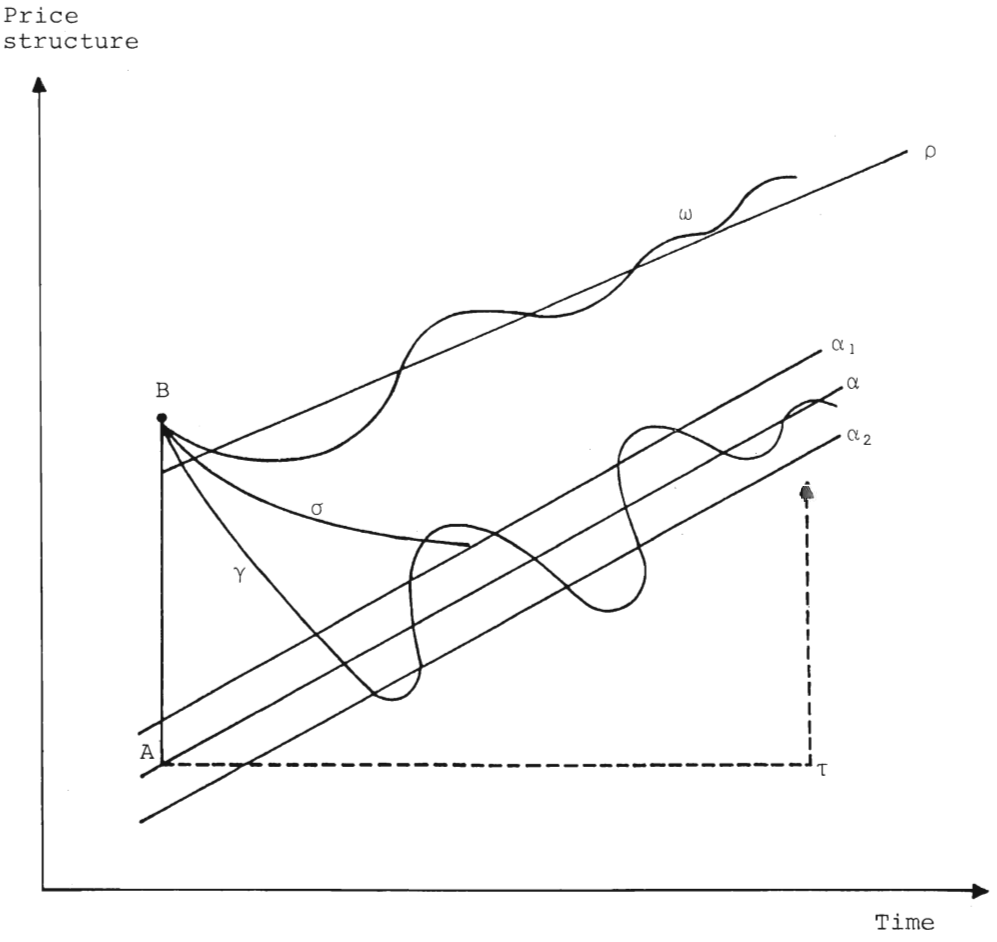
Since factor prices in a competitive in equilibrium are the same for all producers, the structure of relative costs, and hence the structure of relative prices, will be determined by the factor mix employed in production.

In Figure 2 initial equilibrium prices are represented by the point A. If technological change is introduced as an exogenous dynamic element in this static world, equilibrium prices will change over time. Those changes will reflect the impact of the new technologies on production costs. If the change in the underlying conditions immediately becomes known to everybody, and adjustment is instantaneous, relative prices will move along an equilibrium price path. In Figure 2 this path is labelled by α.

An economy in equilibrium, consisting of omniscient units which react but do not act, which immediately and painlessly adjust to changing supply-side conditions, is a poor representation of economic reality. This is particularly true for the industrial transformation process, and for the role played by prices in the market process.

The economy is never in equilibrium. Furthermore, an equilibrium concept at the macro-level makes no sense once endogenous structural change has been introduced in the model. In a market system, knowledge is imperfect and incomplete. Plans are continually being frustrated and revised in accordance with the participants' interpretation of market signals, among which prices are the most important. The adjustment to changing conditions is not an uninteresting intervening stage but as important as the change itself. "A system - any system, economic or other - that at every given point of time fully utilizes its possibilities to the best advantage may yet, in the long run, be inferior to a system that does so at no given point of time, because the latter's failure to do so may be a condition for the level or speed of long-run performance." (Schumpeter, 1942, p. 83.)

Figure 2 Relative price structure in a dynamic perspective



This means that there will be an incessant flow of disturbances in the price system, reflecting agents' alterations of plans in the light of the outcome of yesterday's plans. Changes in the underlying conditions will also bring about disturbances. Still, even if we have no major disturbances we might still say that the price structure will oscillate around the equilibrium path α, within rather narrow limits. In Figure 2 those limits are represented by $\alpha 1$ and $\alpha 2$.

Major disturbances do, however, occur and move the price structure far from any equilibrium. In figure 2 this is represented by the point B, a disequilibrium state characterized by widespread ignorance. The path which the price structure follows from B towards a new set of equilibrium prices, either on the old equilibrium path α or on a new one, is a path along which agents are learning by interpreting market signals. That means that the way in which price signals are transmitted to the market participants, and the extent to which those are allowed to guide the allocative decisions in the economy, are essential ingredients of the market process. The degree of rigidity in different markets will determine how long and sluggish the adjustment process will be, and what the costs of adjustment will be.

Given a structure of relative prices represented by A and a major disturbance which moves it to B, how will the adjustment process be reflected in relative prices? If the underlying equilibrium solution, represented by the underlying cost structure, has not changed we should expect a gradual return towards α. How rapid will the process be, and what will it look like? Which path will be followed? In Figure 2, path α represents repeated "overshooting" during the adjustment process. In terms of price structure, it is a case characterized by large short-run fluctuations around a stable trend. It can also be expressed as short-run instability and relative long-run stability. A different case is represented by the path σ along which the adjustment towards the original equilibrium path is gradual and smooth. In this case, relative price changes will be small in the short-run but larger in the longer run.

These cases are of course abstractions from a more comprehensive representation of what happens to prices in, for instance, a shock of the 1973 kind. One important question discussed extensively in Eliasson's and Sharefkin's papers in this volume is whether we have reason to believe that the economy will ever return to the old equilibrium path. The disturbance itself leads to feedback effects on the supply and demand sides. Demand patterns are altered and technical change is induced. The underlying long-term cost structure can develop very differently, depending on which path the price adjustment process takes. In this state, which can persist for years, ignorance prevails, market uncertainty is high and the agents in the market respond with mistakes and with increased caution. (See below Genberg's paper and the simulation experiments in Eliasson's paper.) The more sluggish the adjustment process, the greater the feedback effects and the more market agents will interpret the temporary disturbance as a long-term phenomenon -- and make long-run adjustments to the new signals. In Figure 2 this case is illustrated by the new equilibrium path ρ and the movement of ω towards it. We can illustrate this case by referring to the Swedish cost explosion in 1975. It did not reflect any change in the underlying long-run market conditions: to the contrary, it ran against to them. It was an effect of the overheated Swedish economy in the middle of the 70s. In this state of unpredictability, Sweden's basic industries embarked on excessive investment spending programmes based on misinterpreted price and profit signals.

That rise in wages threw the structure of relative factor prices far off its original track. Given the rigidity of the Swedish labor market, with centralized negotiations and very strong unions, the imbalance in the factor market was not corrected by market forces. But Swedish export industries, being price takers in competitive world markets, had to adjust to the new cost situation with strategies like substituting machines for labor and investing abroad rather an in Sweden. Thus a new structure of factor prices represented by the track ρ in Figure 2, was established.

The economic debate in Sweden has in the meantime been focused on whether Sweden has returned to the unit labor costs the country enjoyed prior to the crisis; the criterion was some sort of purchasing power parity. The recent devaluation of the Swedish krona (October 1982) seems to have ended this discussion but cannot be interpreted as a return to the precrisis cost situation. In fact, it amounts to a new shock to the price structure.

In Figure 2, τ represents a price structure gradually moving away from its "equilibrium path". As a consequence of price-controls, for instance, a price structure is no longer consistent with the underlying cost structure may persist for some time. Industry subsidies can have the same effect. If controls or subsidies are abolished or break down, we expect pries to adjust and move towards an "equilibrium" set of prices.[3] This means that what we experience as a shock to the price system might in fact be an adjustment. Something like that happened with the exchange rates when the Bretton-Woods system was abolished.

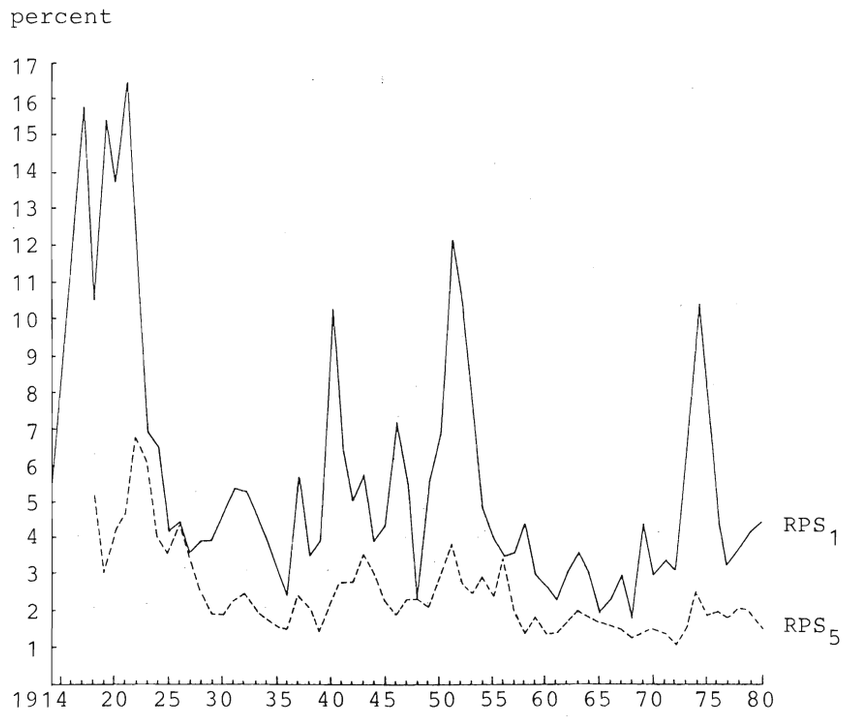
III SHORT-RUN PRICE STRUCTURE STABILITY

The first thing to establish is whether the structure of relative prices has been "stable" and if not, its movement. Figure 3 shows relative price-change dispersion annually and over five-year periods.

It is clear from that figure that the price structure has been far from stable. Furthermore, the instability has varied considerably. Periods of turbulent relative-price movement can be distinguished. To a large extent, those periods have coincided with great upheavals in the international economic order, such as the two world wars, which radically changed the demand and supply situation.

World War 1 and the following deflationary crisis in Swedish industry was characterized by extremely unstable relative prices. After the end of the war and the adjustment to peace-time conditions that followed, relative prices were comparatively stable until the end of the 30s. The great depression of the early 30s seems to have had only minor effects on relative prices in Sweden. This is well in line with other findings that the crisis of the 30s had a much smaller impact on long-run resource allocation in Sweden than the crisis of the beginning of the 20s. (See B. Carlsson et al., 1979). World War II and its aftermath represented a new period with considerable shifts in the structure of relative prices. Those developments culminated in the Korean War boom of 1951. Stabilization of the price structure followed up to the oil crises of the 70s, which show up as a new bump in the curves.

Figure 3 Relative price change dispersion in Swedish industry 1913-77, annual (RPS_1) and over five-year periods (RPS_5)[1]
(percent)



[1] The measures are explained in Appendix 1.

IV INFLATION AND RELATIVE PRICES - THE SHORT RUN

Inflation degrades and distorts the informational content of price signals. During a rapid and imperfectly anticipated inflation, it becomes difficult for economic agents to distinguish between nominal price changes and relative price changes. Nevertheless, many economists have argued that we have no reason, a priori, to expect that changes in the aggregate price level should affect relative prices, or vice versa. In an Arrow-Debreu world, the aggregate price level is just a multiplier of equilibrium relative prices. (See Patinkin, 1965, p. 131, and Vining & Elwertowski (1976)). On the other hand, many macroeconomic policymakers have blamed the inflation of the 70s on rising oil prices.

But empirical findings suggest that changes in the general price level are in fact correlated with changes in the structure of relative prices. The direction of the causality is, however, far from clear. The issue was raised by Mills as early as 1927, and the hypothesis was tested by Graham in 1930. To our knowledge the question was not raised again until the middle of the 60s, when Gleiser (1965) found a strong correlation between the rate of inflation and relative price dispersion. During the 70s similar conclusions were reached, by Parks (1978) and Vining & Elwertowski (1976).

It is easy to construct theoretical arguments for the hypothesis that movements in the general price level affect relative prices. Different markets react with different speed to an inflationary pressure. An economy consists of a many interdepending markets with differing price dynamics. In some of those markets, prices are adjusted daily or even more frequently. In others, prices are set infrequently and administratively. The latter is typical of markets where prices are set in long-term contracts or adjusted only by negotiation. (See for instance J.M. Clark, 1961.) The variety of price-setting procedures in an economy means that we should expect at least a temporary shift in relative prices even in the face of inflationary pressures.

Furthermore, demand patterns should shift in periods of rapid inflation. To protect themselves from rising prices, economic agents try to maintain real wealth. Thus they increase their demands for durable goods and raw materials, and decrease their demand for other products. Thus demands for different goods will have different elasticities with respect to the rate of inflation.

Moreover, in inflationary periods it becomes more difficult to identify changes in relative prices, and to discriminate between relative-price and nominal-price changes. Consumers and producers become less sensitive to nominal price signals, and their supply and demand curves become less elastic. A given change in demand or supply leads to a larger spread in relative prices.

Finally, a rise in the general price level, whatever its origin, generates compensating wage claims. Depending on the relative bargaining power of labor unions and employers, cost increases will differ across industries, changing relative prices.

Thus far we have assumed that the direction of causality runs from inflation to relative price changes. But we might also assume the opposite direction of causality: from shifts in relative prices to increases in the general price level. Different markets react with different speeds to inflationary pressure, but they also react asymmetrically to upward and downward pressures on prices. Very few markets in an economy, if any, are of the "exchange" type, where prices move freely up and down to a market-clearing price. To the contrary, almost all prices are "administered" in the sense of being quoted or negotiated. Such prices are more or less sticky in the short term.

A prime example of such a market in Sweden is of course the labor market. Centrally-negotiated increases and wage drift allow for some flexibility upwards, but it has been virtually impossible to lower a wage. In such a market a random series of pressures on wages results in a "ratchet action" increasing the level of prices. (Clark, 1961.)

The labor market is an extreme case, but the combination of flexibility upwards and rigidity downwards is characteristic of most markets. Moreover, the degree of administration in price formation seems to have increased. Structural change within manufacturing supports this trend, as product differentiation and product sophistication increase in importance. In the Swedish engineering industry, for example, the price of the product has become less important as a competitive factor. (Carlsson et al., 1981.) Increasing Government interference in the formation of prices by means of controls and subsidies contribute to the same tendency.

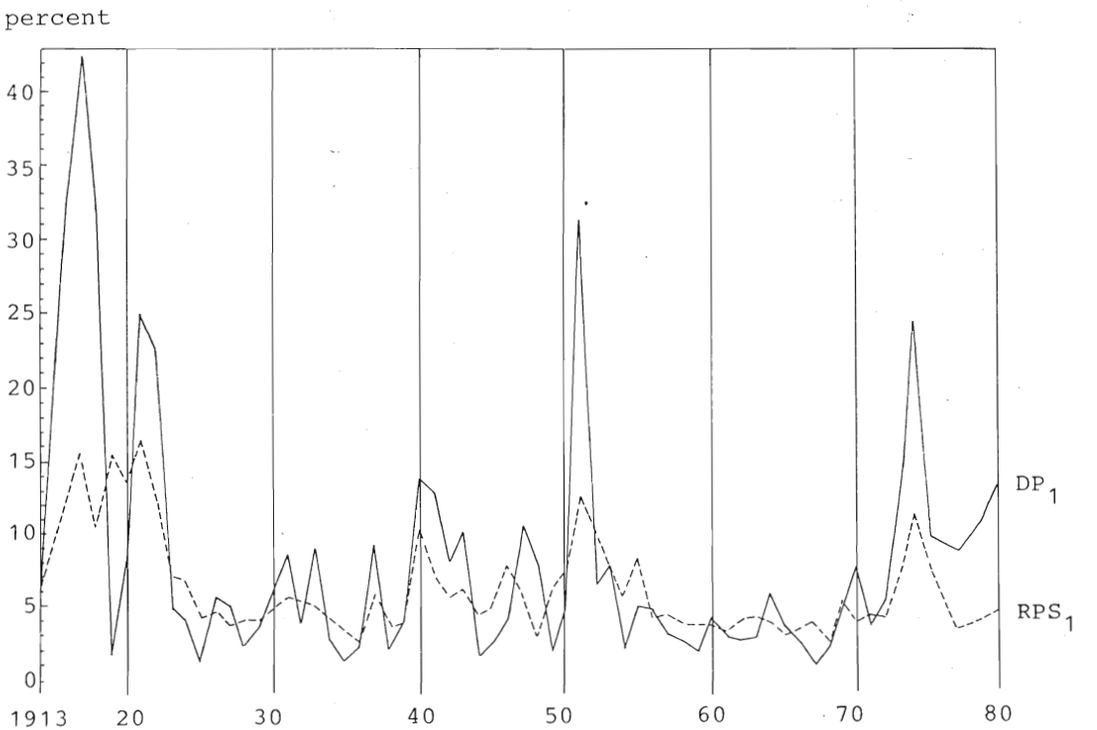
Thus the combination of disequibrium, structural imbalance and price rigidity downwards means that prices tend to rise on markets with excess demand, but that prices on markets with excess supply will not fall correspondingly. The result will be an increase in the aggregate price level.

A related observation is that more rapid inflation tends to be associated with greater variation in the rate of inflation. This hypothesis has been tested by Foster (1978) and Logue-Willett (1976), by cross-section analysis on a sample of countries. Their findings support the hypothesis. When their methods are applied to Swedish industry data, the hypothesis cannot be rejected. The coefficient of correlation between absolute changes in the general price level (DP1) and fluctuations in the rate of inflation (VP_1) is 0.44.

There are some important implications for the behavior of relative prices. Expectations regarding future inflation rates will differ widely among economic agents. Since prices depend, in part, on those expectations, an increase in the dispersion of relative prices is likely.

The relationship between changes in the general price level and changes in relative prices for Swedish industry is illustrated in Figure 4. It shows annual changes in price dispersion (RPS_1) and the annual absolute change in industry prices. No qualitative distinction is drawn between inflation and deflation.

Figure 4 Annual change in prices for industrial products, absolute value (DP_1), and annual relative prices change dispersion (RPS_1) 1913-80[1]
(percent)



[1] Measures are defined in Appendix 1.

The impression one gets from the figure is that the two variables are correlated. That impression is supported by the results reported in Table 1. The simple correlation coefficient between the spread in relative price change (RPS_1) and the absolute change in industry prices (DP_1) is given; the coefficient is 0.72.[4] The correlation coefficient between RPS_1 and fluctuations in the rate of inflation (VP_1) is even stronger: the coefficient is 0.76.

If we go one step further and estimate a linear regression where annual relative price change dispersion (RPS_1) is regressed on the absolute change in the industry price (DP_1), the variability of the rate of inflation (VP_1) and a trend factor (T), we get the result reported in Table 2.

Table 1 Correlation between annual relative price change dispersion (RPS_1), annual change in industry prices, absolute value (DP_1) and annual change in the rate of inflation (VP_1) 1914-77[1]

	RPS_1	DP_1	VP_1
RPS_1	1	0.72	0.76
DP_1	0.72	1	0.44
VP_1	0.76	0.44	1

[1] These measures are defined in Appendix 1.

Table 2 Linear regression with annual relative price change dispersion (RPS_1) as dependant variable and annual change in industry prices, absolute value (DP_1), annual change in the rate of inflation (VP_1) and a trendfactor (T) as independent variables 1914-77[1]

Dependent variable RPS_1	Independent variables					
	Constant	DP_1	VP_1	T	DW	R_2
	0.0432	0.1679	0.2355	-0.0004	1.545	0.797
	(7.87)	(6.6)	(7.60)	(-3.78)		

(Student t-values (in parenthesis), and R^2 adjusted for degrees of freedom)

[1] These measures are defined in Appendix 1.

V INFLATION AND RELATIVE PRICES - THE LONG RUN

The fundamental role of the price system is to transfer information to agents in the market process. Producers and consumers can then decide what to produce or consume, and how. The information content of price signals in this connection lies in relative prices: the price of oil relative to coal, the price of labour relative to capital, the price of engineering products relative to textile products, and so on.

We have seen that as the rate of inflation increases it tends to vary more rapidly over time. We have also seen that there is a strong tendency for relative-price change dispersion to increase. Sometimes those changes in relative prices are temporary and reflect instabilities in the price system. In that case, the original relative prices are quickly restored, and market agents need not make any long-run adjustment. If, however, the new relative price reflects long-run changes in market conditions we have what we call transformation pressure.

The speed of adjustment depends on whether we introduce adjustment costs in our scheme of thought or not. Traditionally, we assume, however, that there exists a unique equilibrium, and that the economy eventually will get there. But to understand the role of prices in a dynamic transformation process, we must abandon such abstractions. Decisions to react to a price signal by reallocating resources depend on how participants in the market process perceive the change in relative prices, i.e., as being temporary or permanent. Transformation pressure exists only if the change in relative prices is perceived as reflecting a long-run shift in market conditions. If that change is transitory, expectations are frustrated as the old relative prices are reestablished. When, for instance, the Swedish steel industry interpreted the 1973 increase in relative steel prices as permanent and started to invest heavily, it made a costly error.

For the actions triggered by a price signal, the distinction between real and fictitious is unimportant; for the consequences, the distinction is of course fundamental.

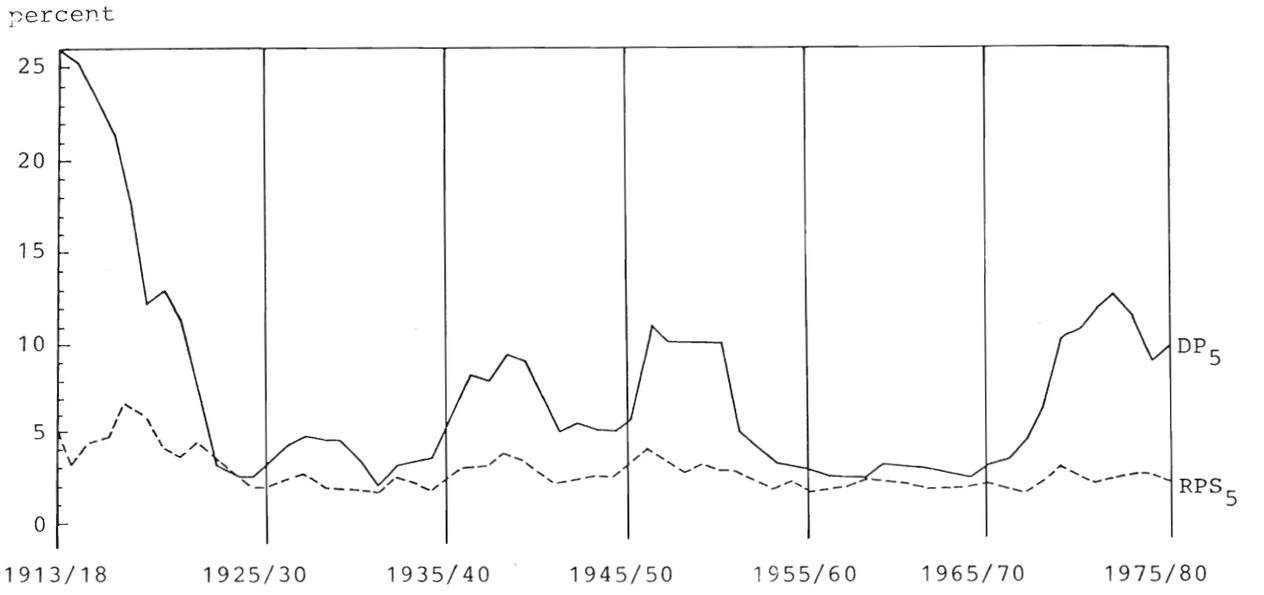
For a change in the relative prices to be interpreted as a long-run shift, the question of duration is crucial. Transformation pressure will hardly arise if an increase in the relative price of a product is wiped out within a year. On the other hand, as time passes more economic agents will make long-run adjustments to price signals. Those reactions will in turn affect the relative price. The Swedish iron-ore mining in the post-war period illustrates the point. After World War II the relative price of Swedish ore rose by about two thirds until the end of the 50s. Enormous land rents were earned by the principal Swedish iron ore company, LKAB, which had gross profit margins of about 65 per cent. During the 60s and 70s the high price resulted in new mines being opened up in other parts of the world, eroding land rents earned by LKAB and lowering the relative price of iron ore. Today the relative price of Swedish iron or mining is one-third lower than it was at the end of World War II. LKAB has become burden on its regional economy.

Thus when we ask whether transformation pressure has had time to arise or not, the choice of period has to be a compromise between these two aspects. We have calculated relative price change dispersion over five year periods (RPS_5) for the period 1913 to 1980. That measure, together with the measure of annual dispersion is shown in Figure 3. Comparison of the two curves suggests that many of the annual changes in relative prices indeed were temporary, and disappear if five-year periods are studied. Nevertheless the characteristics of the one-year curve remain. It is clear that the period up to the end of the 20s, and the decades of the 40s and 50s, were characterized by considerably more transformation pressure than the 30s and particularly the 60s up to the first oil crisis. Particularly striking is the increase in transformation pressure in the 70s.

The connection between relative price change dispersion and changes in the general price level also remains strong. In Figure 5, RPS_5 is shown -- along with the arithmetic mean of absolute changes in industry prices (DP_5). The two variables are analogous to the price variables presented on an annual basis above. As can be seen in Table 3, the coefficient of correlation between inflation and relative price change dispersion is 0.68 on a five-year basis.

The hypothesis that a high rate of inflation is associated with greater variability in the rate inflation is also supported. The coefficient of correlation between those variables on a five-year basis is 0.90, considerably higher than the corresponding calculation computed from annual data. We also find a strong correlation between the spread in relative price changes and variability in the rate of inflation. As can be seen from Table 4, we obtain a better estimate of the linear relationship between relative price changes and inflation variability than between price changes and the changes in the general price level. If both variables are considered, variability takes over completely as an explanatory variable. This is of course due to the strong correlation between the two independent variables.

Figure 5 **Change in industry prices, absolute value (DP_5) and relative price change dispersion over five-year periods (RPS_5), 1913-80**[1]
(percent per year)



[1] These measures are defined in Appendix 1.

Table 3 Correlation between relative price change dispersion (RPS_5), change in industry prices (DP_5) and variability in the rate of inflation (VP_5) 1913-77. All variables on a five-year basis[1]

	RPS_5	DP_5	VP_5
RPS_5	1	0.68	0.80
DP_5	0.68	1	0.90
VP_5	0.80	0.90	1

[1] These measures are presented in Appendix 1.

Table 4 Linear regressions with relative price change dispersion (RPS_5) as dependent variable and change in industry prices, absolute value (DP_5), variability in the rate of inflation (VP_5) and a trendfactor (T) as independent variables 1913-77. All variables on a five-year basis[1]

Dependent variables	Constant	Independent variables				
		DP_5	VP_5	T	DW	R^2
RPS_5	0.255 (8.475)	0.1038 (5.356)	-0,003	0.895 (-4.417)	0.5839	
RPS_5	0.0220 (8.491)		0.0360 (7.984)	0.0002 (-3.906)	1.247	0.705
RPS_5	0.0224 (8.602)	-0.0389 (-1.1806)	0.0453 (4.987)	-0.0003 (-3.921)	1.308	0.707

(Student t-values in parenthesis, R^2 adjusted for degrees of freedom.)

[1] These measures are presented in Appendix 1.

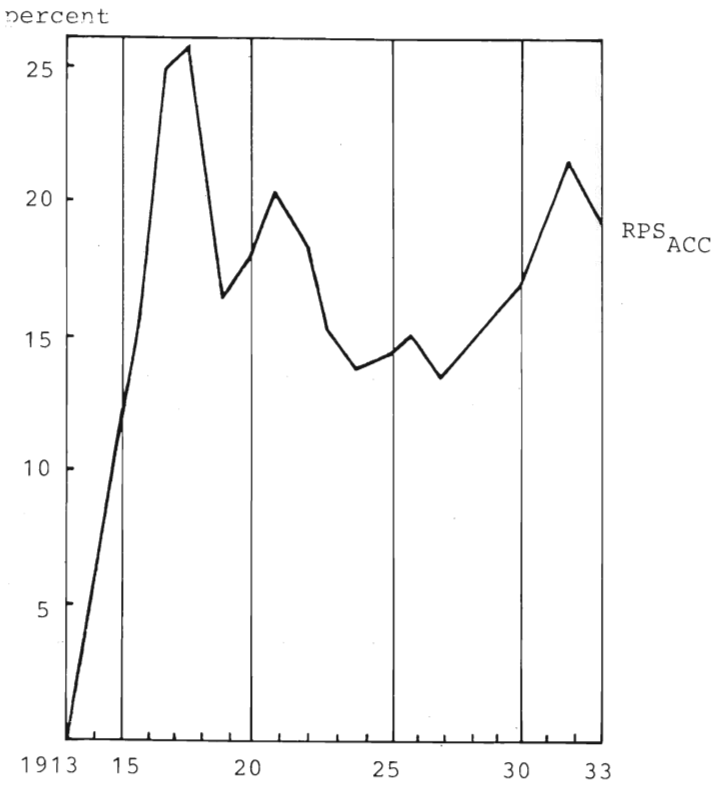
VI CRISES AND RELATIVE PRICES

We have seen above that some periods in the history of Swedish industry have been characterized by substantially larger changes in relative prices. Those periods are the two world wars, including their preludes and aftermaths, the Korean boom in 1951 and the stagflationary crisis of the 70s. The Swedish economy was characterized by extreme imbalances during these periods. The discussion above has indicated that they were not just temporary. They had considerable structural content, meaning that price signals pointed to the need for long-run structural adjustment. We have called those periods "crises", and we view them as shocks that moved relative prices far from equilibrium. How, then, did prices adjust after these shocks? What, for instance, was the time profile of aggregate relative price changes? Can we identify repetitive patterns?

To explore these questions we want to study how prices developed during and after the crisis in comparison with the price structure prior to the crisis. We have chosen 1913, 1920, 1939, 1949, and 1972 as base years: those are the prices with which we wish to compare price changes. Starting from these years we have accumulated data on relative price changes 20 years into the future. The behaviour of this measure RPS_{ACC} is illustrated in Figure 6. That figure shows how the structure of industry prices evolved during 1913-33, compared to the price structure of 1913. Price dispersion increased up to 1918, when relative price changes in industry averaged 26 per cent. Subsequently, relative prices moved towards the structure of 1913. That movement was interrupted in 1920-21 and resumed again in 1922. The relative prices of 1913 were, however, not reestablished. If this had been the case, RPS_{ACC} would have been 0 that year. Instead, movement towards pre-war relative prices ceased in 1927 at a relative price change of some 15 percent on average compared with 1913.

The behaviour of the price structure during the six crises episodes is shown in Figures 7A-F. The measure depicted indicates

Figure 6 Accumulated relative price change dispersion (RPS_{ACC}) 1913-33[1]
(percent per year)



[1] The measures are presented in Appendix 1.

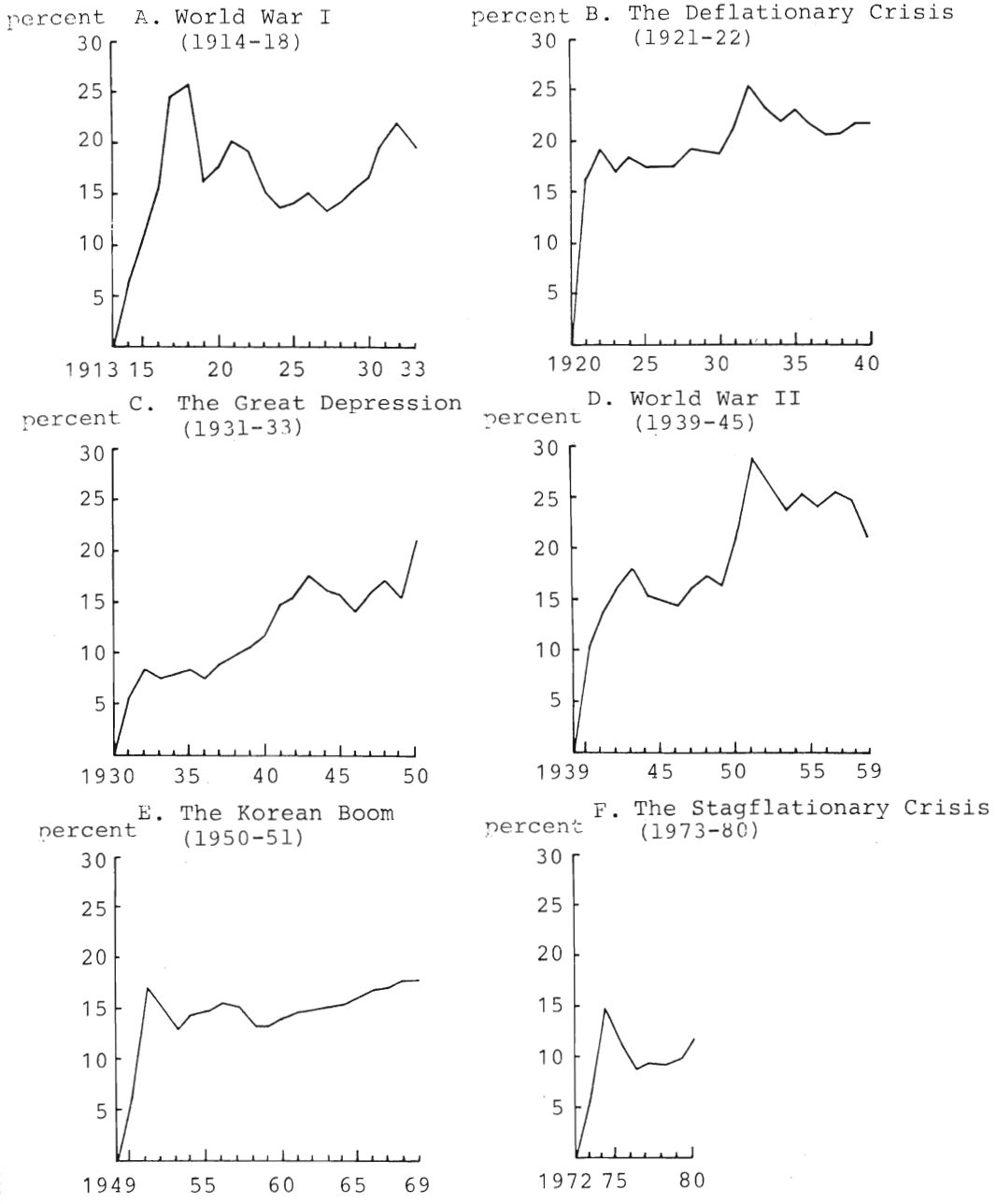
whether relative price changes have been temporary or persistent. Did the structure of relative prices return rapidly to the preshock structure? Did diverging price movements also reflect long-run shifts in market conditions and thus signal transformation pressure in the Swedish economy? If price shocks were temporary the curve of cumulative relative price change should move rapidly toward zero or toward a long-run trend of relative price change. There are some conceptual problems in interpreting Figure 7 since, regardless of external shocks, productivity changes generate continuous changes in relative prices.

The curve with 1913 as base year shows the effect of World War I on relative price development. (Figure 7A.) The outbreak of the war led to considerable relative-price shifts. Accumulated relative price change increased up to 1918. That period was also characterized by very high rates of inflation, on average 25 percent per year. Those price movements reflected the abnormal situation the Swedish economy experienced in the shadow of the war on the continent.

It is obvious that these very large changes in relative prices reflected long-run shifts in the composition of demand, contingent on continuation of the war. As seen in Figure 7A, an average relative price change in Swedish industry from 1913 to 1918 was 26 %. Sweden adapted to a war economy, or rather to an economy in a state of alert, through an inflationary, and increasingly speculative, boom.

On the other hand, much of the price signaling reflected the extraordinary demand and supply conditions of World War I. The fact that Swedish industry made long-run adjustments to those conditions meant that once the war was over, a painful readjustment to peace-time conditions would be necessary. Major sectors of Swedish industry had almost no chance of surviving that readjustment. A movement in relative prices towards the structure of 1913 was initiated in 1919 and the rate of inflation decreased

Figure 7 Accumulated relative price change dispersion (RPS_{ACC})[1] 1913-33, 1920-40, 1930-50, 1939-59, 1949-69 and 1972-80
(percent per year)



[1] The measures are presented in Appendix 1.

markedly. Extensive inventory accumulation delayed the readjustment crisis. At the end of 1920, however, prices started to fall. The openly-declared intention of the Swedish government to return to the prewar gold-standard reinforced that fall in prices. The postwar deflation culminated in 1921, when the average price of industrial goods fell by 25 percent, and by another 22 percent in 1922.

Thus far, that was the most severe crisis Swedish industry had experienced. Regarding relative prices, we can see from the 1913 curve that some movement towards the price structure of the base year occurred. That movement continued in 1922-24, when the general price level had stabilized. Nevertheless, if we summarize the accumulated changes in relative prices, World War I and its aftermath saw far greater changes, and even long-run changes, than any other period during the 20th century.

If we examine the curve from 1920 onwards, we get a somewhat different impression of what has been called the Deflationary crisis. (Figure 7B.) The large relative-price changes of 1921-22 were of a long-run character. Between 1922 and 1930, relative prices changed very little from their 1920 values.

The production and employment effects of the Great Depression of the 30s on the Swedish economy were considerable, but they were short-lived. The depression did not really reach Sweden until 1931, and the trough bottom of the slump came in 1933. After that, a vigorous upswing started and peaked in 1937, when industrial production was up 50 per cent over the previous boom. Sweden's foreign trade increased more than 20 per cent from peak to peak in a time when world trade was stagnant. The successful, but more or less accidental, devaluation of 1931 played an important part in the performance of the Swedish industry in the 30s.

The behavior of industrial prices and transformation pressure in the crisis of the 30s differed radically from the corresponding be-

havior patterns during other crises. The deflationary tendency of the 20s persisted through the crisis and up into the middle of the 30s. That decade saw the origins of the inflationary period that has run through the whole post-war era. It is no coincidence that this historical reversal of trends began within a few years of the reorientation of economic policy under the Social Democrats, who carne into power 1932.

Relative prices remained remarkably stable in comparison with the great dispersion in relative price changes that has characterized the other crises (Figure 7C.)

The beginnings of the next wave of inflation coincide with the outbreak of World War II in 1939. We have chosen this as the base year for our next curve. (Figure 7D.) As was the case during World War I, Swedish industry had to adapt to a "war economy". But that transition was much smother this time, in part because of better policy decisions but also in part because conditions were different. Swedish industry could depend on a much larger domestic market, and was to a larger extent oriented towards that market. And Swedish industry had seen more than 15 years of financial consolidation, albeit from a weak position. World War I was preceded by hectic growth with a considerable element of speculation; Sweden had a much more stable and mature industrial sector in 1939.

Nevertheless, the smooth adjustment of Swedish industry to large changes in relative prices was remarkable. Given wartime conditions, most price signals must have been perceived as structural and expected to persist. Thus strong transformation pressure was created. This is indicated by the 1939 curve, which suggests that price dispersion was significantly and cumulative, during the first half of the war. A relatively high rate of inflation was also characteristic of that period. By 1944 prices had stabilized, and three years of gradual movement of prices towards those of of the 1939 occurred.

At the end of World War II, Swedish economic policy was mobilized for structural crisis like that of the 20s. The expected crisis never materialized, and what happened was entirely different from what had been expected. The Swedish economy obviously adjusted very easily to post-war conditions. Relative prices showed no tendency to return to prewar levels in contrast to what happened after World War I. To the contrary, the 1939 curve of cumulative changes in relative prices indicates a movement still further away from the price structure of 1939 (Figure 7D.) Furthermore, those price movements were, on the whole, extremely favorable, reflecting the unique competitive position of Swedish industry, after the war. One indicator is the development of Sweden's terms of trade, which increased some 50 percent in the first five years after the war.

That development peaked in the inflationary Korean Boom of 1951 (Figure 7E.) It was also characterized by rapidly shifting relative prices. Calling the Korean boom a "crisis" may seem somewhat surprising. Price signals this time, however, had a strong structural content as can be seen from the curve of cumulative price changes starting from 1950. Those changes created reallocation pressures with far-reaching long-run consequences for the development of Swedish industry. We can identify a tendency for the price structure of 1950 to be reestablished. It is small, however, and most of the relative price changes represented long-run shifts.

From the middle of the 50s, there were almost 20 years of gradual accumulated change in the price structure relative to the structure in 1950. The curve strongly suggests an economy not subject to major external shocks. Relative prices tend to oscillate around an "equilibrium" path, as dictated by underlying productivity changes. But an increase in the rate of change can be spotted from the middle of the 60s.

In 1973 inflation gathered speed once more, and relative price changes increased as the Stagflationary Crisis deepened. This

shows up very clearly in Figure 7F; in that figure 1972 is taken as the base year. Those price trends were further reinforced in 1974. As the rate of inflation decreased in 1975, there was a marked return of relative prices towards the structure of 1972. In this respect the first oil crisis -- or rather the boom for raw materials, of which the oil price rise was an important part -- saw more over-shooting than the earlier crises. Moreover, the price movements of 1973-74 saw smaller long-run shifts in relative prices (except for the relative price of oil) than any of the earlier crises, apart from the depression of the 30s. That does not mean that the crisis of 1973-74 did not signal increasing transformation pressure. On the contrary there was a marked increase in such pressure in the 70s compared with the 60s, but it seems to have been smaller than in the other six crisis episodes. Particularly noteworthy was the difference between price movements in the first and second oil crises. Whereas the first oil crisis was part of a more general materials boom, the second oil crisis was a "true" oil crisis: the relative price of oil increased rapidly, while other prices lagged.

Considering the problems facing large sectors of Swedish industry, this behavior was puzzling. Perhaps sectors had lost their ability to make the necessary long-run reallocation even in the face of a moderate increase in transformation pressure, for want of financial resources or managerial skills or because of rigidities in the wider economy. Or perhaps those sectors were forbidden, by the government, to adjust, for reasons of regional and labor-market policy considerations. The existence of "lame duck industries" from which private capital has withdrawn and the state has moved in with huge subsidies give some support to this observation. Probably, however, we must link the increase in transformation pressure with the wage cost explosion in the Swedish economy in the middle of the 70 s. That abnormal increase in wage costs created financial problems for much of Swedish industry, problems that were mistaken for structural problems.

VII RESULTS AND CONCLUDING REMARKS

The fundamental role of prices in a market economy is that of guiding resource-allocation decisions. The relevant prices in this context are relative prices, represented in this paper by producer prices for 42 individual industries in relation to a price index for all manufacturing and mining.[5]

Changes in relative prices, regardless of the underlying causes, create transformation pressure, i.e. pressure to reallocate resources. In a functioning market economy, the agents participating in the market process must respond. An increase in demand for the output of some particular industry pushes up the relative price of its products, and draws additional resources into that industry. A drop in demand, on the other hand, creates an incentive to withdraw resources. Changing relative prices, originating in changes on the supply side work in the same manner.

If relative price changes in the economy are aggregated, we can define an indicator of the economy-wide tranformation pressure. In such a measure (defined more precisely in Appendix 1), relative price changes should enter with their numerical values since both upward and downward changes signal transformation pressure.

Disequilibria in which positive and negative quasi-rents are being earned are the usual state of affairs in a modern economy. Thus there are always profits to be made, and the person who first perceives such opportunities is the entrepreneur. Indeed those disequilibria represent a driving force in the transformation process, and hence in economic development. They may be the result of new products, new processes, new markets and new institutions. This is the Schumpeterian process of creative destruction, which alters the economy from within. The disequilibria may, however, be the result of external shocks to the economic systems, such as the two world wars or the oil crisis of the 70s.

Whatever their causes, disequilibria result in diverging relative price movements. How participants in the market process interpret and react to such movements will be decisive for the speed and direction of economic development.

The first thing we established in this paper was that the structure of industrial prices in Sweden has been far from stable during the peirod analysed. And the size of that instability has varied considerably, as shown in Figure 3. Thus the transformation pressures in Swedish industry have varied over time. We can distinguish periods characterized by large relative-price shifts. To a considerable extent those periods coincide with upheavals in the international economic order, such as the two world wars, including their prologues and aftermaths. The associated changes in demand and supply conditions clearly did not reflect technological change.

A related question is whether these results reflect purely short-run relative-price instabilities, which would disappear over the longer term. We have chosen to examine this issue by looking at five-year periods. The results are also shown in Figure 3. The differences between the annual and the five-year relative price change dispersion show that relative prices were signaling short-run changes. Nevertheless, the two curves are qualitatively similar.

In the context of industrial tranformation and the signalling function of prices, temporary relative price changes are not uninteresting phenomena. If the amplitude of short-run price signals grows it becomes increasingly difficult for participants in the market process to discriminate between long- and short-run signals. Allocative decisions then must be made in a situation of greatly increased uncertainty, and errors in investment are likely.

Since economic agents must rely on nominal price signals, unanticipated inflation in effect increases the noise to signal ratio and

reduces the information content of the price structure. Moreover, if prices are sticky downwards, increasing relative prices for some industry's output will increase the rate of inflation. The hypothesis that there exists a correlation between short-run fluctuations in the general price level and annual relative price dispersion has been tested on a cross-section of countries. For those countries, it cannot be rejected. Our data for Sweden give similar results, both on an annual basis and on a five-year basis.

Since 1913 Swedish industry has been exposed to several shocks or "crises", as a result of drastically changed market conditions. The outbreak of World War I initiated an inflationary boom in the Swedish economy, which grew increasingly overheated and speculative. The return to peacetime market conditions took place in a deflationary crisis with mass unemployment and the financial collapse of major sectors of Swedish industry. The crisis of 1921-22 was much more severe than the great depression of the 30s. Above all transformaton pressure -- the need to make long-run adjustments -- was much smaller in the latter crisis.

World War II drastically changed market conditions for Swedish industry. This time the increse in transformation pressure was much more successfully handled by industry. Similarly, the problems encountered after World War I were not repeated. On the contrary, the competitive strength of Swedish industry can be summarized by the 50 percent increase in terms-of-trade that took place 1945-51. This development culminated in the inflationary boom of the Korean war in 1951. The international economic environment then stabilized, and the Swedish economy was not subjected to new external shocks until the oil crises of the 70s.

In all these crises the ability of Swedish industry to adjust to radically new market conditions was tested. A world crisis in this context does not necessarily mean worsened market conditions. On the contrary, the years following World War II greatly improved the competitive position of Swedish industry. Nevertheless,

transformation pressures forced Swedish industry make long-run adjustments, with consequences for the transformation of Swedish industry all through the post-war period.

The development of industrial prices in all but one of these crises was characterized by an initial phase of rapid change in the general price level and by turbulent relative-price movement. High inflation rates characterized the beginning of the two World Wars, the Korean boom and the oil crises. The deflationary crisis, on the other hand, almost halved the price level within two years. In this general picture the crisis of the 30s stands out as a noteworthy exception, since it was not accompanied by any major change in industrial prices. This is in line with other findings that the crisis of the 30s differed from the others in important aspects.

Price movements during the initial phase of most of the crises included considerable overshooting. But after a few years there was a tendency for relative prices to return to their original values. Once again, the crisis of the 30s is an exception, since it saw neither inflation/deflation of any significance, nor substantial relative price change dispersion, and consequently no overshooting. The deflationary crisis of the 20s was moreover characterized by a larger one-time shift in relative prices.

The tendency for a precrisis price structure to be restored should, however, not be exaggerated. In almost all the episodes, there remained a marked shift in relative prices, meaning that relative price movements had reflected long-run changes in market conditions. It is not possible to talk of any of the crises as bubbles, or temporary shocks to the price structure, without long-run consequencies.

The findings in this paper show that relative price movements in stagflationary crisis of the 70s to some extent resemble those of the other crisis episodes. The initial phase, of inflation and

strongly diverging price movements, is there. The tendency to re-establish the original structure of relative prices seems to have been more pronounced, meaning that relative price dispersion was essentially short-run nature. The stagflationary crisis thus has meant less transformation pressure on Swedish industry, i.e. smaller long-run shifts in relative prices. But this time Sweden has coped with the crisis much less successfully than with previous crises in terms of growth, external balance and price stability. The ability to adjust and the flexibility of the economy have been inadequate. Could it be that all our sophisticated economic policy measures aiming at stabilization and fine tuning of the economy cost us the ability to handle price shocks? Have we so constrained the working of markets that they no longer can perform their tasks satisfactorily?

APPENDIX I

P - Price index

The analysis is based on data showing how prices have developed in 42 industries 1913-80. These price series have been aggregated into a producer price index for industrial goods. The index formula used is a Divisia-index formula.

$$P_t = P_{t-1} \cdot \sum_{j=1}^{42} (\sigma_{j_{t-1}} \cdot \frac{P_{j_t}}{P_{j_{t-1}}}).$$

where

P = price index total manufacturing and mining industries

P_j = price index, branch j

σ_j = share of production value of manufacturing and mining industry for branch j.

RPS_x - Relative price change dispersion

$$RPS_{x_t} = \frac{1}{x} \sum_{j=1}^{42} \sigma_{j_{t-x}} \left| \left(\frac{P_{j_t}}{P_{j_{t-x}}}\right) / \left(\frac{\bar{P}_t}{\bar{P}_{t-x}}\right) - 1 \right|$$

where

x = The length of period (here 1 and 5 years)

$\sigma_{j_{t-x}}$ = The share of branch j in the total production value of manufacturing and mining industry in year t-x

P_j = Price index for branch j

$\bar{P}$ = Price index for industrial products

RPS_{ACC} - Accumulated relative price change dispersion

$RPS_{ACC_{t-(t+x)}}$ = Accumulated relative price change dispersion between the base year t and year t+x

$$RPS_{ACC_{t-(t+x)}} = \sum_{j=1}^{42} j_t \left| \left(\frac{P_{j_{t+x}}}{P_{j_t}}\right) / \left(\frac{\bar{P}_{t+x}}{\bar{P}_t}\right) - 1 \right|$$

where

x = 1, 2, 3,....20.

DP - Change in the prices of industrial products, absolute value

1. DP_{1_t} = Annual percentage change in the price index for industrial products, numerical value

$$DP_{1_t} = \left| \dot{p}_t \right|$$

$\dot{p}$ = Annual change in industry prices, percent

2. DP_{5_t} = Average change over 5-year periods in the price index for industrial products, absolute value

$$DP_{5_t} = \frac{1}{5} \sum_{i=t-x}^{t} \left| \dot{p}_i \right|$$

VP - Variability in the rate of change in the price index for industrial products

1. VP_1 = Annual variability in the prices of industrial products

$$VP_{1_t} = \left| \dot{p}_t - \dot{p}_{t-1} \right|$$

2. VP_5 = The variability in the prices of industrial products over 5-year periods

$$VP_{5_t} = \sum_{i=t-5}^{t} \left| \dot{p}_i - \sum_{i=t-5}^{t} \dot{p}_i/5 \right|$$

APPENDIX II
The Data

The picture of Swedish industrial transformation we have presented is based on statistical material compiled for this paper and for an earlier paper on relative prices and structural change (Josefsson-Örtengren, 1980). At this level of disaggregation, no comparable data exists for Swedish industrial development from 1913 to 1980. Below we list the sources of our data on prices, production volume and sales value.

In our compilation of data we have aimed at an internally consistent set of indices. Another principle has been to use official figures, when available. These two principles have sometime been in conflict with one another. In those cases we have given priority to the second, i.e. that official figures should be used. The most important deviation from this rule concerns the price index for Total Manufacturing 1953-63, where our implicit deflator has been chosen. The reason is that the official index for wholesale prices deviates considerably from our implicit index. We have in this case given priority to the need for consistency.

The 42 branches (see below) have been classified according to the Swedish standard classsification of economic activities (SNI), which is identical with the ISIC 1968 up to and including the four digit level. In addition it has a fifth and a sixth digit level of national classification.

That system for classification has been used in the Swedish industrial statistics since 1968. Before 1968, establishments in industry were classified according to a national nomenclature. In its outlines it dated back to 1913, with some alterations. For comparability over time, our time-series have been linked. The most important such linkages are for 1939, 1945, 1951, 1953, 1963 and 1967.

1 Sales value

Sales value in current prices has been taken from the Swedish industrial statistics 1913-80. Sales value has been chosen, instead of value added, since no data on the latter variable is available before 1953. That is the year in which it was introduced into Swedish industrial statistics.

2 Production Volume

We have used three sources.

a 1913-40: The basic statistical material compiled at the IUI in 1950, when the Institute revised the production volume series of the Federation of Swedish Industries (see Ruist, 1950).

b 1940-49: The production-volume figures calculated by the Board of Commerce and published in the journal Kommersiella Meddelanden.

c 1949-80: Different production volume figures from the Swedish Central Board of Statistics.

For total Mining and Manufacturing the production volume has been calculated as the weighted average of the production volumes in the individual branches. A standard Divisia-formula has been used.

3 Prices

In most cases, when official price indices have been available, they have been used. But where no official price index exists, which is the rule before 1950, we have calculated prices as the implicit deflator between the sales value in current and constant prices, calculated as given above.

This means that our price indices should be treated with some caution. Besides the usual problems of price index calculations, they have the problems of historical time series.

Branch		SNI-class	Type of price index[1]
1	Mining, quarrying	2	Calculated from the foreign trade statistics
2	Meat production	3111	1949-1980: Wholesale prices
3	Dairies	3112	1949-1980: Wholesale prices
4	Fish, fruit or vegetables tinned or frozen	3113-3114	1963-1980: Producer prices
5	Margarine production	31151	1963-1980: Producer prices
6	Milling industry	3116	1949-1980: Wholesale prices
7	Bakeries	3117	1949-1980: Wholesale prices
8	Sugar industry	3118	1963-1980: Producer prices
9	Confectionary	3119	1963-1980: Producer prices
10	Beverages (liquor excl)	3133	1963-1980: Producer prices
11	Other food industry		1963-1980: Producer prices
12	Spinning, weaving etc	3211	1963-1980: Producer prices
13	Knitwear industry	3213	1949-1980: Wholesale prices
14	Wearing apparel	322	1949-1980: Wholesale prices
15	Tanneries	3231	1949-1980: Wholesale prices
16	Furs and leather industry	3232-33	
17	Footwear	324	
18	Other textile industry		
19	Sawn wood	33111	1963-1980: Producer prices
20	Other wood products		1963-1980: Producer prices
21	Pulp industry	34111	1949-1980: Wholesale prices
22	Paper industry	34112	1949-1980: Wholesale prices
23	Other pulp and paper		
24	Printing, publishing	342	1963-1980: Producer prices
25	Fertilizers	3512	1949-1980: Wholesale prices
26	Paints	3521	1949-1980: Wholesale prices
27	Soap and detergents	3253	1949-1980: Wholesale prices
28	Petroleum refineries	353	1949-1980: Wholesale prices
29	Matches	352901	2)
30	Other chemicals		
31	Rubber products	355	1949-1980: Wholesale prices
32	Pottery, china etc.	3610	1963-1980: Producer prices
33	Glass and products	3620	1963-1980: Producer prices
34	Bricks and tiles	3691	1963-1980: Producer prices
35	Cement	36921	
36	Other stone and clay		
37	Iron and steel	37	1949-1980: Wholesale prices
38	Metal products	381	1963-1980: Producer prices
39	Machinery n.e.c.	382	1963-1980: roducer prices
40	Electrical machinery	383	1963-1980: Producer prices
41	Transport equipment	3842-49	1963-1980: Producer prices
42	Shipbuilding, repair	3841	Producer prices
43	Mining and Manufacturing	2+3	1913-1963: Implicit deflator 1964-1980: Producer prices

[1] When no index type is specified, an implicit deflator has been used.

[2] No data available after 1971 for reasons of confidentiality.

Table 1 Sales value in Swedish mining and manufacturing 1913–80

Million SEK

The branches are numbered according to the list presented above (page 97).

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1913	79	22	110	4	26	115	31	107	11	39	166	153	16	28	37
1914	59	27	110	7	27	127	37	101	11	40	174	149	16	32	39
1915	76	53	122	16	44	156	46	116	15	45	195	177	18	47	75
1916	101	101	143	16	36	178	56	119	17	49	256	236	25	53	82
1917	125	96	133	11	3	129	62	110	23	56	221	262	30	79	72
1918	135	72	96	19	8	146	82	105	40	40	255	206	29	102	116
1919	101	74	145	16	45	274	101	173	49	58	415	378	36	119	103
1920	95	86	205	13	46	281	113	261	48	91	474	503	63	163	120
1921	84	84	187	12	33	206	102	347	35	88	464	219	28	94	50
1922	73	67	153	11	29	160	87	341	28	65	364	272	38	94	49
1923	66	71	161	12	36	163	82	197	30	66	325	287	37	104	56
1924	85	73	178	14	44	182	87	188	31	74	333	289	39	111	56
1925	108	74	182	14	60	196	91	144	29	82	353	259	36	114	53
1926	110	91	193	14	61	177	98	144	30	84	365	263	43	123	51
1927	123	101	211	14	52	182	106	103	32	86	332	264	50	132	57
1928	56	105	222	15	61	186	110	132	33	86	346	274	57	145	61
1929	144	113	243	19	63	172	112	147	34	93	354	270	58	157	50
1930	141	115	216	18	56	151	113	103	33	100	354	265	63	172	49
1931	87	96	199	18	45	137	111	103	32	95	343	217	54	161	45
1932	46	89	176	17	42	138	105	98	32	95	354	241	59	154	37
1933	55	95	189	17	40	128	98	132	31	85	343	246	63	156	37
1934	86	112	246	20	42	131	106	154	35	84	353	306	76	196	43
1935	116	164	247	24	44	143	114	149	39	90	381	307	76	217	46
1936	159	193	267	24	48	151	123	155	41	93	396	329	83	243	48
1937	246	215	313	28	52	163	133	161	45	103	423	353	91	271	59
1938	287	259	358	33	50	164	142	188	50	111	452	317	92	286	49
1939	268	307	411	37	49	174	153	174	57	120	518	362	109	330	63
1940	247	409	448	41	40	212	178	216	66	121	603	476	130	370	101
1941	238	474	473	60	43	208	160	213	76	120	694	473	153	384	94
1942	259	353	452	68	90	167	153	248	91	115	822	522	163	393	95
1943	301	460	742	77	81	198	180	252	94	134	831	548	162	459	79
1944	240	579	811	65	85	198	184	261	112	137	920	585	160	499	93
1945	148	568	908	80	106	220	330	299	115	148	855	630	167	551	101
1946	211	618	970	86	63	225	209	290	124	156	1081	683	189	653	117
1947	264	706	1080	106	78	245	404	295	134	183	946	778	228	829	133
1948	383	717	1094	127	130	268	476	301	175	196	1060	933	274	1023	138
1949	440	853	1220	122	175	282	466	333	163	209	1167	1027	265	1050	145
1950	532	932	1312	115	186	287	435	377	168	208	1272	1086	256	1079	139
1951	727	1190	1430	132	256	337	490	424	153	222	1516	1359	306	1316	196
1952	1140	1385	1532	183	297	415	558	426	166	258	436	1032	253	1191	143
1953	1182	1359	1564	208	290	412	563	476	171	282	1784	1132	300	1338	165
1954	1007	1443	1546	222	305	427	601	485	188	285	1809	1056	282	1293	144
1955	1149	1678	1638	262	319	420	642	435	194	319	1909	1024	279	1339	142
1956	1360	1822	1773	302	339	412	673	526	205	310	2014	1032	297	1380	140
1957	1486	1867	1885	293	329	423	715	484	217	303	2068	1088	317	1403	154
1958	1355	1959	1798	318	304	421	746	390	225	318	2367	1031	300	1358	135
1959	1291	2264	1904	366	312	444	773	403	246	350	2468	1089	309	1373	150
1960	1480	2387	1981	420	325	456	811	457	241	348	2515	1191	356	1491	136
1961	1616	2625	2073	437	320	466	876	381	262	370	2592	1217	365	1636	136
1962	1667	2926	2218	505	325	501	960	374	279	294	2820	1248	395	1709	147
1963	1422	3323	2280	572	320	518	1023	513	319	330	2979	1303	443	1814	162
1964	1629	3733	2434	640	340	533	1106	462	355	356	2299	1370	474	1928	158
1965	1788	3924	2622	731	354	558	1151	380	374	392	2461	1419	457	1975	151
1966	1730	4325	2659	839	382	578	1218	425	378	456	2667	1289	469	1958	160
1967	1566	4521	2683	886	383	596	1263	426	394	470	2773	1310	484	2007	160
1968	1445	4686	2815	989	277	589	1297	455	406	554	2886	1262	497	1950	155
1969	1732	5420	2860	1065	288	633	1368	396	435	591	2665	1281	574	1986	172
1970	1887	5748	2925	1264	343	667	1481	449	452	604	2987	1285	610	2021	153
1971	2111	5728	3212	1232	365	694	1561	530	502	762	3045	1242	618	1893	151
1972	2097	6271	3805	1327	348	739	1673	540	559	843	3305	1299	705	1945	187
1973	2357	6554	3983	1511	348	754	1719	685	609	957	3729	1493	734	2079	200
1974	3001	6980	4175	1857	0	752	1836	1051	789	1032	5027	1775	845	2276	209
1975	3510	7366	4632	2017	0	873	2067	939	865	1230	5249	1588	851	2406	220
1976	3408	8402	4866	2348	0	887	2312	1059	972	1429	6483	1848	875	2444	270
1977	2799	9327	5054	2661	0	970	2411	1181	1189	1478	7480	1800	821	2216	275
1978	2445	9987	5805	2852	0	1024	2613	1178	1261	1523	8240	1821	821	1913	301
1979	3221	10823	6304	3061	0	1065	2828	1330	1393	1694	8752	1911	939	2057	357
1980	3834	12077	7180	3299	0	1201	3204	1413	1609	1759	9487	2046	970	2188	306

0	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1913	5	49	13	218	38	101	72	24	50	14	3	27	0	19	28
1914	5	57	13	198	39	102	69	24	55	12	3	28	0	20	31
1915	6	107	11	235	43	114	86	28	58	14	4	38	0	34	50
1916	8	118	19	349	57	209	151	51	67	21	8	59	0	45	76
1917	10	130	22	369	80	212	192	55	92	21	12	62	0	46	106
1918	13	158	27	375	113	220	243	67	140	23	16	68	0	46	133
1919	15	136	38	528	111	232	196	65	169	45	11	109	0	52	94
1920	19	234	32	699	128	486	376	116	198	57	11	102	0	63	99
1921	9	121	18	211	75	181	154	49	168	25	6	54	0	38	53
1922	10	104	22	283	62	180	149	44	145	16	6	52	0	34	50
1923	10	118	22	356	73	198	170	52	147	16	7	62	0	37	54
1924	10	109	25	339	79	225	184	59	144	16	8	73	0	34	58
1925	9	106	28	310	83	243	200	63	151	19	7	81	0	33	70
1926	9	101	29	310	93	285	212	73	160	19	9	80	0	36	68
1927	10	104	32	342	96	293	207	74	166	17	10	80	0	37	68
1928	11	108	29	367	104	240	198	68	174	19	10	80	0	39	65
1929	11	100	29	351	114	330	231	86	182	19	12	80	0	41	77
1930	11	110	31	309	125	294	203	79	187	20	13	68	0	39	82
1931	10	98	22	226	122	219	190	71	181	15	13	61	0	32	76
1932	9	79	22	177	105	181	181	62	173	11	13	57	0	21	76
1933	9	79	25	199	91	231	172	63	173	13	14	72	0	16	79
1934	11	80	35	281	118	271	187	73	183	13	16	77	0	15	93
1935	13	87	39	241	153	281	200	78	199	14	20	90	0	17	112
1936	15	90	45	263	179	318	216	89	214	12	21	99	0	17	111
1937	18	103	52	362	207	436	271	110	236	14	25	114	0	16	130
1938	19	107	47	292	229	395	231	103	255	16	26	112	0	16	138
1939	24	122	55	315	260	350	262	109	268	16	33	139	0	20	166
1940	35	176	61	293	219	301	223	104	257	21	31	127	0	16	191
1941	41	152	95	285	247	238	222	69	284	16	39	110	0	9	281
1942	43	164	124	346	324	385	316	102	333	14	52	156	0	7	342
1943	43	127	156	388	367	308	319	95	375	31	66	207	0	7	393
1944	49	165	188	354	413	271	340	96	410	33	74	243	0	8	423
1945	63	187	200	454	519	417	414	127	443	38	78	268	0	12	418
1946	86	198	215	544	664	658	568	163	498	42	100	246	0	17	401
1947	116	226	221	619	710	925	692	192	534	33	120	287	0	24	446
1948	117	264	228	655	723	1133	809	226	589	42	126	382	0	27	514
1949	89	268	219	742	703	866	710	188	642	49	116	138	75	31	777
1950	88	262	219	864	775	1189	847	215	693	56	130	157	152	39	867
1951	108	343	290	1339	1015	2559	1738	464	855	60	155	182	214	56	1112
1952	104	270	237	1263	914	1742	1246	409	873	74	147	181	222	56	1140
1953	100	310	224	1318	933	1345	1059	354	904	73	151	191	214	46	1180
1954	93	307	257	1563	1073	1649	1272	459	998	88	160	195	249	45	1237
1955	99	306	261	1636	1146	1837	1428	533	1090	96	174	196	269	44	1292
1956	107	308	266	1470	1152	1990	1535	561	1171	102	193	212	317	49	1470
1957	112	327	296	1486	1239	2020	1626	601	1239	113	203	220	399	47	1599
1958	119	309	307	1457	1280	1791	1601	625	1307	93	213	233	349	43	1677
1959	129	311	350	1271	1376	1774	1704	666	1376	104	242	263	396	43	1853
1960	131	316	366	1616	1528	2092	1938	772	1510	110	261	285	424	46	2021
1961	142	306	432	1728	1704	2219	2063	823	1642	116	284	300	383	46	2130
1962	154	321	477	1747	1845	1954	2167	864	1790	125	303	322	378	46	2261
1963	179	346	545	1836	2124	2129	2411	937	1964	123	331	344	414	40	2411
1964	190	360	600	2181	2479	2628	2671	1056	2208	140	390	369	431	40	2756
1965	176	340	600	2517	2864	2832	2822	1209	2515	163	424	403	474	42	3213
1966	167	297	579	2427	2991	2613	2892	1212	2703	160	436	392	493	48	3465
1967	165	294	643	2439	3222	2683	3090	1265	2875	168	481	409	734	41	3791
1968	164	294	698	2562	3546	2618	3249	1399	3075	392	506	455	1084	42	3941
1969	188	296	798	2849	3967	2923	3686	1521	3404	377	538	472	1138	52	4450
1970	173	296	854	3312	4390	3694	4274	1674	3771	362	556	467	1363	62	4981
1971	161	267	835	3603	4401	3701	4357	1748	3836	398	589	490	1649	63	5246
1972	170	290	883	3795	5045	3544	4837	1811	4131	404	651	502	1542	0	6037
1973	163	333	1056	5289	6167	4172	6435	2189	4533	428	744	542	1871	0	7210
1974	189	368	1276	6980	8470	6602	10069	3003	5394	669	986	604	4029	0	10846
1975	198	400	1296	6190	8089	7428	9389	2995	6336	756	1033	696	4575	0	10887
1976	186	482	1475	7233	9166	6793	10128	3256	7246	753	1062	745	7089	0	12621
1977	182	506	1560	7815	10121	5415	10569	3406	8069	758	1070	782	8207	0	12840
1978	193	469	1510	8066	11183	5589	12162	3636	9016	834	1113	839	8900	0	14569
1979	214	511	1799	9392	12760	7322	14824	4189	10258	849	1326	960	13020	0	18140
1980	225	553	1608	11249	13712	8106	16889	5244	11504	1032	1541	1047	19331	0	22023

0	31	32	33	34	35	36	37	38	39	40	41	42	43
1913	11	7	11	22	11	32	210	84	164	35	0	20	2213
1914	11	7	11	20	8	30	179	80	172	36	0	26	2192
1915	15	10	15	22	10	26	254	121	200	47	0	27	2776
1916	20	8	19	28	12	31	409	196	315	72	0	45	3862
1917	12	10	22	45	17	41	706	277	437	110	0	61	4563
1918	19	14	29	66	23	64	782	321	488	131	0	99	5126
1919	41	17	36	60	24	76	477	270	480	146	0	134	5650
1920	46	20	44	58	28	86	480	310	501	140	0	165	7061
1921	22	13	14	31	19	43	141	127	336	103	0	104	4147
1922	26	13	17	26	19	35	138	120	217	60	0	75	3732
1923	28	14	21	40	16	43	139	144	240	61	0	53	3815
1924	33	12	19	41	16	50	211	165	275	75	0	53	4099
1925	40	11	20	42	18	54	213	170	299	91	0	59	4210
1926	38	11	20	42	20	51	201	176	342	111	0	65	4411
1927	36	10	21	39	20	62	208	178	348	121	0	73	4495
1928	47	11	21	42	19	63	230	199	422	145	0	91	4692
1929	53	11	21	45	21	69	277	220	472	147	0	103	5134
1930	36	11	22	45	22	74	232	204	467	157	0	110	4901
1931	41	10	20	39	18	53	203	180	409	138	0	107	4297
1932	41	9	18	30	15	48	209	164	343	117	0	76	3919
1933	40	10	17	27	12	40	255	172	331	117	0	57	4028
1934	46	11	21	39	16	49	359	229	464	141	0	81	4899
1935	47	15	24	46	20	59	386	275	588	169	0	95	5424
1936	53	16	26	50	23	67	416	311	641	198	0	104	5945
1937	61	17	30	57	24	75	557	403	798	243	0	139	7155
1938	54	18	29	58	30	84	539	377	906	269	0	164	7351
1939	63	20	32	62	37	94	580	449	990	304	0	179	8082
1940	88	18	26	36	33	81	758	483	1016	316	0	200	8768
1941	83	25	31	47	28	99	782	514	1127	349	0	248	9281
1942	76	32	45	67	34	147	868	596	1333	399	0	256	10552
1943	82	37	49	82	41	186	969	658	1502	428	0	298	11812
1944	91	39	45	87	48	196	934	642	1609	477	0	339	12505
1945	124	45	53	94	54	237	912	637	1313	378	0	285	12992
1946	158	51	71	97	64	249	1015	891	1966	616	0	406	15660
1947	171	55	75	104	67	261	1121	995	2269	675	0	490	17840
1948	197	69	83	112	67	256	1297	1139	2515	850	0	570	20286
1949	199	69	84	114	83	234	1455	1207	2650	949	0	636	21210
1950	241	70	86	121	93	250	1529	1282	1956	1040	639	691	22937
1951	371	95	101	143	127	315	2084	1748	2469	1341	906	829	31071
1952	325	106	95	162	147	370	2573	1825	2893	1579	1009	1035	30411
1953	317	93	94	154	149	397	2328	1552	2766	1344	1041	1091	30956
1954	370	104	104	153	149	442	2390	1727	2937	1425	1256	1163	32955
1955	419	115	116	166	150	469	3047	1986	3247	1531	1321	1221	35941
1956	433	112	121	168	160	505	3477	2149	3613	1732	1448	1425	38830
1957	467	114	123	167	172	576	3618	2243	4047	1843	1487	1830	41244
1958	470	116	127	158	168	606	3251	2459	4219	1871	1648	1879	41401
1959	523	120	137	170	184	713	3741	2511	4093	2022	2568	1760	44139
1960	588	137	155	181	175	793	4516	2957	4662	2311	2869	1756	49112
1961	636	143	163	196	188	897	4863	3306	5331	2547	3130	1806	52893
1962	626	152	178	221	196	996	4659	3472	5843	2937	3536	2076	56011
1963	640	167	211	234	207	1141	4768	3651	6210	3124	3942	1861	59610
1964	736	186	253	255	232	1384	5876	4278	6782	3424	4476	2037	66234
1965	811	198	289	253	242	1574	6867	4877	7747	3924	5076	2244	73433
1966	821	206	316	231	238	1705	7158	5259	8307	4304	5488	2369	76799
1967	837	222	355	215	258	1883	6947	5231	8592	4351	5632	2532	79277
1968	943	220	382	212	261	1941	7564	5496	8979	4627	6058	2530	83702
1969	1042	232	418	214	268	2062	8914	6248	9732	5105	7210	2705	92275
1970	1192	252	444	227	301	2232	10691	7393	11358	5911	8458	3108	104673
1971	1245	267	448	230	349	2251	9963	7786	12139	6691	9635	3545	109538
1972	1208	282	485	227	348	2367	9962	8126	12748	7266	10826	4184	117312
1973	1332	320	543	265	372	2533	12422	9450	14498	8138	12500	5011	136229
1974	1722	376	625	321	439	2874	16989	11912	18608	10664	15783	6068	177471
1975	1735	454	651	351	485	3167	16490	13622	21551	12487	18675	7304	190854
1976	1716	483	773	360	538	3518	16129	14528	23016	13612	21057	7758	209326
1977	1817	474	948	361	542	3638	15425	15014	23961	14200	21348	7386	216076
1978	1881	486	1045	356	501	3915	17899	15654	25578	14658	24228	6746	232800
1979	2134	555	1166	392	576	4624	23937	17848	29312	17062	30189	6740	275834
1980	2398	558	1285	459	634	5063	26292	20762	31639	19064	30399	6553	309743

Table 2 Procuction volume in Swedish mining and manufacturing 1913-80

Index 1968 = 100

The branches are numbered according to the list presented above (page 97).

0	1	2	3	4	5	6	7	8	9	10	11	12
1913	19.8	3.9	23.9	2.0	19.7	88.2	14.4	46.3	8.6	44.6	20.1	43.7
1914	17.4	4.6	23.9	3.0	20.2	87.2	15.4	45.6	9.1	46.0	19.3	42.2
1915	18.2	6.1	20.4	5.2	27.2	81.4	15.9	50.0	11.0	45.5	19.9	46.4
1916	18.5	8.9	21.6	3.7	18.0	95.0	17.4	48.5	9.9	47.3	18.5	47.7
1917	16.4	8.3	16.2	1.6	.4	60.1	15.7	44.1	6.5	40.1	9.8	34.7
1918	17.4	4.0	8.5	1.6	1.3	58.2	13.9	37.5	7.4	15.5	10.5	16.1
1919	13.1	4.3	10.4	2.3	12.3	78.5	15.1	42.6	10.8	26.4	16.4	28.5
1920	12.1	5.9	16.6	2.6	12.7	73.7	16.2	49.3	11.8	39.6	20.0	35.1
1921	17.2	7.3	20.8	2.9	10.5	74.6	16.4	52.2	12.2	39.1	22.4	26.4
1922	16.4	7.3	21.9	3.2	14.0	83.4	17.2	61.0	12.0	34.6	21.5	37.4
1923	14.7	9.0	23.1	3.5	18.9	93.0	17.7	44.1	14.1	38.2	16.1	42.5
1924	17.2	9.8	25.0	4.2	23.7	97.9	19.5	52.2	16.0	37.8	20.0	43.1
1925	21.4	8.5	25.8	4.3	30.7	95.0	20.5	48.5	15.2	41.4	20.7	39.0
1926	22.3	10.3	30.4	4.8	33.3	92.1	22.6	62.5	16.0	43.2	25.8	42.6
1927	25.5	12.5	33.1	4.5	34.2	91.1	24.4	41.9	16.9	44.2	19.5	44.3
1928	12.3	12.5	33.1	5.2	40.3	96.9	25.4	53.7	17.9	43.7	23.5	46.0
1929	30.3	12.5	38.5	6.0	43.8	96.9	25.7	73.5	19.0	45.5	31.4	45.2
1930	29.2	13.8	42.0	6.1	42.5	96.9	26.9	61.0	20.9	50.1	32.9	47.1
1931	19.8	15.3	42.3	6.6	40.3	92.1	27.7	73.5	21.9	48.3	35.7	41.7
1932	11.8	14.7	41.6	6.8	40.3	97.9	27.2	65.4	21.9	47.8	35.1	48.7
1933	12.6	15.2	42.7	6.9	40.8	91.1	26.7	82.3	21.7	39.6	32.7	49.4
1934	19.0	17.8	48.1	7.5	43.8	91.1	29.3	100.0	24.7	37.8	31.4	61.5
1935	26.8	20.8	48.9	8.2	46.5	97.9	31.0	93.4	28.1	40.5	31.6	61.1
1936	35.7	23.6	52.3	8.4	47.8	98.9	33.9	99.2	29.9	41.9	31 2	66.7
1937	45.0	25.7	55.8	9.9	50.9	100.8	36.4	100.0	32.7	45.5	34.7	68.5
1938	43.7	29.8	60.8	11.1	52.6	99.8	39.0	113.9	36.5	48.3	37.0	63.8
1939	43.2	34.0	64.7	13.0	52.2	104.7	41.6	102.2	41.1	52.3	22.7	70.8
1940	37.3	37.3	62.0	15.1	32.4	115.3	43.9	119.1	39.4	46.4	30.9	71.3
1941	35.1	34.4	56.6	17.3	28.3	112.4	48.9	103.2	40.5	38.8	25.4	65.5
1942	36.2	23.9	49.8	10.1	33.4	88.7	53.5	104.1	41.6	36.3	34.1	67.2
1943	39.4	29.3	56.6	11.3	32.0	104.5	55.4	91.9	37.4	40.0	25.7	69.0
1944	30.3	37.6	64.9	9.8	36.2	105.5	60.1	97.5	46.1	39.6	30.5	71.8
1945	20.4	36.3	71.7	12.5	39.4	118.3	68.1	101.3	49.2	41.6	31.6	70.8
1946	27.1	41.9	77.6	13.8	26.9	111.4	73.1	95.6	51.2	44.4	36.1	81.0
1947	31.1	46.1	76.1	16.3	32.4	109.4	74.4	98.5	49.2	48.9	38.9	82.7
1948	42.4	41.1	74.2	16.9	45.9	106.5	80.0	89.1	55.4	48.4	48.7	91.7
1949	44.0	46.1	83.4	17.8	60.7	106.5	80.3	94.7	52.0	50.1	53.3	96.4
1950	44.0	48.1	87.5	17.4	64.5	107.2	73.9	105.6	50.6	50.1	51.8	99.2
1951	47.2	53.4	84.9	20.4	67.6	109.5	73.6	101.1	35.2	49.7	48.7	99.9
1952	51.2	52.8	84.4	20.3	71.3	108.7	74.4	83.9	42.4	53.1	49.2	80.2
1953	52.3	51.4	84.6	26.3	66.4	99.1	73.9	110.7	43.1	56.4	55.8	89.6
1954	48.5	54.7	83.1	27.2	70.6	106.1	77.4	104.7	43.9	56.7	52.0	89.5
1955	55.0	59.1	83.0	32.1	74.0	106.0	81.2	103.6	44.2	63.2	52.7	88.2
1956	60.1	57.4	81.0	37.2	82.4	105.5	81.7	114.7	48.1	61.6	57.1	89.9
1957	64.6	59.8	86.9	36.0	90.9	106.8	84.8	105.6	50.4	61.2	59.4	94.0
1958	59.0	61.8	83.5	38.5	83.3	107.8	83.9	89.2	50.4	59.0	60.0	88.9
1959	60.1	70.2	86.2	44.0	85.7	111.9	85.4	93.3	58.0	62.7	63.2	97.5
1960	67.0	72.4	88.6	51.2	88.8	107.7	88.7	105.4	61.3	62.7	67.1	102.5
1961	74.3	77.2	89.9	53.9	88.0	106.5	92.8	91.5	68.8	64.3	69.6	102.0
1962	74.0	84.0	92.1	62.2	88.3	108.5	94.4	81.3	74.5	63.7	72.5	104.1
1963	75.6	85.7	91.1	68.1	86.0	103.6	94.5	85.7	76.9	69.7	75.9	107.2
1964	83.1	89.8	93.1	72.0	92.6	102.8	95.0	94.0	81.3	72.7	80.0	110.6
1965	87.9	90.6	95.7	80.2	95.3	102.8	95.5	79.8	86.4	75.5	84.0	111.7
1966	88.2	93.9	98.6	90.4	98.5	102.2	99.2	85.7	88.9	82.7	89.9	100.0
1967	91.7	97.9	98.6	95.1	97.9	101.5	99.7	89.8	91.7	86.9	93.8	101.8
1968	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1969	103.0	102.0	99.0	106.0	101.0	100.0	105.0	83.0	101.0	115.0	106.0	108.0
1970	102.0	108.0	99.0	121.0	104.0	100.0	105.0	89.0	102.0	119.0	114.2	107.0
1971	114.0	110.0	101.0	113.0	102.0	97.0	103.0	98.0	106.0	131.0	106.4	101.0
1972	113.0	101.0	108.0	114.0	102.0	97.0	101.0	101.0	109.0	131.0	115.9	102.0
1973	125.0	102.0	106.0	117.0	107.0	97.0	100.0	100.0	111.0	135.0	122.5	106.0
1974	130.0	110.0	111.0	127.0	109.0	96.0	98.0	109.0	111.0	127.0	125.9	109.0
1975	111.0	113.0	116.0	120.0	102.0	99.0	105.0	103.0	108.0	134.0	121.3	92.0
1976	110.0	114.0	119.0	126.0	97.0	96.0	95.0	105.0	117.0	147.0	130.0	99.0
1977	93.0	114.0	119.0	126.0	92.0	94.0	93.0	108.0	120.0	143.0	124.0	91.0
1978	79.0	114.0	125.0	120.0	93.0	91.0	93.0	100.0	116.0	137.0	126.0	84.0
1979	95.0	117.0	126.0	120.0	91.0	88.0	93.0	106.0	120.0	138.0	130.0	81.0
1980	95.0	117.0	135.0	118.0	91.0	92.0	93.0	105.0	123.0	132.0	137.0	82.0

0	13	14	15	16	17	18	19	20	21	22	23	24
1913	19.8	8.6	86.2	14.0	78.9	22.2	66.3	6.4	15.6	9.6	4.5	12.1
1914	18.2	9.4	83.5	13.5	85.7	23.6	61.7	6.1	15.2	9.0	4.7	12.9
1915	18.2	12.2	92.6	15.8	105.2	25.4	63.3	5.6	16.2	10.2	4.9	12.7
1916	19.8	11.8	79.0	15.0	102.7	24.7	70.2	5.7	17.2	11.4	5.1	12.7
1917	12.0	12.2	59.9	13.7	85.7	21.0	60.2	5.9	13.5	9.4	5.5	13.1
1918	7.4	9.0	70.8	13.4	72.1	16.2	53.2	6.1	11.8	8.8	5.9	12.3
1919	12.8	8.8	78.1	14.3	59.4	19.2	61.7	5.9	12.5	7.8	5.5	13.1
1920	25.2	11.8	92.6	15.3	93.3	19.5	67.9	6.2	17.2	11.2	5.1	12.3
1921	15.9	8.8	69.0	7.6	66.2	16.0	39.3	4.6	10.1	7.0	4.3	11.1
1922	24.4	10.3	82.6	8.9	77.2	18.4	54.0	5.6	17.6	10.8	4.7	12.1
1923	26.4	12.7	100.8	12.7	97.6	21.1	66.3	6.6	17.9	12.8	5.1	13.9
1924	26.4	13.7	105.3	12.6	94.2	24.0	67.9	7.5	22.3	14.4	5.5	13.9
1925	25.2	13.7	91.7	11.4	91.6	25.9	64.0	7.8	23.0	15.4	6.3	14.8
1926	31.0	16.1	95.3	13.0	89.1	27.0	67.9	8.9	25.7	16.8	7.0	16.2
1927	35.7	18.5	103.5	14.5	94.2	27.6	72.5	9.4	28.1	17.2	7.7	17.0
1928	38.8	19.8	99.0	15.8	91.6	27.1	77.9	9.9	25.0	17.0	8.2	18.0
1929	38.8	21.5	90.8	16.1	84.9	27.6	77.1	11.0	33.8	20.0	9.0	19.5
1930	42.3	24.1	98.1	15.1	101.8	30.4	70.2	12.4	33.1	18.4	9.5	20.1
1931	38.8	23.4	98.1	16.6	92.5	28.0	60.2	12.7	30.8	19.4	9.0	20.3
1932	41.1	23.6	88.1	15.4	83.2	26.2	53.2	11.8	28.1	19.2	8.8	20.3
1933	45.4	24.9	90.8	15.8	87.4	28.2	55.5	11.2	36.2	20.0	9.3	21.1
1934	57.8	31.8	96.2	18.5	89.9	32.2	71.0	14.3	40.9	22.5	10.4	23.1
1935	56.6	36.1	103.5	22.7	98.4	34.8	66.3	17.6	43.6	24.3	11.3	25.4
1936	61.3	40.4	104.4	26.2	97.6	38.3	66.3	20.7	47.3	25.9	11.7	27.2
1937	66.7	44.7	111.7	31.4	104.4	38.1	74.1	22.9	53.1	28.3	12.2	27.7
1938	65.6	46.4	99.9	35.4	111.2	37.9	64.0	24.5	46.0	22.2	12.6	30.1
1939	74.1	52.2	127.1	42.5	125.6	41.6	66.3	27.0	48.0	27.7	15.1	31.8
1940	71.0	53.3	149.8	64.7	134.9	39.5	54.0	21.3	31.1	18.4	14.6	29.3
1941	65.3	46.7	126.0	76.0	103.2	38.5	43.3	21.5	20.6	16.7	15.6	30.1
1942	64.2	42.0	114.7	79.0	97.2	43.6	46.7	25.3	26.3	20.6	18.8	32.3
1943	65.3	46.0	91.9	71.7	72.4	55.4	49.3	26.9	20.6	18.9	19.5	34.1
1944	61.3	49.6	103.3	79.0	92.3	61.3	45.3	29.6	20.6	20.6	20.9	37.4
1945	61.3	53.3	108.5	86.0	103.2	61.6	54.0	35.9	30.2	24.3	24.0	40.7
1946	65.3	59.1	138.4	93.3	115.1	71.0	63.3	42.6	42.1	31.5	28.2	42.9
1947	72.7	64.9	150.8	106.5	123.0	67.7	58.7	42.1	45.6	33.5	28.0	43.7
1948	81.2	73.9	151.9	106.7	128.0	64.3	54.7	40.2	48.2	35.2	29.0	44.7
1949	72.7	75.0	153.9	81.7	124.0	63.8	62.0	39.0	46.0	33.0	27.0	48.0
1950	66.9	73.0	145.5	79.3	120.0	62.7	62.0	41.0	51.0	35.0	28.0	49.0
1951	72.4	78.0	127.9	83.6	115.0	65.2	62.0	39.0	54.0	38.0	33.0	50.0
1952	62.6	72.0	112.0	82.5	96.0	54.4	56.0	36.0	49.0	32.0	28.0	52.0
1953	67.0	82.0	131.4	78.2	115.0	59.9	61.0	38.0	51.0	36.0	30.0	54.0
1954	62.5	81.0	114.8	72.7	117.0	62.7	70.0	43.0	59.0	41.0	35.0	58.0
1955	65.2	83.0	116.7	76.3	113.0	63.7	72.0	45.0	63.0	44.0	39.0	59.0
1956	67.4	85.0	115.7	78.8	113.0	61.2	65.0	44.0	67.0	46.0	40.0	61.0
1957	68.9	84.0	124.2	78.0	122.0	61.1	66.0	47.0	69.0	48.0	45.0	63.0
1958	66.9	80.0	109.3	78.3	115.0	61.3	68.0	48.0	65.0	49.0	43.0	67.0
1959	72.9	84.0	106.9	84.8	118.0	64.4	60.0	52.0	70.0	54.0	49.0	71.0
1960	85.8	89.0	96.9	83.4	118.0	67.8	71.0	56.0	81.0	61.0	57.0	74.0
1961	86.6	96.0	96.8	88.5	118.0	78.6	72.0	58.0	85.0	64.0	62.0	78.0
1962	88.5	98.0	102.8	93.8	122.0	83.4	74.0	62.0	76.0	65.0	66.0	82.0
1963	99.2	102.0	113.9	104.8	129.0	91.6	77.0	69.0	83.0	73.0	73.0	87.0
1964	102.7	105.0	111.3	104.7	131.0	95.7	85.0	78.0	95.0	80.0	80.0	93.0
1965	97.9	104.0	103.4	90.6	122.0	97.8	91.0	86.0	100.0	82.0	86.0	101.0
1966	98.0	102.0	99.7	89.9	104.0	96.0	88.0	87.0	96.0	84.0	86.0	101.0
1967	99.3	106.0	96.5	88.5	103.0	100.6	93.0	92.0	101.0	91.0	92.0	98.0
1968	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1969	118.0	100.0	105.0	99.0	97.0	95.0	104.0	109.0	106.0	110.0	109.0	108.0
1970	131.0	97.0	94.0	94.0	92.0	101.4	112.0	114.0	115.0	117.0	112.0	112.0
1971	136.0	86.0	95.0	82.0	78.0	98.4	116.0	111.0	110.0	116.0	112.0	107.0
1972	144.0	84.0	103.0	80.0	80.0	102.2	121.0	120.0	114.0	125.0	109.0	109.0
1973	148.0	88.0	91.0	72.0	84.0	111.8	129.0	132.0	120.0	143.0	120.0	113.0
1974	149.0	86.0	95.0	72.0	79.0	105.6	133.0	138.0	125.0	151.0	129.0	106.0
1975	144.0	82.0	100.0	75.0	73.0	102.0	105.0	132.0	112.0	120.0	113.0	107.0
1976	133.0	73.0	106.0	63.0	78.0	104.0	105.0	134.0	105.0	133.0	118.0	109.0
1977	109.0	59.0	98.0	55.0	72.0	99.0	100.0	132.0	91.0	132.0	114.0	110.0
1978	95.0	45.0	94.0	50.0	60.0	85.0	99.0	135.0	101.0	143.0	116.0	113.0
1979	96.0	45.0	86.0	48.0	59.0	89.0	103.0	140.0	108.0	156.0	121.0	119.0
1980	91.0	45.0	75.0	45.0	57.0	78.0	100.0	131.0	100.0	154.0	131.0	119.0

0	25	26	27	28	29	30	31	32	33	34	35	36
1913	12.2	2.3	5.2	.0	338.3	1.4	3.2	21.6	12.8	102.6	9.0	8.5
1914	12.4	2.1	5.0	.0	338.3	1.2	3.3	20.8	12.1	91.2	6.4	7.3
1915	10.6	2.6	5.7	.0	424.0	1.5	3.6	20.3	14.2	83.0	7.0	6.0
1916	8.6	3.2	5.4	.0	475.4	1.7	3.5	20.9	14.0	85.4	8.0	5.7
1917	5.6	2.4	2.8	.0	436.8	1.6	1.6	20.5	12.4	87.7	6.5	5.2
1918	4.3	1.6	2.2	.0	295.5	1.4	1.5	18.6	10.0	82.1	5.2	4.5
1919	8.4	2.1	4.4	.0	334.1	1.3	3.3	16.5	11.3	75.9	5.4	4.9
1920	11.6	2.7	5.2	.0	334.1	1.5	3.7	19.7	12.9	68.5	6.6	4.6
1921	8.3	2.0	4.9	.0	209.9	1.0	2.5	14.6	5.5	46.2	5.6	3.6
1922	8.0	2.3	5.9	.0	209.9	1.3	3.1	18.7	9.4	51.8	8.4	4.1
1923	9.7	3.0	7.1	.0	274.1	1.6	3.4	21.0	11.7	82.8	9.0	5.7
1924	11.2	3.5	8.1	.0	282.7	1.7	3.8	19.2	11.6	80.5	9.4	6.5
1925	14.4	3.6	8.5	.0	312.6	2.0	4.1	18.3	12.4	86.0	10.3	7.7
1926	14.2	3.9	9.5	.0	351.2	2.2	3.8	19.4	12.6	86.0	10.8	7.2
1927	13.4	4.0	11.0	.0	381.2	2.0	4.4	18.9	13.3	83.8	11.4	8.7
1928	14.9	4.6	12.1	.0	402.6	2.0	5.3	19.8	14.6	89.7	10.8	9.4
1929	14.7	4.8	12.0	.0	428.3	2.5	5.7	20.4	13.9	98.2	13.1	10.3
1930	16.1	5.2	11.6	.0	406.9	2.7	4.0	22.8	15.8	98.2	14.1	10.7
1931	13.6	5.8	12.1	.0	338.3	2.5	5.7	21.7	15.0	85.8	11.9	8.9
1932	11.8	5.8	11.3	.0	318.4	2.5	6.3	20.2	12.6	66.6	11.5	8.0
1933	13.3	6.3	13.8	.0	167.0	2.7	7.0	20.2	14.2	59.6	9.3	7.0
1934	13.1	7.6	15.7	.0	158.5	3.1	8.7	23.1	15.8	87.8	13.4	8.4
1935	15.8	9.0	17.5	.0	175.6	3.6	8.5	27.2	18.1	103.7	17.0	10.8
1936	14.0	9.7	18.1	.0	175.6	3.9	9.7	27.9	19.6	108.8	18.3	11.5
1937	15.2	11.2	18.9	.0	171.3	4.5	10.6	30.4	22.0	119.1	20.1	12.5
1938	16.5	12.0	20.5	.0	175.6	4.7	10.1	34.5	20.8	117.9	22.8	14.3
1939	16.8	14.8	23.1	.0	218.4	5.4	12.5	34.6	22.1	124.2	27.3	15.3
1940	14.0	11.0	17.0	.0	145.6	5.2	14.1	27.3	16.4	65.3	16.1	9.7
1941	10.7	10.8	13.9	.0	78.9	5.7	11.3	31.3	17.2	71.0	14.8	9.8
1942	9.1	12.1	17.5	.0	45.6	6.3	9.4	36.3	22.7	93.8	19.0	11.8
1943	15.9	13.7	20.3	.0	33.3	6.9	9.7	41.4	22.9	111.5	21.2	13.6
1944	19.4	16.1	24.0	.0	42.1	7.9	11.9	45.2	19.9	115.8	24.4	14.4
1945	22.5	18.1	27.7	.0	80.7	7.9	15.8	51.4	21.1	121.3	27.9	17.0
1946	26.8	25.4	27.2	.0	115.8	7.8	20.5	55.7	27.6	120.1	33.5	20.4
1947	25.2	27.5	29.6	.0	154.4	8.1	21.5	56.2	28.7	119.3	35.6	21.3
1948	31.5	28.2	37.5	.0	164.9	8.8	23.3	66.1	31.3	121.4	34.2	21.1
1949	34.6	26.7	42.8	6.0	168.4	9.5	25.0	65.0	32.0	122.4	39.1	48.4
1950	39.9	29.9	48.7	11.8	198.2	11.1	28.0	64.0	33.0	121.1	44.8	51.0
1951	39.5	29.5	47.8	12.0	214.0	12.9	31.0	72.0	35.0	125.8	47.8	54.0
1952	37.9	27.3	47.0	15.0	187.7	13.3	28.0	75.0	32.0	129.2	49.6	57.5
1953	49.0	29.4	51.0	19.0	170.2	14.2	31.0	69.0	33.0	122.5	56.7	59.6
1954	50.4	32.2	52.0	22.0	166.7	16.8	38.0	75.0	35.0	123.8	60.9	63.6
1955	61.0	35.0	50.7	23.0	166.7	18.2	40.0	76.0	39.0	128.4	63.8	65.5
1956	63.4	38.3	54.4	23.0	193.0	21.2	41.0	75.0	40.0	125.0	62.5	65.5
1957	65.2	41.4	53.7	25.0	182.5	24.1	44.0	70.0	39.0	121.3	61.5	69.5
1958	73.9	44.3	56.3	25.0	178.9	25.1	49.0	73.0	39.0	110.6	62.9	65.8
1959	63.3	51.0	63.8	30.0	175.4	30.0	53.0	74.0	43.0	117.5	71.6	72.7
1960	71.3	55.4	68.1	33.0	180.7	33.8	60.0	79.0	48.0	122.8	71.6	74.3
1961	75.4	58.6	73.1	31.0	171.9	38.8	65.0	81.0	48.0	127.3	76.6	84.1
1962	77.9	62.8	75.8	32.0	168.4	44.5	64.0	83.0	50.0	133.8	78.5	84.6
1963	83.4	69.1	80.3	35.0	152.6	49.1	68.0	90.0	58.0	132.7	85.7	89.1
1964	80.9	79.2	85.0	46.0	138.6	58.8	78.0	98.0	69.0	137.1	92.8	99.9
1965	89.4	86.5	91.1	47.0	138.6	67.1	85.0	98.0	77.0	129.7	97.5	105.5
1966	98.0	85.9	87.1	48.0	143.9	76.2	86.0	98.0	82.0	111.3	95.1	102.9
1967	95.1	96.3	90.2	71.0	115.8	87.4	90.0	101.0	91.0	104.4	100.3	102.9
1968	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1969	100.0	108.0	102.0	112.0	124.7	115.8	108.0	107.0	108.0	96.0	101.3	106.0
1970	100.0	111.0	99.0	128.0	129.3	125.9	116.0	111.0	111.0	92.0	102.9	108.0
1971	108.0	118.0	104.0	128.0	117.0	126.5	119.0	107.0	104.0	84.0	100.6	104.0
1972	105.0	128.0	102.0	119.0	118.9	143.0	115.0	102.0	109.0	76.0	97.9	105.0
1973	104.0	137.0	111.0	126.0	123.7	164.2	123.0	108.0	114.0	78.0	104.0	107.0
1974	103.0	143.0	108.0	118.0	122.3	173.0	128.0	112.0	109.0	82.0	93.0	105.0
1975	97.0	134.0	110.0	137.0	118.3	158.4	118.0	113.0	102.0	75.0	86.0	101.0
1976	94.0	127.0	110.0	166.0	.0	167.0	107.0	108.0	110.0	67.0	77.0	98.0
1977	93.0	119.0	106.0	164.0	.0	160.0	102.0	98.0	114.0	61.0	71.0	90.0
1978	91.0	109.0	110.0	167.0	.0	167.0	95.0	90.0	116.0	54.0	64.0	88.0
1979	.0	113.0	112.0	181.0	.0	173.0	97.0	94.0	115.0	52.0	66.0	95.0
1980	.0	109.0	112.0	184.0	.0	183.0	91.0	84.0	115.0	55.0	67.0	95.0

0	37	38	39	40	41	42	43
1913	15.9	6.5	5.2	3.3	.0	6.4	10.9
1914	13.8	6.0	4.7	3.0	.0	6.2	10.5
1915	16.1	7.0	5.0	3.2	.0	6.6	11.3
1916	16.4	8.0	5.4	3.5	.0	8.8	11.9
1917	16.4	7.3	4.6	3.9	.0	9.7	9.9
1918	14.5	6.2	4.0	3.4	.0	10.4	8.3
1919	12.0	6.1	4.2	4.2	.0	13.0	9.1
1920	12.2	6.9	5.0	3.8	.0	10.4	10.5
1921	5.8	3.7	4.1	3.4	.0	8.2	8.3
1922	8.1	4.8	3.9	2.5	.0	6.6	9.5
1923	8.3	6.0	4.6	3.4	.0	5.2	10.5
1924	12.7	7.4	5.1	4.6	.0	5.2	11.9
1925	12.4	7.7	5.6	5.5	.0	6.2	12.1
1926	12.2	8.2	6.6	6.5	.0	7.8	13.3
1927	12.2	8.6	6.7	7.1	.0	9.2	13.9
1928	14.1	9.9	8.2	8.2	.0	11.8	14.5
1929	16.4	11.1	9.1	8.4	.0	13.7	16.4
1930	14.1	10.8	9.7	9.4	.0	15.0	16.8
1931	12.7	10.5	9.0	8.9	.0	12.9	15.8
1932	13.1	10.0	7.7	6.9	.0	8.6	14.5
1933	15.9	10.6	7.3	7.6	.0	9.4	14.9
1934	21.4	14.1	10.1	8.9	.0	11.1	18.0
1935	23.0	16.3	12.8	10.7	.0	13.4	20.2
1936	24.9	18.1	13.9	12.0	.0	14.5	22.0
1937	27.6	20.4	15.7	14.1	.0	20.5	24.6
1938	26.0	18.8	17.4	15.1	.0	22.3	24.8
1939	28.3	22.0	18.7	16.5	.0	23.1	27.1
1940	26.3	18.4	18.7	16.8	.0	24.7	24.8
1941	25.6	17.9	19.2	17.5	.0	29.9	24.2
1942	27.0	20.6	21.3	18.8	.0	29.1	25.7
1943	27.4	21.2	22.7	19.9	.0	31.6	26.9
1944	28.3	21.2	22.9	21.9	.0	33.4	28.3
1945	26.0	20.2	18.9	17.3	.0	28.0	27.9
1946	27.0	30.0	24.9	24.9	.0	35.2	33.7
1947	25.8	31.2	25.7	24.4	.0	38.0	34.7
1948	27.4	33.2	26.5	28.6	.0	41.1	37.0
1949	30.2	34.0	28.0	32.0	17.0	46.0	38.4
1950	30.0	36.0	31.0	35.0	20.0	48.0	40.0
1951	33.2	39.0	35.0	38.0	23.0	49.0	42.6
1952	34.8	38.0	35.0	41.0	27.0	52.0	41.6
1953	32.5	36.0	34.0	38.0	31.0	52.0	42.8
1954	35.7	40.0	37.0	39.0	35.0	57.0	45.7
1955	42.2	44.0	40.0	41.0	39.0	57.0	48.7
1956	45.9	45.0	42.0	44.0	43.0	57.0	50.7
1957	47.9	47.0	45.0	47.0	45.0	68.0	53.3
1958	47.2	48.0	46.0	47.0	49.0	73.0	53.9
1959	51.6	51.0	49.0	51.0	54.0	73.0	57.8
1960	59.7	59.0	55.0	57.0	60.0	74.0	63.2
1961	66.1	65.0	63.0	62.0	64.0	77.0	67.9
1962	69.8	67.0	69.0	70.0	70.0	85.0	71.7
1963	74.0	70.0	72.0	74.0	75.0	84.0	76.2
1964	84.8	82.0	78.0	79.0	83.0	91.0	83.2
1965	92.9	90.0	88.0	87.0	90.0	99.0	89.5
1966	93.3	97.0	94.0	93.0	97.0	105.0	92.7
1967	94.2	93.0	96.0	94.0	97.0	106.0	95.2
1968	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1969	109.0	109.0	107.0	109.0	108.0	109.0	107.0
1970	115.0	118.0	119.0	114.0	120.0	121.0	114.0
1971	114.0	119.0	121.0	125.0	130.0	127.0	115.0
1972	116.0	123.0	119.0	128.0	131.0	145.0	118.0
1973	126.0	131.0	128.0	134.0	141.0	152.0	127.0
1974	135.0	135.0	148.0	162.0	141.0	156.0	133.0
1975	124.0	140.0	145.0	181.0	149.0	180.0	131.0
1976	115.0	137.0	139.0	175.0	151.0	172.0	130.0
1977	105.0	131.0	134.0	170.0	143.0	144.0	123.0
1978	109.0	125.0	131.0	159.0	144.0	118.0	121.0
1979	125.0	132.0	142.0	173.0	164.0	99.0	129.0
1980	122.0	142.0	141.0	186.0	154.0	85.0	129.0

Table 3 Prices in Swedish mining and manufacturing 1913–80

Index 1968 = 100

The branches are numbered according to the list presented above (page 97).

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1913	25	13	16	21	35	22	16	56	26	17	18	24	23	17	28
1914	24	14	16	22	35	24	18	54	27	17	18	25	25	17	30
1915	23	20	21	29	42	32	22	56	29	19	21	27	27	19	52
1916	26	26	24	42	52	31	24	59	37	20	26	34	35	23	67
1917	35	27	29	69	188	36	30	61	75	27	44	53	70	33	78
1918	46	41	41	113	164	42	44	68	115	49	52	89	110	57	106
1919	53	40	50	69	97	58	50	98	97	42	41	92	78	68	85
1920	47	34	44	49	95	63	52	129	87	44	39	100	69	69	84
1921	45	27	32	40	82	46	47	162	62	43	26	58	49	54	47
1922	39	21	25	33	54	32	38	136	51	36	25	51	43	46	38
1923	38	18	25	33	49	29	35	109	45	33	26	47	38	41	36
1924	37	17	25	32	49	31	34	88	42	38	31	47	41	41	34
1925	35	20	25	31	51	33	33	72	42	38	33	46	39	42	37
1926	36	20	23	29	48	32	33	56	40	37	32	43	39	38	35
1927	36	19	23	30	39	33	33	60	41	37	32	42	38	36	35
1928	38	19	24	28	39	32	33	60	40	38	34	41	40	37	40
1929	37	21	23	30	38	29	33	49	39	39	32	42	41	37	36
1930	38	19	18	29	34	26	31	41	34	38	26	39	41	36	32
1931	38	14	17	26	29	25	30	34	32	38	23	36	39	35	30
1932	38	14	15	24	27	23	29	36	31	38	27	34	40	33	27
1933	34	14	16	24	25	23	28	39	31	41	26	35	38	32	27
1934	35	15	18	26	25	24	27	38	30	43	25	35	36	31	29
1935	37	18	18	28	25	24	27	39	30	43	24	35	37	30	29
1936	37	19	18	28	26	25	27	38	30	43	24	34	38	30	29
1937	42	19	20	27	27	27	27	39	30	43	26	36	38	31	34
1938	51	20	21	28	25	27	27	40	29	44	25	35	39	31	32
1939	46	21	23	28	24	28	28	41	30	44	26	36	41	32	32
1940	49	25	26	26	32	31	30	44	36	50	34	46	51	35	44
1941	50	32	30	34	40	31	25	50	40	59	39	50	65	41	48
1942	51	34	32	65	70	31	21	58	47	61	37	54	70	47	54
1943	52	36	47	66	66	32	24	67	54	64	46	55	68	50	56
1944	52	36	45	64	61	31	23	65	52	67	44	57	72	51	58
1945	61	36	45	62	70	31	36	72	50	68	41	56	75	52	60
1946	57	34	45	61	61	34	21	74	52	67	45	59	80	56	55
1947	58	35	51	63	63	37	41	73	59	72	52	65	87	64	57
1948	63	40	53	73	74	42	45	82	68	78	56	71	93	70	59
1949	73	43	52	66	75	44	44	85	67	80	53	74	101	71	61
1950	84	43	53	64	75	42	44	87	71	79	73	81	101	74	62
1951	104	51	58	63	99	48	50	102	93	86	91	109	123	85	99
1952	159	60	64	87	109	62	56	124	84	93	96	88	110	83	83
1953	165	61	66	77	114	68	57	105	85	96	101	85	108	82	81
1954	140	60	65	79	113	66	58	113	92	96	120	86	106	80	81
1955	143	65	68	79	112	64	59	102	94	97	107	85	103	81	79
1956	152	73	77	79	107	63	62	112	92	96	111	86	101	82	78
1957	164	70	76	79	94	66	63	112	92	95	108	93	103	84	80
1958	166	70	73	80	95	66	67	106	96	104	98	87	102	86	80
1959	148	72	77	81	95	68	68	105	91	107	94	86	96	82	91
1960	146	74	79	80	95	71	69	106	85	106	92	88	95	84	91
1961	145	75	81	79	95	76	71	101	82	110	92	90	94	86	91
1962	161	75	82	79	96	79	76	112	80	88	93	91	93	88	92
1963	123	84	88	81	97	85	81	146	89	91	95	93	93	90	92
1964	122	92	92	87	100	88	87	138	94	95	105	96	97	93	92
1965	122	94	97	93	103	92	90	115	93	97	107	97	100	95	94
1966	119	101	96	98	101	96	94	110	98	99	108	99	99	97	104
1967	105	98	97	99	99	99	98	109	99	100	105	100	100	99	107
1968	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1969	100	105	102	102	99	105	100	107	98	100	84	102	102	100	106
1970	113	109	108	107	116	112	108	110	102	100	90	104	106	103	105
1971	124	109	116	110	119	119	115	115	106	103	98	108	108	104	103
1972	125	119	129	119	115	127	126	132	109	112	99	114	111	109	117
1973	114	129	133	125	141	128	135	140	116	121	108	129	115	117	142
1974	137	128	124	147	198	131	151	213	167	142	122	155	131	132	142
1975	191	134	128	177	172	139	173	217	181	163	133	163	143	145	142
1976	192	149	143	195	179	153	195	218	193	178	178	175	155	155	165
1977	172	164	156	208	210	158	216	238	244	196	206	191	161	170	187
1978	157	179	173	227	223	173	236	255	262	213	240	211	169	186	198
1979	181	191	183	235	243	183	252	273	276	222	239	220	183	208	248
1980	210	203	204	254	255	200	280	303	320	241	255	245	204	240	279

0	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1913	22	21	8	13	17	25	20	39	14	60	26	37	0	13	48
1914	23	23	8	13	18	26	21	37	15	50	27	38	0	14	60
1915	24	35	6	15	21	27	23	42	16	68	31	47	0	19	79
1916	32	39	11	20	28	47	36	73	18	123	46	76	0	22	108
1917	43	52	15	25	38	60	55	73	24	191	95	157	0	25	162
1918	61	75	24	28	52	72	74	84	39	264	185	226	0	37	226
1919	62	78	29	34	53	71	67	87	44	271	98	171	0	37	178
1920	74	85	23	41	58	108	90	165	55	245	76	138	0	45	161
1921	75	62	16	21	45	69	59	82	52	153	58	77	0	43	125
1922	67	46	17	21	31	39	37	69	41	101	49	62	0	39	93
1923	50	41	15	21	31	42	36	74	36	86	45	62	0	32	83
1924	49	40	15	20	29	39	34	78	36	72	42	63	0	29	80
1925	50	39	15	19	30	41	35	73	35	67	36	67	0	25	84
1926	42	39	15	18	29	43	34	76	34	66	43	59	0	24	76
1927	41	38	17	19	29	40	32	71	33	64	45	51	0	23	82
1928	42	40	15	19	29	37	31	61	33	65	41	47	0	23	77
1929	43	40	15	18	29	38	31	70	32	64	45	47	0	23	74
1930	43	37	15	18	28	34	30	61	32	63	44	41	0	23	74
1931	37	36	11	15	27	27	26	58	31	56	42	36	0	23	74
1932	35	32	12	13	25	25	25	52	29	47	41	35	0	23	73
1933	35	31	13	14	23	25	23	50	28	48	40	37	0	23	70
1934	35	30	15	16	23	26	22	52	27	50	39	34	0	23	72
1935	35	30	16	15	24	25	22	51	27	44	40	36	0	23	75
1936	35	31	17	16	24	26	22	56	27	41	40	39	0	23	69
1937	36	34	19	20	25	32	26	66	29	46	42	42	0	22	69
1938	33	33	18	18	26	33	28	60	29	50	40	38	0	22	71
1939	34	33	19	19	27	28	26	53	29	48	41	43	0	22	75
1940	33	44	22	22	29	37	32	52	30	75	52	53	0	26	88
1941	32	50	35	26	32	44	36	32	32	74	67	56	0	28	118
1942	33	57	41	30	36	56	41	40	35	76	79	63	0	37	130
1943	36	60	40	31	38	57	45	36	38	99	89	72	0	48	137
1944	37	61	44	31	39	51	44	34	38	87	84	72	0	44	129
1945	44	62	46	34	40	53	46	39	37	85	79	68	0	35	127
1946	56	59	43	34	44	60	48	42	40	79	72	64	0	36	124
1947	66	63	47	42	47	78	56	50	42	67	81	69	0	37	133
1948	67	70	51	48	50	90	62	57	45	67	82	72	0	39	142
1949	66	74	49	48	51	72	58	51	46	72	80	79	77	43	197
1950	68	74	50	56	53	97	59	56	49	74	81	77	85	46	189
1951	78	101	64	86	73	187	95	103	59	85	100	89	76	63	208
1952	77	96	62	90	71	150	103	107	58	95	100	87	77	71	206
1953	78	92	53	86	69	103	87	87	57	90	88	82	75	65	200
1954	78	89	59	89	70	111	88	96	59	86	83	76	74	64	178
1955	79	92	59	91	71	112	91	100	63	87	83	75	76	63	171
1956	83	93	62	90	73	116	95	103	66	90	86	76	80	60	167
1957	87	91	69	90	74	115	96	98	68	94	89	78	93	61	160
1958	92	91	72	86	75	112	97	107	67	91	87	79	92	57	161
1959	93	90	78	85	74	107	94	100	67	88	88	79	89	58	149
1960	95	91	77	91	76	108	94	99	70	87	90	81	86	61	144
1961	98	88	79	96	82	110	96	97	72	87	93	82	86	64	132
1962	100	90	82	94	83	100	96	96	75	88	94	84	96	66	123
1963	104	91	85	95	86	101	97	94	78	90	94	85	96	62	119
1964	111	94	90	106	91	108	98	97	81	91	97	86	96	69	113
1965	118	95	88	113	97	110	100	103	84	94	100	91	95	73	116
1966	113	97	86	110	98	103	101	103	89	99	104	93	96	79	110
1967	114	97	92	102	98	101	101	101	95	101	100	98	98	85	105
1968	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1969	116	104	120	106	101	109	103	100	102	97	100	98	100	99	97
1970	112	109	121	115	106	129	107	107	109	96	101	101	108	114	99
1971	119	117	122	117	108	131	109	112	116	100	108	104	120	128	104
1972	129	123	124	117	114	119	114	119	123	102	115	114	115	0	105
1973	138	135	135	194	127	145	124	127	131	107	125	118	135	0	109
1974	160	159	173	247	150	232	189	168	154	87	165	153	237	0	156
1975	161	187	182	212	166	266	228	197	177	179	178	175	239	0	172
1976	182	211	209	248	184	258	215	203	196	178	190	184	270	0	181
1977	197	249	223	267	207	243	221	219	220	175	203	194	296	0	197
1978	209	263	248	266	224	211	230	233	241	184	222	207	308	0	216
1979	227	281	300	308	246	264	253	257	262	199	254	218	414	0	249
1980	245	316	350	377	280	319	296	292	296	235	289	237	546	0	261

0	31	32	33	34	35	36	37	38	39	40	41	42	43
1913	32	15	22	9	48	20	16	23	19	20	0	13	22
1914	30	15	23	9	48	21	16	23	23	23	0	17	23
1915	38	22	26	11	55	22	19	30	25	29	0	16	27
1916	53	17	33	14	60	28	31	43	37	40	0	21	36
1917	69	22	45	22	103	41	53	66	60	56	0	25	51
1918	119	33	72	34	166	72	66	91	76	74	0	38	67
1919	113	46	80	34	169	80	49	78	71	68	0	41	66
1920	113	45	85	36	164	96	48	79	62	73	0	63	71
1921	80	38	63	28	128	61	30	61	51	60	0	50	53
1922	76	30	44	21	84	44	21	44	35	47	0	45	41
1923	75	30	44	21	69	39	21	42	33	36	0	40	39
1924	77	28	41	22	67	40	20	40	34	32	0	41	38
1925	91	26	41	21	67	36	21	39	34	33	0	38	38
1926	92	26	40	21	70	37	20	38	33	34	0	33	36
1927	75	23	39	20	68	37	21	36	33	33	0	31	36
1928	82	24	37	20	67	34	20	36	32	35	0	31	35
1929	86	23	38	20	63	35	21	35	32	34	0	30	34
1930	83	22	35	20	59	36	20	33	30	33	0	29	32
1931	65	21	33	20	59	31	20	30	28	30	0	33	29
1932	60	19	36	19	51	31	20	29	28	33	0	35	28
1933	52	21	31	19	48	29	20	28	28	30	0	24	28
1934	49	21	33	19	45	30	21	29	29	31	0	29	29
1935	50	24	33	19	45	30	21	30	29	31	0	28	29
1936	50	25	33	20	48	30	20	30	29	32	0	28	29
1937	53	25	34	20	46	31	25	35	32	34	0	27	32
1938	50	23	35	21	49	30	25	35	32	35	0	29	32
1939	46	26	36	21	51	32	25	36	33	36	0	31	34
1940	57	29	40	23	78	43	35	46	34	37	0	32	38
1941	67	34	45	29	73	52	37	50	37	39	0	33	43
1942	74	39	49	30	67	64	39	51	39	41	0	35	46
1943	79	39	53	32	74	71	43	55	41	42	0	37	51
1944	70	38	57	32	75	70	40	53	44	43	0	40	50
1945	72	39	63	33	74	72	43	56	43	43	0	40	51
1946	87	40	64	35	73	63	46	52	49	48	0	46	53
1947	73	43	66	37	72	63	53	56	55	54	0	51	58
1948	78	46	66	40	75	62	58	60	59	58	0	55	62
1949	73	47	66	40	82	57	59	62	59	58	69	55	62
1950	100	48	65	43	80	56	59	63	59	58	81	57	64
1951	140	58	72	49	101	63	79	79	66	69	99	67	82
1952	117	62	74	54	113	72	91	84	78	75	94	79	83
1953	100	60	71	54	101	71	84	76	76	69	85	83	81
1954	98	61	74	53	93	68	80	76	74	72	91	81	81
1955	120	67	75	55	90	72	87	79	76	73	85	85	84
1956	118	66	76	57	98	73	96	84	81	77	85	99	87
1957	121	72	79	59	107	79	103	84	84	77	83	106	88
1958	110	70	81	61	102	78	90	90	86	78	85	102	87
1959	113	71	79	62	99	79	90	87	88	78	85	95	87
1960	122	76	81	63	93	82	96	88	89	79	85	94	88
1961	114	78	85	66	94	82	94	89	89	80	87	93	89
1962	109	81	89	71	95	85	90	91	89	82	90	97	89
1963	103	82	91	75	95	87	87	92	91	83	93	88	90
1964	105	85	92	81	96	90	95	97	92	87	94	88	95
1965	107	93	94	86	95	93	101	98	94	94	96	90	97
1966	105	94	95	94	96	96	104	98	95	98	98	89	99
1967	99	99	97	98	98	99	99	98	98	99	100	94	99
1968	100	100	100	100	100	100	100	100	100	100	100	100	100
1969	99	102	103	104	101	100	115	109	102	102	101	98	104
1970	105	109	108	107	112	106	129	125	108	110	105	102	111
1971	105	116	119	114	133	111	120	125	114	115	111	110	114
1972	104	125	129	122	136	116	118	132	120	121	119	114	119
1973	112	133	142	132	137	122	142	150	127	131	128	130	133
1974	143	149	172	165	181	141	192	196	142	158	145	154	164
1975	159	176	204	192	216	162	186	210	172	170	166	160	178
1976	168	202	234	219	267	185	193	222	192	187	183	178	193
1977	190	220	260	244	290	206	198	234	207	200	198	162	209
1978	203	243	280	263	314	230	212	258	228	216	219	180	222
1979	215	264	303	290	350	245	248	282	246	232	239	216	246
1980	266	290	352	337	385	258	287	313	272	254	260	205	279

NOTES

[1] Producer prices.

[2] The relationship between relative prices and the structural transformation of Swedish industry 1913-77 has been studied in Josefsson-Örtengren, 1980.

[3] This again rests on the assumption that the underlying long-term productivity and cost structure is not affected by the price controls.

[4] For 64 observations a correlation coefficient of 0.25 is sufficient for significance at the 5 per cent level.

[5] See Appendix 2 for a presentation of the data.

REFERENCES

Carlsson, B., E. Dahmén, A. Grufman, M. Josefsson, J. Örtengren, 1979, Teknik och industristruktur - 70-talets ekonomiska kris i historisk belysning (Technology and Industrial Structure - The Economic Crisis of the 70s in Historical Perspective), IUI-IVA, Stockholm.

Carlsson, B., J. Örtengren, P. Lantz, T. Pousette, L. Jagrén, F. Bergholm, 1981, Industrin inför 80-talet (The Industry Facing the 80s), IUI, Stockholm.

Clark, J.M., 1961, Competition as a Dynamic Process, The Brookings Institution.

Foster, E., 1978, The Variability of Inflation, The Review of Economics and Statistics, Vol. LX, No. 3.

Glejser, H., 1965, Inflation, Productivity and Relative Prices - A Statistical Study, The Review of Economics and Statistics, Volume XLVII, No. 1.

Graham, F.D., 1967, Exchange, Prices and Production in Hyper-Inflation: Germany, 1920-1923, New York.

Hayek, F.A., Individualism and Economic Order, Routledge & Kegan Paul Ltd., London, 1949.

Josefsson, M., J. Örtengren, 1980, Priser och omvandling i svensk industri (Prices and Transformation in Swedish Industry) in E. Dahmén, G. Eliasson (eds) Industriell utveckling i Sverige - Teori och verklighet under ett sekel. IUI, Stockholm.

Logue, E.E., T.D. Willett, 1976, A Note on the Relation between the Rate and Variability of Inflation, Economica, Vol. 46, No. 170.

Mills, F.C., 1927, The Behavior of Prices, New York.

Parks, R.W., 1978, Inflation and Relative Prices, Journal of Political Economy, Vol. 86, No. 1.

Patinkin, D. 1965, Money and Prices in Clower, R.D., (ed.), 1969, Monetary Theory, Penguin.

Ruist, E., 1950, Industriförbundets reviderade produktionsindex. IUI, Stockholm.

Schumpeter, J.A., Capitalism, Socialism and Democracy, Harper & Brothers Publishers, 1942.

Vining, D.R., T.C. Elwertowski, 1976, The Relationship between Relative Prices and the General Price Level, American Economic Review, Vol. 66, No. 4.