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INVESTMENT BEHAVIOUR IN SWEDEN

A report by the Industrial
Institute for Economic and
Social Research.

Stockholm in February, 1960.

Preface

The following report by the Industrial Institute for Economic and Social Research is made along the lines presented in the August 26, 1959 memorandum from the institute.

We here have summarized findings from different studies made as parts of the EPA-project and also of some other Swedish studies which are of relevance for that project.

Some of the studies that we have reported on are not yet completed, and in some cases it will take quite a long time before the material has been thoroughly analysed. Mrs Norstedt thus expects to work the whole of 1960 on an econometric comparison between actual and planned investments in Swedish industry.

We have not made a special report on the findings of prof.Lundberg as his main ideas have been presented in the December issue of the Economic Journal of 1959.

Stockholm February 15, 1960

Jan Wallander

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Part I

SOME STUDIES OF INVESTMENT BEHAVIOUR IN SWEDEN

Part I:a

THE FINANCING OF INDUSTRY IN THE 1950'

by

Erik Dahmén

In the first section of this study an account is given of the results of an investigation into the financing conditions in a number of selected industrial firms during the first half of the 1950's. Particular attention is paid to the degree of self financing. This account is followed by an exposition showing the raising of capital on the long-term market by the industry as a whole in the years 1945-1957. Finally, a balance of the capital market for the years 1950-1957 is drawn up, with a view to incorporating the financing of industry in a wider concept.

FINANCING CONDITIONS IN A SELECTED NUMBER OF FIRMS 1950-1955

The statistical material

Comprehensive material covering income, investments, saving, profits, etc., have been available in the form of data collected by the Central Bureau of Statistics during the 1950's. This material has been studied and analysed in respect of a number of selected firms.(1) Calculated according to the number of wage-earners, the selected group covers about 30 per cent of the industry. The small firms are under-represented and firms newly established during the period under review have not been included.

The information obtained from the firms, by the Central Bureau of Statistics, which has been used in this study, refers to gross investments - henceforth described as "investment" - and gross saving - henceforth described as "saving".

(1) Permission to utilize this primary material was given by the Central Bureau of Statistics and the private firms on the understanding that the results would not be divulged in such a way that the private firms could be identified.

By "investment" is implied:

Newly purchased and old fixed assets
+ newly procured fixed assets of own manufacture
- booked value of fixed assets sold
+ variations in the booked value of inventories

Costs for repairs and maintenance are not included in the amounts.

By "saving" is implied:

Depreciation of fixed assets
+ allocations to own pension and personnel foundations
+ profit recorded including allocations to own funds, but with deduction for taxation purposes
- amount allocated for payment to the shareholders as dividend.

By making an analytic comparison of this primary material with the balance sheets of the firms a better conception of the industrial financing in the period 1950-1955 has been obtained than what could be derived from the balance sheets alone. For each firm it has thus been possible to compare annual investments in fixed assets and inventories with saving, variations in sundry financial assets, new issues of bonds and shares and variations in other liability items. Even such a comparison has, however, involved a number of partly unsolvable problems. The analysis cannot therefore make any pretence to precision in this case either. There are principally three types of problems which have arisen.

First, the definitions of "investment" and "saving", which had to be chosen with regard to the statistical material, have not been the most satisfactory from an analytic point of view. The limitation of the value of the study which this implies has been unavoidable. Fortunately, however, one can be convinced that the source of error in question affects the result in a definite direction, viz., both investment and saving are somewhat underestimated. Secondly, varying principles have been employed by the firms in drawing up the balance sheets. In most cases these were probably discovered and could be rectified. Thirdly, the information provided in the balance sheets were occasionally so difficult to penetrate and in some cases so unreliable that it is necessary to reckon with some margins of error. This implies that the results of the analysis must not be critically examined in detail.

What is meant by "self financing"?

"Self financing" can be said to be an unmistakeable conception, inasmuch as it always denotes net saving by the firm. Every increase of the own capital, which has not been brought about by external raising of capital, is an expression for self financing of the entire business. A statistical conception of self financing in this meaning can be obtained by adding up the saving figures of all the firms. Should it be desired to have a more differentiated picture of the financial conditions in general, it is possible to give a separate account of, partly, variations in financial assets, liabilities and share capital and, partly, the total volume of investments.

If it is asked to what extent the investments have been self financed the question becomes more problematic. A reply to this question necessitates at first a regrouping "in the scope" of the statistical primary material. A firm's deficit in saving in relation to investments must not be balanced against a surplus of saving over investments in another firm. If a firm has utilized a volume of saving not only for investments but also for increasing financial assets, the excess amount must not be included. If a firm has raised capital externally to increase the financial assets, this rise in indeptedness, increase of the share capital or respective increase of the financial assets, must not be included. If a firm has spent current saving or financial assets for other purposes than investments, e.g., for the repayment of debts, the amount must be excluded.

If it is desired to have a reply to the question as to what extent investments have been self financed, it is then also necessary to determine into which periods of time the statistical material should be grouped. The length of the period studied should be included in the definition of "self financing". If a period of several years is regarded as a unit, self financing tends, according to the abovementioned meaning, to be greater than if only a year at a time is studied. As the choice of period is in no way self-evident, but can be adjusted according to the different ends desired to be attained by the analysis, it is most expedient in this connection not to be tied to such a definite choice. The statistical material should instead be grouped into many different periods.

A primary study of the material can thus appropriately indicate to what extent the annual investments have been financed by saving derived during the same year, by the utilization of financial assets which were available at the beginning of the year, or by external raising of capital during the course of the year. If a firm has borrowed every other year for an investment, repaid the loan every other year, investments would appear as entirely self financed when making such a study. Nor would in such a case a sum for a period of several years, e.g., 1950-1955, reveal how large a volume of the investments in the period was financed by saving which was accomplished during the same period, regarded as a unit. The sum for the period reveals instead how large a volume of the total investments were financed by saving derived during the cource of the investment year, by financial assets, by borrowing, etc., during the period in question.

By another method of research, which combines a number of years into one period, it is possible to show how large a volume of investments made during the longer periods was financed by saving derived during the respective periods by the utilization of financial assets which were available at the beginning of the periods and increased indebtedness or newly issued shares from the beginning to the end of the periods. If, for example, the whole six-year period 1950-1955 is regarded as a unit and the recently mentioned example is conceived, e.g., that a firm has borrowed every other year for its investments and rapid the loan in question every other year by profits, the investments would appear as being entirely self financed.

In the present study three alternative groupings have been made. Thus, the analysis aims at six one-year periods, two three-year periods, and one six-year period.

The statistical representation

An illustrative exposition of the result of the investigation is given in the Tables 1-3.[1] All the tables refer to the investigated firms in their entirety. A separate exposition of Tables 1 and 3 for certain big branches is given in the appendix,which also contains the names of the branches included in the selection of the firms.

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(1) The difference in Tables 2 and 3 between, on the one hand, "investments" and, on the other hand, the sum total of the different financing methods is due to sources of error of the type which have been referred to in the foregoing. Other differences are, however, a consequence of the way the questions were put and the errors are only seemingly apparent. To begin with, it is quite natural that "saving", according to the three tables, does not show the same amount. In Table 1 total saving is included, whereas in the other two tables it is included only in so far it has been utilized for financing investments during the period saving took place. The same applies to the other financial items. For principally the same reason there is no agreement in Table 3 between the sum total of the figures for the periods 1950-1952 and 1953-1955, respectively, and the sum total for the whole six-year period. For example, saving in the first-mentioned period, which has not been utilized for financing investments during the same period, but may have resulted in financial assets which have been utilized for investments in the next period, is not included under "saving" for the period 1950-1952, but appropriately under "saving" for the period 1950-1955. For the period 1953-1955 the amount is recorded as financing by means of financial assets. However, in Table 2 - as obviously in Table 1 - the figure for the period 1950-1955 always tallies with the sum total of the figures for the respective years. In Table 2 is recorded, during the respective years, how the actually accomplished investments have been financed by saving during the corresponding year, etc., and the sum total for the years 1950-1955 reveals how large a volume of the total investments in the separate years have been financed by saving derived during the respective years, etc. Another example of only seemingly apparent errors is to be found in a comparison between "investments" according to Tables 1, 2 and 3. In Table 1, but not in Tables 2 and 3, negative investments have been treated as minus items. In the two last-mentioned tables only financing of actually accomplished investments will be shown. Consequently, negative investments have not been included.

Table 1. Investments and financial conditions of industry

Total number of selected firms

	1950	1951	1952	1953	1954	1955	1950-55
	Million kronor						
INVESTMENTS	783	1 318	1 293	491	1 048	1 517	6 450
of which in fixed assets	747	940	945	895	999	1 085	5 611
inventories	36	378	348	- 404	49	432	839
SAVING	875	1 003	935	1 012	1 130	1 081	6 036
VARIATIONS IN:							
Financial assets	581	1 109	- 151	585	232	417	2 773
Of which cash in hand and at banks	149	335	- 183	455	- 32	- 310	414
other	432	774	32	130	264	727	2 359
NEW ISSUES OF:							
Shares	38	147	44	68	56	166	519
Bonds and mortgage loans	45	76	51	124	- 40	- 29	227
VARIATIONS IN:							
Other debts than bonds and mortgage loans	417	1 239	271	- 45	175	723	2 780

Table 2. The annual financing of industrial investments

Total number of selected firms

	1950	1951	1952	1953	1954	1955	1950-55
	Million kronor						
INVESTMENTS	821	1 321	1 339	730	1 107	1 545	6 863
Of which in fixed assets	734	934	924	813	966	1 079	5 450
inventories	87	387	415	- 83	141	466	1 413
INVESTMENTS FINANCED BY:							
Saving	572	772	676	494	766	909	4 189
Utilization of financial assets	47	87	233	79	126	149	721
External capital borrowing	209	470	449	171	229	497	2 025

Table 3. Financing industrial investments in periods of several years

Total number of selected firms

	1950-52	1953-55	1950-55
	Million kronor		
INVESTMENTS	3 407	3 169	6 508
Of which in fixed assets	2 639	2 935	5 595
inventories	768	234	913
INVESTMENTS FINANCED BY:			
Saving	2 361	2 439	5 085
Utilization of financial assets	87	119	55
External capital borrowing	963	632	1 375

Table 1 shows that the aggregate saving by the firms has been approximately as large as the total gross investment activity, excluding maintenance and repairs. New issues of shares have been on a moderate scale, rise in indebtedness, particularly long-term debts, has been moderate and liquidity appears to have developed favourably. This impression of the financing conditions is strengthened when examining those various subitems, which could not be accounted for, and the primary material. As the volume of the investments in relation to the already existing fixed assets and inventories is not apparent from the tables, it is indeed not possible to say anything absolutely definite about the economic implications of the large volume of saving, the inconsiderable rise in indebtedness and the increased liquidity. For example, a high degree of self financing does not say very much in those cases when the entire business activity has been restricted. Everything indicates, however, that investment activity on the whole has been lively. For this reason it is justified to say that the financial conditions developed very satisfactorily. This conclusion appears to be especially definite when it is recollected that the volume of investment and saving would seem to be underestimated.

The division into some big branches, which is given in the appendix, permits the emergence of a more diversified picture. Some

of the branches have experienced a marked favourable development and others a remarkably weak development. Investments have undoubtedly been very large in relation to older plants in the iron and steel industry, combined enterprises, and the timber industry and the rate of expansion has on the whole been rapid whilst, at the same time, business saving has been very large and external financing fairly small. On the other hand, investments have undoubtedly been rather inconsiderable and production restricted in the textile and footwear industries, but, nevertheless, indebtedness has risen and liquidity deteriorated. Nor has self financing been high in the foodstuffs industry, but the activity in this industry would seem to have been comparatively more expansive.

The Tables 2 and 3 with the sub-tables in the appendix and the primary material show, however, the most important picture. It thus appears that many firms reveal a very high degree of self financing of a lively investment activity whilst, at the same time, many other firms have made large investments but without being able to finance more than a small volume of these investments with current saving. Furthermore, considerable saving without simultaneous investment activity on a major scale has occurred, although this occurrence has been less frequent. What is most remarkable in this emergent picture is, of course not the fact that the self financing possibilities have been different in sundry branches and firms. The differences are, however, remarkably large and not infrequently lasting for many years. This general conclusion, which is of interest from, inter alia, the point of view of monetary policy, cannot conceivably be disarranged by the sources of error alluded to in the foregoing.

In the total number of selected firms at least 60 per cent of total gross investments, excluding maintenance and repairs, have been self financed year by year, at least two-thirds over the three-year periods, and probably four-fifths over the whole six-year period. The iron and steel industry, combined enterprises, and the forest industry are the industries which are principally self financing. Investments in fixed assets are particularly well covered by current saving in these industries. This applies not only to the long periods, but also to year by year. In these and other expanding branches and firms the small volume of indebtedness in connection with investments, if carried out, have thus not been of a long duration. Furthermore, financial

assets spent have been replenished rapidly. In other cases, especially in those branches where, according to Table 1, the financial conditions already appear to be fairly weak, but also in engineering works and the iron and metal manufactures industry, there are many firms who have borrowed heavily for their investments. Not infrequently has there been a low degree of self financing, even over the six-year period, principally in the textile and footwear industries.

By making a closer study of events year by year, characteristic features of some interest are found. In 1950 and 1951 large amounts were invested in fixed assets as well as inventories. Funds for defraying these investments were in the majority of cases drawn from large profits. The forest industry, which also sharply increased its liquidity, holds a unique position in this respect. At the same time heavy borrowing, principally from the banks, were made by a number of branches. For example, the engineering works made use of external financing to a large extent. After 1951, when the investment boom culminated, endeavours were generally made in many branches for a few years after this year to replace the liquid funds spent during the boom period of the preceding years. In this connection it should be noted that, inter alia, the considerably higher price and wage level ruling now made claim on larger amounts of liquid funds. The large addition in liquidity during the preceding years was utilized in strikingly many other cases for the purpose of bringing down debts in connection with investments being restricted and inventories reduced. The temporary tightening of the money market in the beginning of 1952 did probably contribute to the start of the process which has been intimated here. When the monetary policy became expansive again, the liquidity improvement of the firms was facilitated and in the beginning of 1954 a high degree of liquidity had been attained in most branches. The liquid funds came in very handy when the firms began to invest again on a large scale not only by using these liquid funds and current, often satisfactory profits, but also by money borrowed and raised by the issue of shares. The deteriorated financial conditions in 1955, already apparent in Table 1, were probably due to a fairly general decline in profits whilst, at the same time, investments continued to be large in many branches. In this connection it should be recollected that the investment levy, which was withdrawn in 1954, was reintroduced in 1955.

CAPITAL MARKET FINANCING 1945-1957 AND CAPITAL MARKET BALANCE 1950-1957

The external raising of capital

The investigation accounted for in the foregoing shows that the long-term capital market, henceforth described as only the "capital market" or the "long-term market", has only to a fairly small extent been utilized by the big and medium-sized industries. It has been desirable, however, to obtain a more complete picture of the raising of capital by the industry as a whole.

For the industry in its entirety - not only considering the firms selected for the investigation in the foregoing - the picture of the capital market financing has an appearance similar to that which is evident in Table 4.(1) An account of the statistical sources and the calculating methods is given immediately after the table.

During the first post-war years the demands made on the long-term market were not appreciably large. In this connection it should be noted that the newly issued shares were to a large extent paid by so-called "apport", principally when converting a private firm into a limited liability company.(2) As already intimated by the above account of the investigation, the reason for the inconsiderable borrowing on the capital market is to be found in the fact that on the whole the firms were liquid and, moreover, had no difficulty in borrowing on the bank credit market also for really long-term purposes. Their self financing by means of current profits was also high. During the subsequent years up to the outbreak of the Korean war the industry would seem to have turned to the capital market to an increasing extent. Profits became smaller and the bank credit market had been somewhat tightened. Furthermore, rising interest rates were anticipated and many firms hastened therefore with new issues. The control over new issues of bonds and mortgage loans, introduced in the beginning of the

(1) It has been necessary also to include the trade sector under the information given about bonds and mortgage loans.

(2) As will be seen from the table, it is only for the year 1957 that it has been possible to determine the role played by apport properties. In that year they accounted for one-third of the total issue amount. Furthermore, the new issues of shares represent to a large extent a transfer of debts owing parent companies to share capital.

1950's, subsequently resulted in the issues of shares gradually attaining more importance and to an extended granting of credits by the insurance companies.

The fact that the industry has only on a limited scale made use of the capital market does not necessarily imply that they have made small demands on this market. The bond and loan market has since 1953 on the whole been closed to the industrial sector as a result of the Riksbank's control over new issues and also the possibilities of the insurance companies to grant industrial loans have been curtailed by the pressure exercised by the Riksbank. It appears probable, however, that the actual demands at the current rate of interest level and the favourable opportunities to borrow on the bank credit market, have not been greater than what could actually be met. On the other hand, there is no doubt that the method of borrowing has been affected by the control exercised over the capital market. If a free market had existed, the shifting from bonds and mortgage loans to promissory note loans would in that case not have occured. It is possible that new issues of shares would also have been less numerous.

Table 4. Capital market financing of industri 1945-1957

	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
	Million kronor												
Shares	+67	+161	+147	+103	+107	+95	+192	+192	+149	+365	+113	+279	+184[1]
Bonds	-42	- 14	+162	+130	+ 82	-21	+ 8	+ 61	+129	+ 43	- 53	+ 25	+ 66
Mortgage loans	+29	- 2	+ 95	+ 93	- 0	+20	+103	+ 63	+ 1	- 10	+ 30	+ 25	- 67
Credits from insurance companies	+ 3	+ 9	+ 53	+ 26	+ 35	+20	+ 50	+195	+ 63	+ 19	+135	+157	+180

1) Of this amount Kr.54 million were paid by apport properties.

Note: The information about shares covers, for the period 1945-1946, gross amounts with the adjustments made for capital repayments by Jönköpings och Vulcans Tändsticksfabriks AB in the years 1945-1951 and by Svenska Tändsticks AB (Swedish Match Company) in 1955 and 1956. The information for 1957 covers net amounts. As sources have been used Ekonomiska Meddelanden (Economic Reports) - published by the Swedish Board of Trade - and the annual reports on the activities of the above-mentioned firms.

The information about bonds refers to net amounts and have been taken from Svensk Obligationsbok (Swedish Stock Exchange Year Book).

The information about mortgage loans refers to net amounts and is based on, partly, Svensk Obligationsbok and Ekonomiska Meddelanden and, partly, on the annual reports on the activities of some of the borrowers. In the statistics are included, inter alia, issues and amortization of the following loans raised by Kooperativa Förbundet (Swedish Co-operative Union and Wholesale Society), viz., 1927 Industrial Fund Loan, 1942 Nitrogen Loan, 1947 Industrial Loan and 1952 Mortgage Loan. Furthermore, information is included about the mortgage loans which - starting in 1947 - were raised by AB Eol, Hakonbolaget AB, Nordsvenska Köpmanna AB and AB Speceristernas Varuinköp, and also about the 1951 Industrial Loan of AB Ica-Industrier.

The information about credits from insurance companies refers to net amounts and is based on statistics published in Enskilda försäkringsanstalter (Private Insurance Institutions) and, for the years 1951 and 1952, on certain capital investment statistics of the Försäkringsinspektionen (Insurance Inspectorate) and on a table in a "Memorandum regarding lending of the insurance institutions distributed according to industry and trade groups" (stenciled).

The capital market

A picture of the development of the capital market as a whole can be obtained with the aid of a capital market balance. From Table 5 will be seen the supply and demand which, under the existing control of the market, have resulted in transactions in long-term securities between investors and borrowers. The principles for drawing up this capital market balance are explained below. In connection thereto an account is given of the statistical sources.

Table 5. Capital market balance 1950-1957

	1950	1951	1952	1953	1954	1955	1956	1957
	Million kronor (in rounded-off figures)							
SUPPLY								
1. Capital market institutions	1 125	1 125	1 930	1 995	1 845	1 760	1 835	2 130
A. Insurance companies	500	630	925	1 125	950	865	880	975
B. Savings banks	495	300	650	680	730	620	765	905
C. Post Office Savings Bank	130	195	355	190	165	275	190	250
2. Agricultural mortgage bank movement	55	30	70	105	100	60	70	95
3. Commercial banks	45	255	210	990	495	185	175	700
Of which bonds	- 80	-180	265	960	345	190	195	625
loans granted on real estate security	125	435	-55	30	150	- 5	-20	75
4. Postal Cheque Account	140	160	175	195	75	-180	80	280
5. Board of Housing	190	295	475	565	655	940	825	840
6. State-owned shares	10	70	15	20	200	0	5	35
7. Riksbank	-280	85	100	20	140	-115	-285	-220
8. Private, funds, societies, firms	685	-90	440	-10	1 950	835	475	315
9. Foreign	65	50	55	45	220	65	70	115
TOTAL	2 035	1 980	3 470	3 925	5 680	3 550	3 250	4 290
DEMAND								
10. Agriculture	145	130	140	210	285	180	125	240
11. Dwellings	1 170	1 215	1 450	1 595	1 950	2 215	2 055	2 590
12. Municipalities	305	470	790	520	50	190	505	80
13. The Government	130	-445	330	800	2 630	480	-55	720
14. Firms in the industrial, trade, shipping, sectors, etc.	240	565	725	725	655	435	505	545
Of which shares	190	305	245	210	450	265	385	300
15. Foreign	45	45	45	75	110	50	115	115
TOTAL	2 035	1 980	3 470	3 925	5 680	3 550	3 250	4 290

ACCOUNTING PRINCIPLES

On the supply side has been included net purchases of securities of a long-term type during the respective years, when by net purchases are implied all purchases minus amortizations and redemptions received. It is mainly a question of such long-term securities which, at least in principle, are usually subjected to transaction, i.e., such securities which are known as "marketable". Moreover, net increases of long-term loans during the respective years are included. So far as the capital market institutions are concerned, the supply means, reckoned in periods of several years, approximately the same as the net investment requirement with deductions for the purchase of real estate. It is not always, however, that annual data have this purport because the institutions in question keep variable bank assets and can raise bank loans for so-called "pre-investments". So far as the Agriculture mortgage bank movement is concerned, it should be noted that all lending, in addition to investments in bonds, have been included. It has not been possible to differentiate in a satisfactory manner the volume of investments which should not be included under the capital market. With regard to the commercial banks it should be noted that their supply, in principle, comprises all types of investments in bonds, consequently also short-term bonds, but, on the other hand, not Treasury bills, and that in any case the short-term bonds are regarded by the banks themselves to be more in the nature of secondary liquidity reserve. The supply of the banks comprises, for the remainder, mortgage loans in dwellings, of such a nature that they are intended not to be shifted over to the capital market, and mortgage loans in forestry and agricultural real estate. Building credits are not included as these, like most of the lending of the banks in other respects, are of the nature of short-term credits. The group Board of Housing comprises loans from the Board of Housing and loans from the Own-home organizations and the Rural-economy associations which have been taken over by the Riksbank. State-owned shares refer to capital paid by the Government into joint-stock companies. The Riksbank refers to, partly, the direct taking over of bonds from the National Debt Office and, partly, to open market operations. Treasury bills are not included as these do not fall under the capital market.

Private, funds, etc., have arisen as a residue item after having calculated the total sum of the demand side. Foreign comprises sales abroad of Swedish and foreign bonds and shares.

The demand side gives the advance demands which have been met and not the actual demands at the current level of bank interest. - Borrowing by agriculture on the capital market has been calculated as variations in the total lending of the rural mortgage banks and the agricultural mortgage bank movement, loans by the savings banks against mortgages in agricultural real estate, Government-guaranteed loans to agriculture and loans by the commercial banks and the insurance companies against mortgages in forestry and agricultural real estate, also agricultural loans taken over by the Riksbank.- "Dwellings" cover all net variations in outstanding housing loans in insurance companies, savings banks, mortgage banks, the Board of Housing, Post, Office, the Riksbank and the commercial banks, but not credits. - Under "Municipalities" falls all municipal long-term net borrowing. Loans which have implied transition to the housing loan market should, if this had been possible have been wholly included under "Dwellings". This has not been possible because of lack of detailed accounting. - As demands by the Government on the capital market have been counted net changes in national debt in respect of bond loans, Government securities, savings bonds, national accounts, loans from savings banks, and long-term loans from the Post Office Savings Bank and the Postal Cheque Account. - Under the heading "Firms, etc.", falls all activities outside agriculture, house building, municipal activities and the Government activity which is conducted in the form of public corporation The amounts have been estimated by adding up all new issues of shares (apport included herein), new issues of bonds and mortgage loans by industry and trade as well as transport corporations, lending (so far as these are not included under other headings) by the insurance companies, savings banks and the Post Office Savings Bank and the ship mortgage institutions as well as net foreign lending.

It is a debatable point whether, as has been done in this case, it should be considered to be an error to exclude from the capital market balance such promissory note loans which have not been sold to institutional investors. In many cases these types of promissory note loans can, at least formally and also not so infrequently, actually consist of short-term reserves and should then not fall under the

capital market. It is clear, however, that some parts of the long-term market have incorrectly been excluded. Among other things, some parts of the housing loan market, on which private loans of a long-term duration still exist, have disappeared, although at present on a smaller scale than previously.

SOURCES

Information about the purchase of securities and lending of an obviously not short-term nature by the insurance companies (excluding parish companies) has been obtained by a comparison of booked values in SOS: Enskilda Försäkringsanstalter (Government official publications: Private insurance institutions) for the respective years. The amounts, which have thus emerged, have been verified with the data given in the same publication about profits and losses by sales as well as appreciation and depreciation on securities. For the years 1950 and 1951, the last-mentioned data regarding the life and sickness insurance companies have been obtained from the annual reports on the activities of the respective companies.

So far as the savings banks are concerned the publications Allmän Sparbanksstatistik (General Savings Banks Statistics) for the years 1949, 1950 and 1955 and Statistisk Tidskrift (Statistical Journal) have been used. The booked values have been verified with the data given in the same sources about appreciation and depreciation on bonds, loans and other assets, as well as profits and losses on drawn or sold lottery bonds, etc. Information about the Post Office Savings Bank, the Postal Cheque Account and the Agricultural mortgage bank movement has been derived from the publications SOS: Postverket, and Jordbruks-kasserörelsen (the Government official publications: Post Office and Agricultural mortgage bank movement) and statistical data obtained from Svenska Jordbrukskreditkassan (Swedish Agricultural Mortgage Bank). Here it has also been possible to verify the booked values with the aid of profit and loss accounts.

On the other hand, the position in respect of the commercial banks (excluding Inteckningsbanken and Sparbankernas bank) is that the information about bond purchases, which are included in the amount and have been obtained from SOS: Uppgifter om bankerna (Government official publication: Information about the Banks), refer to booked

values. Net purchases can therefore be somewhat underestimated, especially those years when there was a fall in bond prices. In addition to bond purchases are included, as already mentioned, housing loans of such a nature that they are not intended to be switched over to the capital market, as well as mortgage loans in forestry and agricultural real estate. Building credits in houses under construction as well as in completed houses are thus not included. Credits in completed houses could in fact have been included; that the banks hold such credits is due to the inability to reinvest them on the capital market. Here it has, however, been chosen to let the non-reinvested credits fall outside the capital market balance as it is close at hand to regard their existence as a sign of the insufficiency of the capital market proper. Information about the loans in question has been obtained from the annual investigations made by the Bank- och fondinspektionen (Bank and Stock Exchange Inspectorate), which refer to the position as at 30th November. No such investigation as at 30th November 1949 is, however, available and for this reason it has been necessary to make a guess for 1950. The source of error can hardly exceed some tens of million kronor.

Information about the loans falling under the heading Board of Housing has been obtained from the Board of Housing and from Memorandum No. 1 of the Riksbank Bank Committee for the respective years. Information about State-owned shares has been obtained from the Year Book of the National Office of Public Accounts and the annual reports on the activities of the appropriate corporations. The Riksbank covers variations in the booked values of the bond holdings and the information has been obtained from the Year Book of the Swedish Riksbank. Exact information about the annual purchases has not been obtainable. Any other lending by the Riksbank other than that which can be said to correspond to the holding of bonds has not been included. For 1953 an item consisting of bonds to the value of kr. 1,000 million has been excluded as it was a case of direct exchange with the National Debt Office against Treasury bills. The exchange did not affect the market and was of no monetary policy significance.

Information regarding Agriculture has been obtained from the annual report of the activities of Sveriges Allmänna Hypoteksbank (General Mortgage Bank of Sweden), from Jordbrukskasserörelsen (Agricultural mortgage bank movement), Statistical Data published by Svenska

Jordbrukskreditkassan (Swedish Agricultural Mortgage Bank), from the General Savings Banks' Statistics and the Statistical Journal, from Enskilda Försäkringsanstalter (Private Insurance Institutions) and certain capital investment statistics from the Försäkringsinspektionen (Insurance Inspectorate) and from the investigations made by the Bank and Stock Exchange Inspectorate regarding advances made by the banks. For 1950 it is, in the latter case, a matter of estimating (cf. above).- The estimate of the demand under the heading Dwellings is based on information, partly, from the appropriate above-mentioned statistics and, partly, on lending by the Statshypoteksföreningar (Government mortgage societies), Bostadskreditföreningar (Building Societies) and the mortgage institutions (including Inteckningsbanken and Sparbankernas Bank) and the lending of the Tomträttskassor (Site Leaseholdership Societies) obtained from the annual reports on the activities of Konungariket Sveriges Stadshypotekskassa (The Kingdom of Sweden State Mortgage Bank), Svenska Bostadskreditkassan (Swedish Building Society) the mortgage institutions and the Site Leaseholdership Societies, and, partly, from the lending of the Board of Housing and the Riksbank. In principle, credits have not been included although in actual practice this has been partly unavoidable because of the lack of separate accounting of credits and loans. - The calculations regarding capital borrowing by the Municipalities are based, partly, upon the above-mentioned statistics covering the supply of the capital balance and, partly, on information in respect of the bond loans of the municipalities obtained from Ekonomiska eddelanden. It should be noted that also municipally-guaranteed loans have been included; here it is as a rule a question of wholly or semi-owned municipal corporations. - The demand by the Government has been obtained from Den svenska statsskulden (The Swedish National Debt), issued monthly by the National Debt Office.

Information about Firms, etc., has mainly been obtained from Svensk Obligationsbok and Ekonomiska Meddelanden, so far as shares, bonds and mortgage loans are concerned. The data about the mortgage loans of trade and industry have been supplemented in the same way as the information given in Table 4. A source of error is that some of the shares have been paid by means of apport and another that issues made by a number of subsidiary companies were taken up by the parent

companies as payment for debts. The lending of the capital market institutions have been obtained from the same statistics as those used for the supply side. Moreover, the annual reports on the activities of the ship mortgage societies and AB Industrikredit (AB Industrial Credits) have been used.

RESULTS

Most remarkable on the supply side is the marked increase during 1952 and the subsequent stagnation in the investment requirement of the capital market institutions. The vigorous growth of the administrative and executive staff pension system has been of major importance in this connection. Thus, it is the firms which together with mutual salary saving, principally through the media of Svenska Personal-Pensionkassan SPP (Swedish Office Personnel Pension Society) have been responsible for the major contributions. Individual insurance saving has fallen off owing to less interest in insurance forms involving personal saving. The transition to pure risk insurance has begun to affect the capital market. The supply of the savings banks and the Post Office Savings Bank, which rose sharply in connection with the upward rise of monetary incomes after the Korea boom period has, on the other hand, continued to rise in step with the advance in monetary income. There would seem to have been a shifting towards short-term so-called "aim saving". The supply of the Board of Housing shows the heaviest and most regular increase. It is only in some years that this increase is counter-balanced by Government long-term borrowing (see the demand side). The transactions of the commercial banks on the market is closely related to monetary policy measures. The monetary policy of the Riksbank has in different ways induced them, particularly in some of the years, to invest money on an abnormally large scale also on the capital market. The insignificant support of the Riksbank to the long-term market should be viewed against the background of the transactions of the commercial banks on this market. There has been no need for the Riksbank to buy up Government securities because the commercial banks have instead been obliged to increase their holding not only of Treasury bills, but also of bonds. The supply under the heading "Private, etc.", would appear to be dominated by funds and societies. The own direct supply of private persons has not been large

except in some of the years, viz., when the bank rate has risen. Otherwise the interest was concentrated on lottery bond loans and, in recent years, to some extent, on shares.

On the demand side the vigorously increased loan requirements for house building purposes are most prominent. In comparison herewith the taking up of resources by the other sectors is of secondary importance. It is only in exceptional years that the Government has made claim on considerable amounts. The heavy loan requirements of the Government have otherwise been covered by the short-term market, mainly by the sale of Treasury bills and short-term bonds to the commercial banks.

By studying the development year by year certain remarkable circumstances emerge.

In 1951 the consequences of the buying-rush arising out of the Korea boom could be distinctly discerned. The savings banks were drained of money so that the investment requirement became exceptionally small and, undoubtedly, private persons reduced their holdings of securities. The fairly large issues of shares could not, however, to any large extent have been taken over by other investors than private persons, which means that they must have exchanged bonds for shares.

In 1952 the ample supply of liquid assets for the general public, firms and banks resulted in a marked easing-off on the capital market. All the capital market institutions now derived full benefit from the inflationary rise in monetary income.

In 1953 the commercial banks began to support the capital market on a large scale by taking over newly issued short-term bonds. This can be explained, partly, by the heavily rising Government expenditure beginning to result in a large increase in deposits, and, partly, by the so-called "liquidity agreement" which released the Riksbank from intervening directly to support the market and instead forced the banks to both sell and buy on the capital market. The greatly increased demands made on the capital market by the Government and the house building sector was met in this way without any rise in the bank interest The circumstance that industry and trade, as well as the municipalities, began from now onwards to be kept back by means of the control over new issues, and by the pressure exerted on the insurance companies, also acted in the same direction.

In 1954 demands continued to rise whilst at the same time the influx of funds to the capital market institutions stagnated as a result of the pace in the increase of monetary income being slower. The situation was now cleared up by - in addition to continued control - the banks to begin with, unburdened the capital market by retaining credits in completed houses and, furthermore, by the continued purchase of bonds. An influx of funds this year was, however, principally obtained by a remarkably large increase in supply from other sources than the capital market institutions and the commercial banks. The increase in supply from funds, societies, private persons, etc., is noteworthy. This increase was apparently used to a large extent for the purchase of bonds and was undoubtedly related to the rise in the rate of interest. Considerable amounts must have been transferred from bank deposit accounts to the capital market.

In 1955 it would appear that a further transfer of funds from the commercial banks to the capital market took place in connection with the new rise in the bank rate. On the other hand, one of the sources of supply now disappears entirely, viz., that of the Postal Cheque Account. This is, however, connected with the fact that part of the bond holding was owned against "temporary loans" which, in its turn, implied an unburdening of the capital market. The transportation of the figures in relation to the preceding year is therefore not of any importance. In 1955 the capital market institutions would appear to have increased their direct lending to trade and industry. The difficulties connected with the financing of house building attracted considerable attention. An accumulation of credits in completed houses and a declaration by the Riksbank at the beginning of the year to the effect that house building credits no longer need be given priority did in fact result in a new building crisis in the summer. New priority instructions were, however, issued subsequently. The so-called "lending ceiling" was introduced for the commercial banks, but did not apply to house building credits and housing loans. So far as house financing was concerned, the position then eased, but, on the other hand, the rest of the capital market remained strained. The increase in supply from the capital market institutions was fairly small and private persons, funds, etc., provided a considerably smaller contribution than previously. The same tendency marked the year 1956. A large demand by the Government had to be covered, to prevent a further

rise in the bank rate, outside the capital market by the sale of Treasury bills to the commercial banks. The position eased somewhat during 1957 thanks to the increased influx of funds to the savings banks and the Post Office Savings Bank and, partly, because the commercial banks were now making direct transactions on the capital market on a large scale by buying up bonds.

As a whole, an impression is gained of how the increase in monetary income and the heavy liquidity influx in the beginning of the 1950's, (the latter passively accepted by the Riksbank), in various ways resulted in large additional supplies also to the capital market. It can then be seen how this tidal wave ebbs away. It is not a coincidence that the crisis on the capital market became acute as from 1953, in spite of the industry only making a small claim on these resources. The situation was then first temporarily remedied by direct "support purchases" by the banks. After that it was managed to achieve a non-recurrent transition of funds by means of a rise in the bank rate, which no doubt had very little to do with an increase in saving. When this possibility, in its turn, ceases the commercial banks must again unburden or push money over to the long-term market. It can therefore be said that, by different methods and in various ways, "short-term" money has to help the capital market. This course of events formally contrasts with what occurred during the first five post-war years, when the Riksbank made direct transactions on the capital market on a very considerable scale. The real purport was identical in both cases. Heavy liquidity restriction was avoided. A credit expansion has in different ways put money in the hands of investors, prevented or restricted the raise in the bank rate and facilitated a large investment activity in industry as well as in other sectors.

SUMMARY

Neither the special industrial financing investigation nor the capital market analysis, give an impression that the large industrial firms have met with any serious difficulties in managing the financing. Self financing has been considerable and, on the whole, the bank credit market easily accessible. The explanation of this is to be found, briefly stated, in the boom period and the monetary policy.

Long-term borrowing by the industry on the capital market, on which the building sector has dominated, has been kept within a narrower limit, than what otherwise have been the case under given conditions, with the aid of controls. This borrowing has therefore been substituted by, more or less, short-term promissory note loans. On the whole, the insurance companies have, inter alia, increased their industrial financing against promissory note securities. In addition thereto, the commercial banks have retained loans which, under normal conditions, would have been shifted over to the capital market. The limited external financing which has taken place has thus been comparatively expensive and in many instances unsuitably arranged.

Branches included in the investigation into financing of industry

1. Ore mining and ore concentration works
2. Iron and steel works
3. Iron and steel manufactures
4. Other metal industry
5. Other metal manufactures
6. Engineering workshops and foundries
7. Electrical engineering
8. Combined iron and steel and forestry enterprises
9. Other combined enterprises other than combined iron and steel and forestry enterprises
10. Stone industry also cement and light-concrete factories
11. China, tiles and earthenware industries
12. Glass industry
13. Brick manufacturing industry
14. Other refractory and stone industries
15. Pulp mills
16. Paper mills
17. Combined forestry industry
18. Newspaper printers
19. Book printers and job-printers
20. Other printing industry and paper processing also combined enterprises
21. Joinery, furniture factories and other timber industries
22. Flour mills

23. Bakery industries
24. Butchery
25. Canning industry
26. Dairy industry
27. Chocolate and confectionery industry
28. Woolen industry
29. Other textile industry
30. Rubber factories
31. Footwear industry
32. Other leather, hair and rubber goods industry and combined enterprises
33. Chemical industry
34. Hydro-electric power stations

Investments and financial conditions of industry

Iron industry
16 firms

	1950	1951	1952	1953	1954	1955	1950-55
	Million kronor						
INVESTMENTS	103,5	113,1	134,7	137,8	162,8	160,5	812,5
Of which in fixed assets	93,1	93,0	98,3	133,8	163,9	143,0	725,1
inventories	10,4	20,1	36,4	4,0	-1,1	17,5	87,4
SAVING	82,7	138,7	189,0	206,8	174,2	143,8	934,9
VARIATIONS IN:							
Financial assets	26,6	134,9	307,7	38,6	-152,7	95,6	424,3
Of which cash in hand and at banks	-36,5	76,3	241,1	41,7	-156,9	31,3	197,0
other	63,1	58,6	66,6	-3,1	-22,2	64,3	227,3
NEW ISSUES OF:							
Shares	-	11,0	-	-	-	2,6	13,6
Bonds and mortgage loans	-1,9	-2,0	15,6	-5,9	-6,1	-6,4	-6,7
VARIATIONS IN:							
Other debts than bonds and mortgage loans	48,5	99,0	240,8	-17,0	-183,9	117,4	304,8

Financing industrial investments in periods of several years

Iron industry
16 firms

	1950-52	1953-55	1950-55
	Million kronor		
INVESTMENTS	351,3	461,1	812,5
Of which in fixed assets	284,4	440,6	725,0
inventories	66,9	20,5	87,5
INVESTMENTS FINANCED BY			
Saving	306,6	411,3	719,4
Utilization of financial assets	3,5	32,6	6,5
External capital borrowing	41,5	17,0	93,4

Investments and financial conditions of industry

Engineering workshops also iron and metal manufactures

127 firms

	1950	1951	1952	1953	1954	1955	1950–55
	Million kronor						
INVESTMENTS	230,5	404,3	381,3	-21,2	203,8	607,1	1 808,9
Of which in fixed assets	198,7	260,1	225,9	193,1	219,6	304,8	1 402,2
inventories	31,8	144,2	155,4	-214,3	-16,6	302,3	406,7
SAVING	280,6	254,8	284,2	308,3	357,9	311,3	1 797,1
VARIATIONS IN:							
Fianancial assets	208,1	255,7	1,5	265,0	238,3	110,5	1 079,2
Of which each in hand and at banks	72,8	18,6	-84,7	246,2	65,7	-212,4	106,2
other	135,3	237,1	86,2	18,8	172,6	322,9	973,0
NEW ISSUES OF:							
Shares	5,9	109,3	14,2	12,4	18,3	75,8	235,[illegible]
Bonds and mortgage loans	22,1	22,7	-0,2	-10,7	-16,6	2,9	20,2
VARIATIONS IN:							
Other debts than bonds and mortgage loans	137,4	279,6	168,4	-61,3	96,7	325,4	885,5

Financing industrial investments in periods of several years

Engineering workshops also iron and metal manufactures

127 firms

	1950–52	1953–55	1950–55
	Million kronor		
INVESTMENTS	1 021,7	812,4	1 811,3
Of which in fixed assets	685,0	690,2	1 396,4
inventories	336,7	122,2	414,9
INVESTMENTS FINANCED BY			
Saving	701,6	606,5	1 432,6
Utilization of financial assets	17,4	9,8	1,9
External capital borrowing	306,4	200,4	377,8

Investments and financial conditions of industry

Combined iron and steel and forestry enterprises and other combined enterprises
19 firms

	1950	1951	1952	1953	1954	1955	1950-55
	Million kronor						
INVESTMENTS	151,3	192,6	238,1	164,9	160,2	181,0	1 088,3
Of which in fixed assets	138,6	154,9	185,4	169,4	147,0	168,3	963,6
inventories	12,7	37,7	52,7	-4,5	13,2	12,7	124,7
SAVING	130,5	159,8	144,7	140,0	170,2	203,4	951,7
VARIATIONS IN:							
Financial assets	62,4	139,9	-100,8	52,5	29,5	112,8	296,3
Of which cash in hand and at banks	41,0	38,9	-128,0	31,1	6,1	-7,9	-18,8
other	21,4	101,0	27,2	21,4	23,4	120,7	315,1
NEW ISSUES OF:							
Shares	12,0	10,1	-	-	-	44,4	66,5
Bonds and mortgage loans	14,3	18,4	-1,0	36,3	-2,6	-5,1	60,3
VARIATIONS IN:							
Other debts than bonds and mortgage loans	59,0	144,8	6,3	40,6	54,3	55,5	308,7

Financing industrial investments in periods of several years

Combined iron and steel and forestry enterprises and other combined enterprises
19 firms

	1950-52	1953-55	1950-55
	Million kronor		
INVESTMENTS	581,5	506,2	1 087,7
Of which in fixed assets	485,5	487,5	973,0
inventories	96,0	18,7	114,7
INVESTMENTS FINANCED BY			
Saving	404,2	473,9	903,1
Utilization of financial assets	2,4	5,9	0,4
External capital borrowing	175,3	27,0	187,5

Investments and financial conditions of industry

Forestry industry

34 firms

	1950	1951	1952	1953	1954	1955	1950-55
	Million kronor						
INVESTMENTS	70,1	205,5	301,4	93,6	228,6	243,0	1 142,2
Of which in fixed assets	107,0	180,5	179,8	162,8	191,5	190,6	1 012,2
inventories	-36,9	25,0	121,6	-69,2	37,1	52,4	130,0
SAVING	182,4	279,4	128,1	153,0	202,8	199,3	1 145,0
VARIATIONS IN:							
Financial assets	175,1	520,6	-433,1	124,6	60,3	3,1	450,6
Of which cash in hand and at banks	78,2	207,7	-253,9	76,8	42,7	-101,3	50,2
other	96,9	312,9	-179,2	47,8	17,6	104,4	400,5
NEW ISSUES OF:							
Shares	-	-1,7	6,9	28,9	4,4	-	38,6
Bonds and mortgage loans	-5,1	-12,6	-4,4	38,2	-9,0	-6,4	[illegible]
VARIATIONS IN:							
Other debts than bonds and mortgage loans	69,8	473,0	-251,1	17,0	108,2	52,3	469,2

Financing industrial investments in periods of several years

Forestry industry

34 firms

	1950-52	1953-55	1950-55
	Million kronor		
INVESTMENTS	576,9	565,3	1 142,2
Of which in fixed assets	467,2	544,8	1 012,0
irventories	109,7	20,5	130,2
INVESTMENTS FINANCED BY			
Saving	438,3	449,7	985,5
Utilization of financial assets	24,7	25,8	6,6
External capital borrowing	119,6	101,1	153,6

Investments and financial conditions of industry

Stone, china, glass and brick industries

44 firms

	1950	1951	1952	1953	1954	1955	1950–55
	Million kronor						
INVESTMENTS	23,6	54,4	41,0	7,2	49,2	51,3	226,7
Of which in fixed assets	26,5	41,7	37,1	21,6	46,8	42,8	216,5
inventories	-2,9	12,7	3,9	-14,4	2,4	8,5	10,2
SAVING	36,5	32,5	34,4	48,3	47,3	40,9	239,9
VARIATIONS IN:							
Financial assets	17,7	16,2	-3,6	42,7	49,5	7,1	129,7
Of which cash in hand and at banks	2,9	1,6	-0,1	26,8	21,2	-8,9	43,6
other	14,8	14,6	-3,5	15,9	28,3	16,0	86,1
NEW ISSUES OF:							
Shares	0,1	-	0,1	-	5,2	-	5,4
Bonds and mortgage loans	-0,1	14,5	-	1,4	-1,0	-1,2	13,6
VARIATIONS IN:							
Other debts than bonds and mortgage loans	4,3	39,2	44,5	2,7	46,0	17,9	154,6

Financing industrial investments in periods of several years

Stone, china, glass and brick industries

44 firms

	1950–52	1953–55	1950–55
	Million kronor		
INVESTMENTS	119,0	107,9	226,7
Of which in fixed assets	105,3	109,7	216,4
inventories	13,7	-1,8	10,3
INVESTMENTS FINANCED BY			
Saving	91,5	93,6	193,4
Utilization of financial assets	6,5	0,4	0,5
External capital borrowing	21,6	13,9	33,0

Investments and financial conditions of industry

Foodstuffs industry

38 firms

	1950	1951	1952	1953	1954	1955	1950-55
		Million kronor					
INVESTMENTS	26,9	64,1	24,7	7,6	44,2	26,4	193,9
Of which in fixed assets	25,3	28,7	24,7	23,5	32,2	26,3	160,8
inventories	1,6	35,4	-	-15,9	11,9	0,1	33,1
SAVING	23,8	12,9	22,8	24,6	21,7	22,0	127,8
VARIATIONS IN:							
Financial assets	24,9	-3,9	25,4	16,2	-9,4	18,6	71,8
Of which cash in hand and at banks	-1,2	1,3	5,2	10,8	-8,8	1,5	8,8
other	26,1	-5,2	20,2	5,4	-0,6	17,1	63,0
NEW ISSUES OF:							
Shares	6,3	4,6	6,9	7,4	12,4	10,3	47,9
Bonds and mortgage loans	5,2	0,2	0,2	-	0,8	0,4	6,8
VARIATIONS IN:							
Other debts than bonds and mortgage loans	15,8	42,7	21,5	-8,5	0,1	12,3	83,9

Financing industrial investments in periods of several years

Foodstuffs industry

38 firms

	1950-52	1953-55	1950-55
	Million kronor		
INVESTMENTS	115,6	84,2	199,8
Of which in fixed assets	78,6	82,1	160,7
inventories	37,0	2,1	39,1
INVESTMENTS FINANCED BY			
Saving	58,0	55,3	122,0
Utilization of financial assets	10,1	9,7	14,6
External capital borrowing	47,9	19,1	57,1

Investments and financial conditions of industry

Textile and footwear industries

58 firms

	1950	1951	1952	1953	1954	1955	1950–55
	Million kronor						
INVESTMENTS	55,0	53,0	5,1	11,0	27,0	22,1	173,2
Of which in fixed assets	32,5	29,4	21,2	15,4	17,8	12,0	128,3
inventories	22,5	23,6	-16,1	-4,4	9,2	10,1	45,0
SAVING	29,7	20,4	23,5	17,6	16,0	12,4	119,6
VARIATIONS IN:							
Financial assets	8,2	1,1	2,2	3,6	-6,7	0,4	8,9
Of which cash in hand and at banks	-1,3	-5,0	10,0	2,1	-7,8	-4,2	-6,2
other	9,5	6,1	-7,7	1,5	1,1	4,6	15,1
NEW ISSUES OF:							
Shares	1,0	-	-	-	-	-	1,0
Bonds and mortgage loans	0,2	2,8	-4,9	2,4	0,1	-0,5	0,1
VARIATIONS IN:							
Other debts than bonds and mortgage loans	31,7	29,8	-8,3	-3,1	5,3	12,0	67,4

Financing industrial investments in periods of several years

Textile and footwear industries

58 firms

	1950–52	1953–55	1950–55
	Million kronor		
INVESTMENTS	113,2	63,6	173,2
Of which in fixed assets	83,1	40,3	128,3
inventories	30,1	23,3	44,9
INVESTMENTS FINANCED BY			
Saving	63,0	34,6	108,8
Utilization of financial assets	13,0	10,2	14,4
External capital borrowing	40,0	20,7	54,6

Part I:b

SHORT PAPER DEALING WITH THE EFFECTS OF WAGE INCREASES ON A FIRMS CHOISE OF PRODUCTION METHODS

by

Lars Nabseth

Short paper dealing with the effects of wage increases on a firm's choice of production methods

by Lars Nabseth

This paper will shortly discuss and give a description of an investigation performed within the Institute for Economic and Social Research in Stockholm concerning the effects of wage increases on a firm's choice of production methods. The investigation in question also deals with the effects of wage increase on a firm's price and production policy but these problems will not be discussed in this paper.

The paper is built up in the following way. At first we shall give a description of the present theory of production from which the hypotheses of the investigation are taken. Secondly we shall give a short account of the material used for testing the hypotheses. Then we shall discuss the results which have come out of the investigation. At last we shall briefly discuss our opinion concerning the effects of wage increases on different types of investments of a firm.

1. The present theory of production

The present theory of production is built on the assumption valid for both the price and the production theory that a firm tries to combine its use of different factors of production in such a manner as to maximize its profit. With regard to the theory of production this means that the firm among all the possible combinations of factors of production that can produce a given volume of production will always choose will cost least for its use. When there are only two factors of production this theory is often presented in a graphical form. The two factors of production for instance capital and labor are measured along the y- and the x-axis respectively ach given volume of

production can ordinarily be produced by many combinations of the two factors which all can be represented by points in the y . x-field (the assumption is made that every combinations is always used in the most efficient manner). If we combine all the points representing combinations of the two factors which can produce the given volume of production we will get a curve with a normally negative slope to origo meaning that if you use less of one of the factors you must use more of the other if you w nt to produce the same volume. The curve will also normally be convex to origo meaning that the increase in the use of one of the two actors will be larger and larger the more you take away of the other. For each volume of production you will get such a curve in the y-x field. In that way you will get a whole system of curves where each curve lying farther away from origo will represent a higher volume of production than the curves lying nearer to origo. The curves in question are often called isoquants. Now if you know the price per unit for each of the two factors you can draw straight lines in the yx-field from the y- to the x-axis with a slope equal to the relation between the price of one unit of the x-factor and one unit of the y-factor. Obviously all points on such a straight line must represent combinations of the two factors which are equally expensive to use for the firm.

If we now combine the system of straight lines repres combinations of the two factors of production which are equally expensive to use with the system of isoquants representing combinations of the factors which can produce the same volume of the product in question we can figure out which combination is the cheapest if we want to produce a given volume of the product. That combination must be represented by the point on the isoquant in question where a straight line is tangent to the isoquant. All other combinations of the two factors which can produce the given volume of the product must be more expensive to use. In the same way we can for different vol. of the product figure out which combination of the two factors

are the cheapest to use. Which volume the firm will actually produce is depending not only on cost conditions which we get from the theory of production but also on demand and on the market situation. The final solution to the problem we get according to theory from the different price theory models.

Our next problem is what will happen to a firm's choice of combination of the two factors of production if we increase the price of one of them? If we increase wages that is in our model the price of the factor represented along the x-axis what will happen? Well, the slope of all the straight lines will increase as a consequence of the fact that the relation between the price of the use of one unit of labor to the price of the use of one unit of capital has increased. Our whole system of straight lines from the y- to the x-axis in the model will change and all lines will have a larger slope. But as all the isoquants are convex to origo the change in the system of straight lines must mean that the point where a straight line is tangent to a given isoquant must lie nearer to the y-axis and farther away from the x-axis than before. The meaning of this being that the combination of the two factors that is cheapest to use for the firm in order to produce a given volume of production has changed as a consequence of the wage increase in the direction of a more capital consuming (y-consuming) and a less labor consuming (x-consuming) combination than before. This result is valid for all different volumes of production. It must be pointed out however that the increase in price of one of the factors will not with certainity mean that the absolute use by the firm of the other factor will increase. The increase in price of one of the factors will mean a cost increase for the firm which may result in a higher price and a smaller production than before. As a consequence of that the use of both the factors of production will diminish. The actual development will here be dependent on the demand and market situation for the firm and on the substitution conditions between the two factors. The only thing theory tells us is that if the price of one of the two factors will increase then the firm will select a cheaper use

relatively more of the other factor and both absolutely and relatively less of the more expensive factor. The development of the absolute use of the factor with the unchanged price is indeterminate. The theory here presented can easily take into account the fact that normally a firm can choose between quite a number of factors of production but then the theory does not lend itself to graphical representation.

The starting hypothes s for the investigation here presented are taken from the theory just outlined. Accordingly a wage-increase (and a salary-increase) will normally under ceteris paribus assumptions start tendencies to change the production methods used in the firms in such a way that relatively speaking more machines and buildings and also more raw-materials and instead less labor will be needed. There will also be a change in the use of different kinds of workers and clerks in the direction of a relatively speaking more intense use of those types that have got the smallest wage and salary increase.

2. The material used for testing the hypothesis

The hypothesis have been tested mainly by an intensive study of the development of six Swedish firms during the after-warperiod. There is also some discussion in the investigation of some other empirical studies that have been made over the same topic.

It is quite clear that the results you get from six firms cannot in any sense give material for generalisations about the reactions of business firms on wage increases. On the other hand the empirical work done on business firms reactions seems to be rahter small so all knowledge we get seems to be of a very high importance. The new hypothesis that are proposed must naturally be tested in their turn by new empirical research.

The companies investigated comprise one big engineering firm, one steel company, one furniture firm, one saw-mill, one grain-mill and one textile company. The firms were chosen so as to represent different types of industries for instance capital-goods industry consumption - goods industry, export industry home market industry etc. The firms were investigated by three different methods namely 1 interviews in the firms, 2) studies of written material accessible within the firms, 3) studies of material given from the firms to different government bodies.

Interviews were made with quite a lot of people in each firm. The position of the persons interviewed varied quite a lot. Mostly the manager or one of the vice managers was interviewed. Other persons interviewed were engineers calculation people, heads of selling departments, economists etc. About five to ten people were interviewed in each firm. Sometimes the interviews for half a day or more but mostly they took about two hours.

The written material given from the firms consisted of cost and price figures for different products. The calculation system and cost development was especially thoroughly studied in two of the firms. It is our opinion that the method of cost-calculation must be of very great importancefor the decision making within the firm. For instance in the engineering firm studied they produce about 30 000 different details and it must be impossible for the management to make decisions concerning changes in production methods, prices and so on without analysing background material which is prepared by the different departments. Here the way people act in the calculating department seems to be very important.

In one of the firms we also studied by looking at the development of operation cards, the actual changes in production methods for some of the most common products of that firm. We compared these changes with the increases in wages in order to study if the wage-increases had been of any importance for changes in methods.

Most firms in Sweden give information each year to different government bodies about their actual investments during the year and their planned investments for the year to come. They also give information about the different types of employees that have been employed during the year, about the different types of raw materials that have been used and about the volume of production of different goods that has been produced. All these different types of material for the six firms were used in order to get an idea of how the production methods had changed. Furthermore the annual reports of the companies were most helpful as they contain quite a lot of information about different types of investments the firms, of rationalisations and so on.

3. Results of the investigation

The main result of the investigation in the six firms is that the immediate response of the six firms to wage-increase seems to be rather small when it comes to changes in production methods. In some cases we could find examples on immediate changes as a consequence of a wage increase - mostly changes from the use of female workers to male workers - but mostly no such reactions could be found. One very essential reason for this is naturally the present rigities in the avaiable production methods. There must be very large changes in relative prices if it will pay for a firm to change from one technic of production to another.

But in our opinion this is probably only part of the explanation. Another very essential explanation seems to be the technical development. The investigation revealed that none of the firms seems to have been at any time during the after war period optimally adapted in the sense of the present theory of production. There have always been a lot of profitable rationalisations to do. The reason why they are not introduced at once seems to be that a firm thinks that it cannot change its production methods too quickly. People must get time to adapt to new methods. But when they do that there are coming new profitable methods and so on. In that way you will nearly always

have new profitable methods to introduce. Now it is quite clear that it is rather expensive for a firm to use people engineers, economists etc. - just for the purpose of adapting production methods to changes in technology, to changes in prices etc. We may therefore propose the hypothesis that it for many firms seems to be more worth while to use these people to try to follow the development of technology than to try to change the methods of production according to relative price changes. In a theoretical language this means that the changes are not made along an isoquant but according to changes in the whole system of isoquants. We can probably also propose the hypothesis that firms for which the technological development goes very fast or which have an expanding market probably try to take account of the technical development to a high degree whereas firms for which the technical development seems to be slower as for which the market is declining more try to consider relative price adjustments.

It is quite clear that the results we have got from the investigation do not mean that the present theory of production is wrong. This theory does not say anything about how long time it will take a firm to adapt to relative price changes. What we have found is only that if the hypotheses we get from theory are supposed to be valid in the very short run this seems to be doubtful. A business firm's immediate reactions with regard to choice of production methods to a wage increase if that is not unnaturally big seems not to be very marked. When changes in production methods are made as a consequence of for instance technical development regard is probably also taken to those changes in relative prices that have occured since the last time a change was made. Very often however it seems as if there is just one factor of production that can be used to a certain method of production (technical rigities). Many of the firms investigated said for instance that very often it was like that that they just needed a person with a special skill for a job and then it did not matter if he was a little bit cheaper or more expensive than other workers. In these occasions a relative wage increase for some types of labor did not mean that the firms tried to use other types more.

4. The effects of wage increase on a firm's investment activity

From the results of the investigation we can to some extent discuss what will be the effect of a wage increase on a firm's investment activity. To start with it seems well fitted to divide a firm's investment activity into three groups namely 1) investments for expansion, 2) investments for rationalisations and 3) investments for replacement.

If we start with discussing the effects of a wage increase on a firm's investments for expansion it is quite clear that under ceteris paribus assumptions these investments ought to diminish as the profitability of the firm must decline as a consequence of the wage increase. From our empirical material we have found however that this more theoretical statement must be moderated to some extent. If it is a question of a very large wage increase and if the development of demand for the firm's products does not change as a consequence of the wage increase the theoretical statement is probably true. But when it comes to large wage increase there are probably large wage increases all over the country where the firm is situated as a consequence of inflationary movements (Korea-crisis and so on) and then the firm can count with increased demand for its products that makes it possible to increase prices and to compensate for the cost increases. When it comes to small wage increases this possibility of compensation is not att all so certain. From our empirical material, however, we have learned that investments for expansion are not made to the same amount each year in a firm but that they seem to come rather irregularly. You have some years with very large investments for expansion then you will stop this type of investment activity for some time waiting for demand to increase up to your new capacity level and then you will start new expansion investments etc. No it is quite clear that such an expansion-period must be planned in advance and that when it is started it is not so easy to change as the different types of investments (in buildings, machines etc depend on each other. From that it follows that for a firm just

making expansion investments a wage increase will probably not on profitability grounds diminish these investments. But all the same it may have some influence on the timing of the investments in question. This depends on the fact that investments for most firms seem to be self-financed to a very high degree. Now as a wage increase will mean a minishing of a firm's profits then it will probably also diminish the self-finance possibilities of the firm. The wage increase may thereforemean that the firm must make its expansion investments under a longer time period than planned.

As to the effects of a wage increase on a firm that is planning to make expansion investments it is more difficult to say what the outcome will be. You naturally have here too that the self-finance possibilities will diminish which might influence your plans. As to the profitability motive it is clear that the wage increase will diminish the profitability on the firm's planned investments. But here it seems as if the calculated profits on planned expansion investments are often very high. Otherwise the firm would not do them. A wage increase will then diminish these profit calculations to some degree but as wages often account for a rather small part of a firm's total costs (compared with raw materials for instance) it is not probable that the influence will be too large on profit calculations and then it is doubtful if the wage increase will have any effects on the plans of the firm. The effect might be that the planned increase in capacity is not changed but that the production methods to reach this goal is changed in a more capital-intensive direction. There seems to be a growing tendency in Swedish industry however to take account of coming wage increases in the investment plans which means that the effects of an actual wage increase on the choice of a firm's future production methods will be very small.

As to the effects of a wage increase on the rationalisation investments of a firm the reasoning seems to be more in line with what we discussed in points 1-3 in this paper. The rationalisation efforts in many firms seem more or less to be a continuous process where the engineers employed for this type of work go through one process after the other trying tofind our new cheaper methods. But a wage increase does not very often, as it seems, start a special drive in a firm to rationalise more on points where they

use especially much labor. Naturally this might be the case in firms for instance where the wage increase means that the profitability diminishes very much. From the empirical material of the investigations we also found that many firms seem to be very upset when the costs of a product climb over the price of the product. They might very well go on producing the product in spite of costs being higher than price but at that very moment when costs are getting equal or above price people in the firm will consider the situation and wonder if they can do anything about it for instance rationalize production methods through investments. In that way a wage increase might influence rationalization investments quite a lot in firms where the profitmargins are very small. On the other hand we must not forget that a wage increase also means less possibilities for self-finance and in that way can diminish rationalization investments within a firm.

When it comes to investments for replacement it seems as if they are very often more routine matters which are not considered in too much detail. Our empirical material anyhow gave us this impression especially when it comes to not too expensive machines. Very often you just have to buy a new machine instead of the old one (for technical reasons, capacity reasons etc.) and then a wage increase will not influence this type of investment at all. Its effects if any will probably be felt in two ways. First we have as usual the self finance argument which might mean that you cannot replace as swift as you would like to. Secondly the wage increase might mean that the firm will buy another less laborsaving machine instead of the old one than it had otherwise done. Mostly you will not buy just the same machine as you had before when you change and in that way the wage increase might influence your choice of new machine.

We have up to now only discussed the possible effects of a wage increase on a firm's investment activity. Our main conclusion being that these effects seem to be rather small. We would also like to conclude this paper with some short notes about our opinion of the factors that determine the general level of investment within a firm. We think that the two main

factors governing the investment activity of a firm are the actual and forecasted development of demand and the technical development. Here we think that the development of demand is the most important factor. Naturally as we have pointed out before in this paper a firm must the whole time follow the technical development in its branch and try to adapt to it but it seems in our opinion as if firms are more willing to do that when they are facing a growing demand than if demand is stagnant or diminishing. The reason for this seems mainly to be connected with the possibilities for self finance of investments. Firms in our days seem to rely to a very high degree on own funds for investments. If they do not have the funds they are much more unwilling to undertake the investments. Now a firm with a growing demand is mostly in a better profitability situation than other firms and can in that way afford to make new investments. When doing these the firms naturally take account of the technical development. As the use of new technic often seems to lead to further new technic it seems also as if technical development will be faster in branches with a growing demand trend than in other branches. The development in the car and the textile industry seems to lend support to this conclusion. In that way the effects of wage increases will probably be much smaller in such growing industries than in other industries. It seems rather to be the other way. The development in these expanding branches make wage increases possible which will have effects on wages, prices, investments and so on in stagnating and declining branches.

Part I:c

FORECASTS AND ACTUAL RESULTS OF INDUSTRIAL INVESTMENTS

by

Gudrun Norstedt

In Sweden information about accomplished investments have been collected annually from a sample of manufacturing enterprises since the autumn of 1938 and the data were expanded as from the autumn of 1942 to comprise the investment plans of enterprises also for the following year. Since the autumn of 1952 the investment questionnaires comprise all establishments with more than 50 workers, and a sample of establishments with 5-50 workers, which is blown up to a total level. To begin with, the information was collected only once a year - in October, contain information about investment made during the preceding year, preliminary information about investments made during the current year and investment plans for the following year. As from 1955 information has been collected twice a year - in March and October - the data supplied in March containing both a still preliminary information about investment during the immediately preceding year, and revised information about the investment plans for the current year (the October questionnaires are set out in the same manner as before).

Thus since 1942 the October data

The investment plans are of interest principally from two points of view. First, for assessing the economic situation it is of interest to know what investment is planned by the manufacturing enterprises at different points of time. Secondly, on basis of these plans it is desirous to be able to estimate, with the aid of the knowledge gained about the factors influencing the investment plans of the enterprises, how large the volume of actual investments will be during the relevant period. In order to achieve tolerable certainty in connection with the last-mentioned application it is, however, necessary to know something about the cause of the deviations existing between plans and actual turn-out. Imperfect knowledge in this respect is particularly troublesome when expressing more exactly a forecast of total investment, which the drawing up of national budgets entails. For this reason, the National Institute of Economic Research has initiated an investigation for the purpose of obtaining explanations of the deviations in plans and actual turn-out of manufacturing investments and thereby to attain basis for more reliable investment forecasts.

The first stage in this investigation has been the comparison of plans and actual turn-out of total manufacturing investment during the years 1953-1958, when the material was divided into two groups by size, i.e., establishments with 5-50 workers and more than 50 workers, respectively, the same division as used at the regular research studies and consequently available for all inquiries. The results of this comparison are recorded, both at current prices (Tables 1 and 2) and at fixed prices (Table 3). As the existing number of establishments is changing constantly, the responding establishments change correspondingly at the different inquiries. In order to avoid the errors which of that reason are implied in the above-mentioned comparisons, identical establishments have therefore been picked out in one of the manufacturing groups - manufacturing of hardware - for the period 1952-1956 whereafter the material has been divided into five different groups by size. The results are shown in Table 4. No comparison has been made for units of establishments, but all comparisons have referred to aggregates for the relevant group arranged according to size.

As appears from the attached tables (see particularly Table 2) considerably improved conformity has been obtained between forecasts and actual turn-out for the bigger establishments than for the smaller ones. Furthermore, the data regarding investment show in both size-groups, i.e., 5-50 workers and more than 50 workers, better conformity than the information obtained about building and construction and machinery and equipment, respectively, each group by itself. The systematic over-estimate in Forecast I and II of the investments in building and construction, which can be observed in both size-groups - with a few exceptions during recent years in respect of the small establishments - can to some extent be explained by the enterprises being unable to carry out their building plans because of the Governmental controls over building activities which have existed during the period under review. This becomes also apparent from the fact that the over-estimates have been considerably smaller for the investment year 1958 than earlier and that the building investments in 1959, according to information now available, have been considerably under-estimated. In fact, the buildin control affecting building and construction in manufacturing has, on the whole, been unchanged from 1953 until 1957, but as from 1958 considerabl relaxations were introduced. Whilst during the earlier years the enter-

prises systematically over-estimated their building investments they have, on the other hand, in Forecast I systematically under-estimated their investments in machinery and equipment. This applies to both size-groups of the establishments. In Forecast II (March survey) the group covering the bigger establishments has over-estimated machinery investments also, whereas the small establishments have, as a rule, still under-estimated them. The under-estimate of the machinery investments in Forecast I can be due to the planning period for the machinery investments being relatively short and that the enterprises therefore more easily lose sight of them in the forecasts and that some of the more routine investments are forgotten. Moreover, it is possible that the under-estimates of the machinery investments can be due to the enterprises - if they have not obtained permission to build - having instead used part of the funds reserved for investments in machinery and equipment. These explanations are, however, only hypotheses, the validity of which shall be found out by the continued investigations planned by the Institute.

In 1959 the Institute started a more penetrative investigation into the investment forecasts for the years 1953-1956 covering 135 identical enterprises in the metal and engineering industries (253 establishments). The material comprises a sample of enterprises with at least 100 workers, which has been divided into three groups by size: 100-199 workers, 200-499 workers, and 500 workers or more. It is planned to expand this investigation to comprise also a sample of enterprises with less than 100 workers within the same branch. In addition to the investment data obtained from the above-mentioned questionnaires, some data, obtained from an investigation into the effects of various economi political measures on manufacturing investment have also been utilized for these enterprises. Furthermore, certain information is collected for the enterprises concerned regarding their applications for building permits and about how these applications have been treated. Comparisons by enterprises are planned to be carried out with this material. This part of the investigation has, however, not yet begun and the exact nature of the research work to be conducted is not yet determined.

Some of the deviations which can be found between forecasts and actual turn-out cannot be explained by the statistical material dis-

possible. In view hereof it can become opportune to supplement the investigation by special enterprise inquiries in order to closer investigate how the enterprises apprehend the questions in the regularly recurrent investment questionnaires, how they proceed when replying to the questions and what influence the enterprises accounting, etc., can have on the information provided.

Table 1. Investments. Total manufacturing

Investment year		All establishments			Establishments with 5-50 workers			Establishments with more than 50 workers		
		Total investments	Of which in		Total investments	Of which in		Total investments	Of which in	
			Building and construction	Machinery		Building and construction	Machinery		Building and construction	Machinery
1953	Plan I	102	127	90	109	161	87	101	127	90
	Preliminary I	98	100	98	92	89	97	98	100	98
	Definite	100	100	100	100	100	100	100	100	100
1954	Plan I	85	111	74	72	123	54	88	111	77
	Preliminary I	94	99	91	94	115	87	94	99	92
	Preliminary II	100	97	99	111	129	104	98	97	98
	Definite	100	100	100	100	100	100	100	100	100
1955	Plan I	102	126	89	120	194	91	100	126	89
	Plan II	111	122	105	123	173	106	110	122	105
	Preliminary I	100	100	101	100	110	99	100	100	101
	Preliminary II	98	95	99	105	110	105	97	95	99
	Definite	100	100	100	100	100	100	100	100	100
1956	Plan I	98	108	92	89	136	64	99	108	96
	Plan II	109	111	106	111	159	92	108	111	108
	Preliminary I	98	101	99	79	75	85	101	101	101
	Preliminary II	98	98	100	88	78	95	100	98	100
	Definite	100	100	100	100	100	100	100	100	100

Table 1 (continued)

Investment year		All establishments			Establishments with 5-50 workers			Establishments with more than 50 workers		
		Total investments	Of which in		Total investments	Of which in		Total investments	Of which in	
			Building and construction	Machinery		Building and construction	Machinery		Building and construction	Machinery
1957	Plan I	92	108	89	64	84	55	97	108	94
	Plan II	108	113	109	88	115	73	111	113	115
	Preliminary I	99	102	101 +	84	89	78 ++	102	102	105
	Preliminary II	99	104	97	94	93	89	99	104	98
	Definite	100	100	100	100	100	100	100	100	100
1958	Plan I	91	101	88	87	92	92	91	102	87
	Plan II	100	105	99	91	110	84	101	105	101
	Preliminary I	98	102	95 +	94	93	95 +	99	103	95
	Preliminary II	99	102	97	106	116	98	98	99	97
	Definite	100	100	100	100	100	100	100	100	100

Note: Plan I = Investment forecast in October the year preceding the investment year.
Plan II = Investment forecast in March for the present investment year.
Preliminary I = Preliminary investment figure in October for the present investment year.
Preliminary II = Preliminary investment figure in March the year after the investment year.
Definite = Definite investment figure.

Table 2. Deviations from definite investments

		All establishments			Establishments with 5-50 workers			Establishments with more than 50 workers		
		Total investments	Of which in		Total investments	Of which in		Total investments	Of which in	
			Building and construction	Machinery		Building and construction	Machinery		Building and construction	Machinery
Mean deviation [1] From definite Investments	Plan I	6,6	16,4	13,1	19,5	39,8	26,3	4,5	13,7	11,1
	" II	7,0	16,8	5,5	13,7	39,2	14,5	7,6	12,9	7,1
	Prel. I	2,1	4,2	2,9	9,3	13,2	9,9	2,0	1,4	3,4
	" II	1,3	2,8	1,6	8,0	16,8	5,3	1,6	2,9	1,6
Average deviation [2]	Plan I	- 5,0	+16,4	-13,1	- 9,7	+31,7	-26,3	- 4,0	+13,7	-11,1
	Plan II	+ 6,9	+16,8	+ 4,8	+ 3,3	+39,2	-11,5	+ 7,6	+12,9	+ 7,1
	Prel. I	- 2,1	+ 2,6	- 2,4	- 9,3	- 4,9	- 9,9	- 0,9	+ 0,8	- 1,2
	Prel. II	- 1,3	- 0,3	- 1,6	+ 0,7	+ 5,5	- 1,8	- 1,6	- 1,4	- 1,6

1) Average of absolute deviations from 100 %

2) Average of the arithmetic sum of deviations from 100 %

Note: See Table 1.

Table 3. Investments at fixed prices. Total manufacturing. Index: definite investments = 100

Investment year		All establishments			Establishments with 5–50 workers			Establishments with more than 50 workers		
		Total investments	Of which in		Total investments	Of which in		Total investments	Of which in	
			Building and construction	Machinery		Building and construction	Machinery		Building and construction	Machinery
1953	Plan I	99	128	86	106	156	83	98	123	87
	Preliminary I	98	98	98	92	89	97	98	100	98
	Definite	100	100	100	100	100	100	100	100	100
1954	Plan I	84	113	71	71	123	52	86	111	75
	Preliminary I	94	101	91	94	115	87	94	99	92
	Preliminary II	100	102	99	111	129	104	98	97	98
	Definite	100	100	100	100	100	100	100	100	100
1955	Plan I	108	141	95	126	202	97	105	131	95
	Plan II	114	136	108	125	175	109	112	124	108
	Preliminary I	100	101	101	100	110	99	100	100	101
	Preliminary II	98	98	99	105	110	105	97	95	99
	Definite	100	100	100	100	100	100	100	100	100
1956	Plan I	102	118	96	93	143	67	104	114	100
	Plan II	109	118	106	111	159	92	108	111	108
	Preliminary I	98	97	99	79	75	85	101	101	101
	Preliminary II	98	95	100	88	78	95	100	98	100
	Definite	100	100	100	100	100	100	100	100	100

Table 3. (Continued)

Investment year		All establishments			Establishments with 5-50 workers			Establishments with more than 50 workers		
		Total investments	Of which in		Total investments	Of which in		Total investments	Of which in	
			Building and construction	Machinery		Building and construction	Machinery		Building and construction	Machinery
1957	Plan I	95	108	91	66	87	57	100	112	97
	Plan II	106	114	109	88	115	73	111	113	115
	Preliminary I	99	100	101	84	89	78	102	102	105
	Preliminary II	99	102	97	94	93	89	99	104	98
	Definite	100	100	100	100	100	100	100	100	100
1958	Plan I	90	100	87	86	91	91	91	101	86
	Plan II	99	105	98	91	109	83	101	104	100
	Preliminary I	98	101	95	94	93	95	99	103	96
	Preliminary II	99	102	97	106	116	98	98	99	97
	Definite	100	100	100	100	100	100	100	100	100

Note: See Table 1

Table 4. Investments by identical establishments in manufacturing

Index: definite investment = 100

	Investment year: 1952	1953	1954	1955	1956	Establishments with:
Plan I	477	99	287	185	130	
Plan II	..	..	..	119	121	
Preliminary I	127	98	89	103	108	5-24 workers
Preliminary II	..	..	96	104	83	
Definite	100	100	100	100	100	
Plan I	62	110	38	93	83	
Plan II	..	..	..	89	134	
Preliminary I	101	96	82	116	100	25-49 workers
Preliminary II	..	..	105	102	112	
Definite	100	100	100	100	100	
Plan I	85	54	45	127	92	
Plan II	..	..	..	106	103	
Preliminary I	89	110	92	94	108	50-99 workers
Preliminary II	..	..	103	104	98	
Definite	100	100	100	100	100	
Plan I	102	82	74	145	100	
Plan II	..	..	..	94	127	
Preliminary I	102	95	78	98	105	100-199 workers
Preliminary II	..	..	99	103	96	
Definite	100	100	100	100	100	
Plan I	89	103	86	107	106	
Plan II	..	..	..	120	112	
Preliminary I	109	101	90	106	101	200 - workers
Preliminary II	..	..	100	98	98	
Definite	100	100	100	100	100	

Part I:d

"HOW WERE 1955 INDUSTRIAL INVESTMENTS INFLUENCED BY GOVERNMENT TIGHTENING OF ECONOMIC CONTROLS."

by

Guy Arvidsson

(a contraction summary)

During the first four months of 1955 the Swedish government took certain steps in order to prevent inflation. These measures were: 1) levying a 12 per cent tax on investments exceeding 20,000 Sw.kr. in private industries, 2) requiring commercial banks to raise cash reserves and 3) raising the discount rate by 1% from 2 3/4 to 3 3/4%. In order to find out the effect of this tighter economic policy on industrial investment behavior, Dr. Guy Arvidsson of the University of Stockholm carried out a far-reaching investigation among Swedish firms during the summer of 1955.[1)]

Dr. Arvidsson submitted a questionnaire to more than 3,500 enterprises in different industries, asking them about the size of their investment allotments (excluding repairs and regular maintenance), budgeted in 1955 for factory buildings, machines and similar equipment, motor vehicles and employee housing. He furthermore asked whether any of the original investment plans had been changed because of the new economic policy of the government, and whether these changes, if any, had been mainly a result of the investment tax, the greater difficulties in borrowing from commercial banks, the higher discount level or a combination of the three measures.

Dr. Arvidsson thoroughly discusses all the problems involved in such an investigation, especially those of discovering the relative importance of the three measures mentioned. There is no reason for us to concentrate on these questions in this summary except to mention that the three measures were not introduced at the same time. The investment tax was imposed at the very beginning of the year and the restrictions on cash reserves a few weeks later. The discount rate was not raised until April 1955, however.

Information was received from about three-forths of all enterprises questioned, varying from 60% in some industries to 90% in others. Firms failing to answer were mainly smaller enterprises which were less affected by the investment tax because of the 20,000 Sw.kr. exemption.

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1) The result was published in the "Ekonomisk Tidskrift", 1956, pp. 40-60.

The results of this first questionnaire show that 60% of the enterprises which answered had not been influenced in their 1955 investment policy by any of the three government measures. Of the remaining 40% about half had been influenced equally by all three measures to decrease their investments, whereas the other half felt that the investment tax was a much greater detriment to investment than either the tighter credit market or the high discount rate or both.

There was evidence that the credit contraction was relatively most important to smaller enterprises. (This was expected because the 20,000 Sw.Kr. exemption made them less vulnerable to the investment tax. The medium-sized enterprises seemed hardest hit by the investment tax. The very large enterprises seem to have carried out their investment plans in spite of the tax. Finally, the high discount rate seems to have had very little effect on the willingness of firms of all sizes to invest.

Part II

A CASE-STUDY OF THE METALWORKING INDUSTRY

Part II is prepared by Bertil Eneroth

Investment behaviour in the Metalworking Industry. A case study.

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Chapter 1. Introduction.

In the first section of this report we have given a summary of the main findings of the numerous studies in investment behaviour which have recently been completed or are now being conducted in Sweden. In this section, by confirming ourselves to a single branch of industry - the metalworking branch - as well as to specific types of investments and investment decisions, we have been able to explore more thoroughly a narrower sector of the field of investment behaviour. We have used the case study method of research, a method which seems most appropriate for studying a problem in great detail when there is almost no previous related research on which to rely.

14 Fourteen factories were selected for our study. (See supplement, "How the investigation was made.") As might be expected, it was impossible to obtain the extremely detailed data we desired from every firm. It is only in recent years that factories have begun to record data such as the cost of repairs and renovations or the number of hours the various machines are in operation, and many of our questions simply could not be answered. Consequently, for many of the questions there are comparable data for only some of the fourteen plants.

The following list gives information concerning the character of the fourteen plants.

A list of the firms in the investigation

Plant code-number	Size of firm	Type of product.	
1	medium-sized	Fabricated metal products	cutlery; handtools; hardware..
2	" "		
3	large	Household appliances	Household stoves; refrigerators; fans; water heaters; vacuum cleaners..
4	"		
5	medium-sized		
6	large	General industrial equipment	Steam engines; turbine generator sets; power-transmission equipments el. motors; locomotives paper ind. machinery.
7	"		
8	"		
9	medium-sized	Communications equipment	radio- TV-sets; electronic accessoires.
10	" "		
11	large	Precision mechanisms	engineering and scientific instruments; optical and controlling instruments..
12	large	Metalworking machinery	machine tools, metal-forming and metal cutting types, machinery ..
13	medium-sized		
14	large		

x) A medium-sized firm is one with 300 - 800 employees

A large " " " " " 1000-10.000 "

Chapter 2. The relative importance of different kinds of investments. x)

From official files (Kungl. Kommerskollegium) we obtained the relative distribution of gross investments by main types of investments such as buildings, machines, motor vehicles, maintenance of these assets etc. for each of the 14 plants in our investigation. (See table no. 1.)

Table no. 1.

Average percentage distribution of plant investments for the years 1954 - 1957.

Investment in	Plant number														Average.
	1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %	10 %	11 %	12 %	13 %	14 %	%
Industrial buildings	-	11	13	-	6	31	20	22	56	1	31	27	18	28	18
Maintenance of buildings	18	5	8	26	16	4	6	14	4	30	10	5	8	8	12
Machines	29	47	32	38	33	35	48	34	34	23	27	55	58	42	38
Maintenance of machines	50	22	42	21	30	8	22	29	4	23	16	7	10	19	22
Motor vehicles	-	4	1	11	3	1	-	1	2	11	4	2	2	1	3
Maintenance of motor vehicles	2	1	-	4	2	1	-	-	1	8	5	1	1	-	2
Employee housing etc.	-	20	1	-	4	21	3	1	-	-	7	4	1	2	4
Maintenance of employee housing	1	1	4	-	6	-	-	-	-	4	1	1	1	-	1
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

x) Maintenance costs (repairs, servicing etc.) have also been included under the heading of investments.

During the years 1954 - 57 the firms with 1000 - 10.000 employees spent relatively more money on investments in industrial buildings and employee housing than the smaller firms with 300 - 800 employees. (See table no. 2) The smaller firms invested relatively more in maintenance of buildings, machines etc. than the larger firms.

Table no. 2

Investment in	Average percentage distribution of investments from 1954 - 57 made by x)	
	Plants with 1000 - 10.000 employees	Plants with 300 - 800 employees
Industrial buildings	21 %	14 %
Repair of "	10	13
Employee housing	5	4
Repair of employee housing	1	2
Motor vehicles	3	4
Repair of motor vehicles	1	2
Machines	39	37
Repair of machines	21	23
	100 %	100 %
Buildings, housing motor vehicles, machines	67 %	59 %
Maintenance of all these assets	33 %	41 %

x) The average of the percentages given in table no. 1.

Plants belonging to types such as "fabricated metal products", "general industrial equipment" and "metalworking machinery" spent about 43 % of their investments for machines during 1954 - 57 while plants belonging to "household appliances", "communications equipment" and "precisions mechanisms" spent only about 30 % for machines. (See table no. 3)

Table no. 3

Average x) percentage distribution of plant investments from 1954 - 57 by type of plant.

Investments made from 1954 - 1957 in	Type of plant					
	Fabricated metal products	Household appliances	General industrial equipment	Communi-cations equipment	Preci-sions mecha-nisms	Metal-workin machi-nery
Ind. buildings	1 %	7 %	24 %	28 %	31 %	24 %
Maintenance of Ind. buildings	12 %	17 %	8 %	17 %	10 %	7 %
Employee housing	10 %	2 %	8 %	-	7 %	2 %
Maintenance of employee housing	1 %	3 %	-	2 %	1 %	1 %
Motor vehicles	2 %	5 %	1 %	7 %	4 %	2 %
Maintenance of motor vehicles	1 %	2 %	-	5 %	5 %	1 %
Machines	38 %	34 %	39 %	29 %	27 %	52 %
Maintenance of machines	36 %	31 %	20 %	13 %	16 %	12 %
Σ	100 %	100 %	100 %	100 %	100 %	100 %

x) Se note on page 63

The importance of different types of investment varies greatly from firm to firm, industry to industry and year to year. During 1955 measures such as raising the interest rate and levying taxes on investment were taken to curb investment. The firms under investigation first reacted to these restrictions the following year, 1956, and the reactions differed considerably among the firms. Plants belonging to the metalworking machinery industry seemed most sensitive to the changes, since their 1956 investments showed a decrease of 27 % from their 1955 investments. The smaller firms decreased their investments about 6 % in 1956 while the larger firms, with the exception of those belonging to the metalworking machinery industry, actually increased their investments, though only about 5 %.

Plants number 1, 3, 5, 10, 12, 13 and 14 decreased their total investments in 1956. The average decrease was about 30 %. The amount of money invested in machinery by these plants decreased about 15 % from 1955 to 1956 while the amount of money invested in maintenance of machinery remained about the same.

Plants number 2, 4, 6, 7, 8, 9 and 11 increased their total investments in 1956 about 19 %. With the exception of plant no. 10, all of these plants had between 1,000 and 10,000 employees.

Table no. 4.

	Average change in 1956 of investments in machines (1955=100)	Average change in 1956 of investment in maintenance of machines (1955 = 100)
Plants which increased their investments in 1956	113	131
Plants which decreased their investments in 1956	85	96

Table no. 4 shows the changes in investment in machines and machine maintenance for these two groups. One might expect the figures for maintenance to be more stable than those for machinery. This hypothesis is not, however, in agreement with the facts as shown in table. 4.

Material from the interviews.

In order to obtain a complete investment picture, we tried to get data on the firms' 1958 investments in research and development, in education and in tools (e.g. hand tools, drills, jigs, fixtures). We learned that investments in research and in tools was almost as large as investment in machinery while investment in education was insignificant.

The investments in tools were not itemised in the firms' report to Kungl. Kommerskollegium but were included in the figures for general expenses. From the interviews however, we learned that roughly 17 % of a firm's total yearly investment was allocated to tools. This figure did not include money spent for emery wheels, cutting edges, etc. Tools were written off immediately but only half of them were actually worn out within a year. The other half might last as long as 20 years depending on the type of tool and how much it is used. Almost all the firms in our investigation produced their goods on a made-to-order basis and in small allotments. This means that the tools had a higher life expectancy than if they had been continuously in use and accounts for the fact that the average age of the "part-time" tools was sometimes between 10 to 20 years. Frequently, when the firms changed from the manufacture of one product to that of a different on they could use the old machines but had to invest heavily in new tool such as jigs and fixtures.

Table no. 5

Percentage distribution of investment in the year 1958 by plant.

Investment in	Plant number													x)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Average
Research and development	16%						23%	14%		38%		39%			26%
Education	1						2	3		-		3			2
Industrial buildings	8						3	16		-		2			6
Maintenance of industrial buildings	4						4	10				21			8
Employee housing	-						-	-		-		-			-
Maintenance of employee housing	1						1	-		-		10			2
Motor vehicles	1						-	-		3		-			1
Maintenance of motor vehicles	-						-	-		1		-			-
Machines	30						34	30		11		19			25
Maintenance of machines	28						20	12		7		2			14
Tools	11						13	14		40		5			17
Σ	100%						100%	100%		100%		100%			101%

Although there were important differences in the 14 plants under investigation the general investment picture in these plants was approximately the same. The main types of investments were those for

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x) of the five firms for which we have figures at present.

research, tools, machines and maintenance of machines. Investment in these fields represented more than 80% of the firms' total investment.

Machines and the maintenance of machines constituted about 40 % of the over all investment. We have concentrated on these two items in chapters 3,4,5 and 6 of this section.

Chapter 3. The age-structure of the equipment in the 14 plants.

An industry's stock of capital equipment is one of the chief determinants of its production possibilities. To increase the productivity of an industry it is usually necessary to up-date its capital equipment. Knowledge of the age-structure of capital equipment, therefore, forms a natural basis for a discussion of the practical possibilities of changes in productivity both from a national and an individual factory point of view.

From the plant information on the ages of various machines, we calculated the percentage of machines that were over 10 years old in 1954 and in 1959. For 1959 computations were also made of the percentage of machines that were over 20 years old.

We also divided the machines into groups according to their replacement value (i.e. the cost if bought new to day) and calculated the relative percentage of machines over 10 years old in various price groups. (See table no. 6.)

Table no. 6.

Type of plant	Plant code number.	The year 1959					The year 1954
		The percentage distribution of machines over 10 years old by replacement value (in Swedish crowns.)			Total % of machines		Total % of machines over 10 years old
		under 10.000	10.000-50.000	over 50.000	over 10 years old	over 20 years old	
Fabricated metal products	1	51,2%	60,0%	75,0%	63,0%	-[2]	56,2
"	2	53,8	57,1	-	55,0	30,0	51,4
Household appliances	3	-[2]	-[2]	-[2]	52,9	-[2]	38,3
"	4	55,2	40,0	29,4	49,2	14,4	31,3
"	5[1]	-[2]	-[2]	-[2]	30,0	-[2]	25,0
General industrial equipment	6	52,6	52,9	59,6	55,3	24,0	51,4
"	7	53,6	56,3	52,0	55,9	26,3	56,5
"	8	44,5	49,5	51,6	47,6	18,4	46,7
Communications equipment	9	53,8	29,0	25,0	48,0	15,4	52,8
"	10	-[2]	-[2]	-[2]	75,0	10,9	43,5
Precision mechanisms	11	62,0	55,8	73,0	62,5	17,9	68,9
Metalworking machinery	12	58,8	52,4	35,0	51,7	17,4	45,8
"	13	76,0	65,8	46,0	63,3	29,8	54,7
"	14	-[2]	-[2]	-[2]	54,0	10,3	51,7
Average		56,1%	51,9%	49,6%	54,2%	18,6%	48,1%

1) Figures are only for that part of plant manufacturing stoves.

2) There is only in-complete information available.

Fifty-four per cent of all the machines tabulated in Table no. 6 were over ten years old in 1959 and 48 % were over ten years old in 1954. Although not quite comparable, the corresponding figures for the USA, published in the November 17, 1958 issue of "The American Machinist", are 58 % in 1958 and 52 % in 1952. This comparison indicates that the Swedish metalworking plants in our investigation were more modern than those in the USA. It also shows that the percentage of machines over 10 years old increased at the same rate in the USA as in the 14 Swedish plants. The percentage of machines over 20 years old was about the same in the USA as in these 14 plants (18 % in the USA and 18,6 % in the 14 plants).

It is rather interesting to note that there was only a small difference in the age-structure of the machines on a replacement value basis. The inexpensive machines (i.e. replacement value under 10.000 kr.) were somewhat older than the more expensive machines.

Table no. 7 shows the percentage of metal-cutting, metal-forming and other machines in the metalworking industry over 10 years old.

Table no. 7

Plant code no.	Percentage Share of machines over 10 years old			
	Metal-cutting	Metal- forming	Other	Total
3 [1]	56 %	17 %	52 %	38 %
5 [1]	38	27	28	30
7	57	- [2]	- [2]	54
10	77	79	65	75
Average	57 %	41 %	48 %	49 %

1) figures are only for that part of plant manufacturing stoves

2) there is only in-complete information available

According to table no. 7 there was a slight tendency for the metal-cutting machines to be older than either metal-forming or other machines. An inventory taken by "The American Machinist" indicates that the same fact was true in the USA.

In our investigation we could find no correlation between the size of the plants and the percentage of their machines over 10 years old.

Chapter 4. Machine Maintenance. A. The relative importance of different kinds of maintenance.

The five plants included in table no. 5 spent about 14 % of their total investments on machine maintenance in the year 1958. This term includes rehabilitation (i.e. renovating and rebuilding), repairing (e.g. replacement of broken parts), and servicing (e.g. lubrication).

ombyggnad 4 %
renovering 25 %
reparation 50 %
service 10 %

75 % of the investment in maintenance was for rehabilitation and repairing and the remaining 25 % was for servicing. Of the 75 %, 50 % was for repairing, 20 % was for renovating and only about 5 % was for rebuilding (i.e. altering the machine). This means that 11 % of the total investment in 1958 was for rehabilitating and repairing the machines, or in other words "investment in a small way". This is compared to the average of 25 % for purchasing new machines in the year 1958.

The figures reported to Kung. Kommerskollegium for investment in maintenance did not include costs such as the oil for lubrication or the labored and other costs incurred in weekly cleaning and lubrication of the machines by the workers. This means that the plants actually spent more than 14 % of their total investment on machine maintenance.

B. The effect of rebuilding the machines.

In order to get some idea of the kind of rebuilding the machines have undergone during their life at the firms, we selected at random from each firm 15 to 20 machines which were more than 20 years old and belonged to important machine types (e.g. milling and drilling, lathes). In the interviews we learned that 89 % of the machines had

never been rebuilt.

Table no. 8.

Of the 11 % of these machines which had been rebuilt, the rebuilding made possible

a new type of product	1 %
" " " " process	3 %
greater accuracy	2 %
labour or material saving	1 %
increased capacity	2 %
other changes (e.g. the machine is rebuilt to do simpler tasks than before)	2 %
	Σ 11 %

It is evident that for most of the old machines (over 20 years) no change was made. The common belief that the old machines ordinarily are rebuilt or changed simply does not seem to be true. The majority of the machines could perform the same tasks as when they were new except that they might not have been as precise.

C. The decision to rehabilitate a machine.

It is only in recent years that the firms have had a formulated rehabilitation policy or have indulged in preventive maintenance. Previously a machine was not renovated until it broke down. Now machines are designated for renovation each year. Particular emphasis is placed on those machines which are essential to production. Previously the workers themselves had to complain about a machine before it was renovated. Now, particularly in the larger firms, there are generally special repair and service men who regularly overhaul the machines. A plant foreman usually authorizes small repairs but the

section chief is consulted if the repair costs are to be more than minimal. The section chief usually decides whether to repair, renovate or purchase a new machine depending on the relative costs of these alternatives. The cost of renovating is usually roughly one-third the cost of purchasing a new machine.

The decision to buy a new machine or to renovate the old one depends to some extent on the economic situation. Occasionally the old machine must be renovated simply because there is not enough money available to buy a new one. Usually specific amounts for renovation and purchase of machines have been allocated in the budget. To exceed these amounts the company directors must be consulted. After considering all factors, including the economic one, they will make the decision to renovate or to exceed the budget by purchasing a new machine.

Chapter 5. Scrapping and Selling.

A. The market for second-hand equipment.

Fifty per cent of the machines discarded between 1954 and 1959 were scrapped and the other 50 % were sold. Before a machine is scrapped or sold it usually stands in a stockroom for some time. The firms have no prejudice against selling their old equipment, even to other firms. If it is more profitable to sell than scrap, they prefer to do so. If space is limited, however, and a buyer can not be found for the machines they are sometimes scrapped just to get rid of them. Men who buy and sell used equipment make periodic visits to the plants looking for second-hand machines. The firms themselves may also sell directly to smaller factories. All the plants in our investigation are medium-sized or larger and they almost never buy used equipment. It is almost exclusively the small factories which buy used machines, or perhaps new firms which will use second-hand equipment to begin production. Used machines are also bought by middle men for resale in underdeveloped countries.

B. Average expectancy life of the machines in metalworking plants.

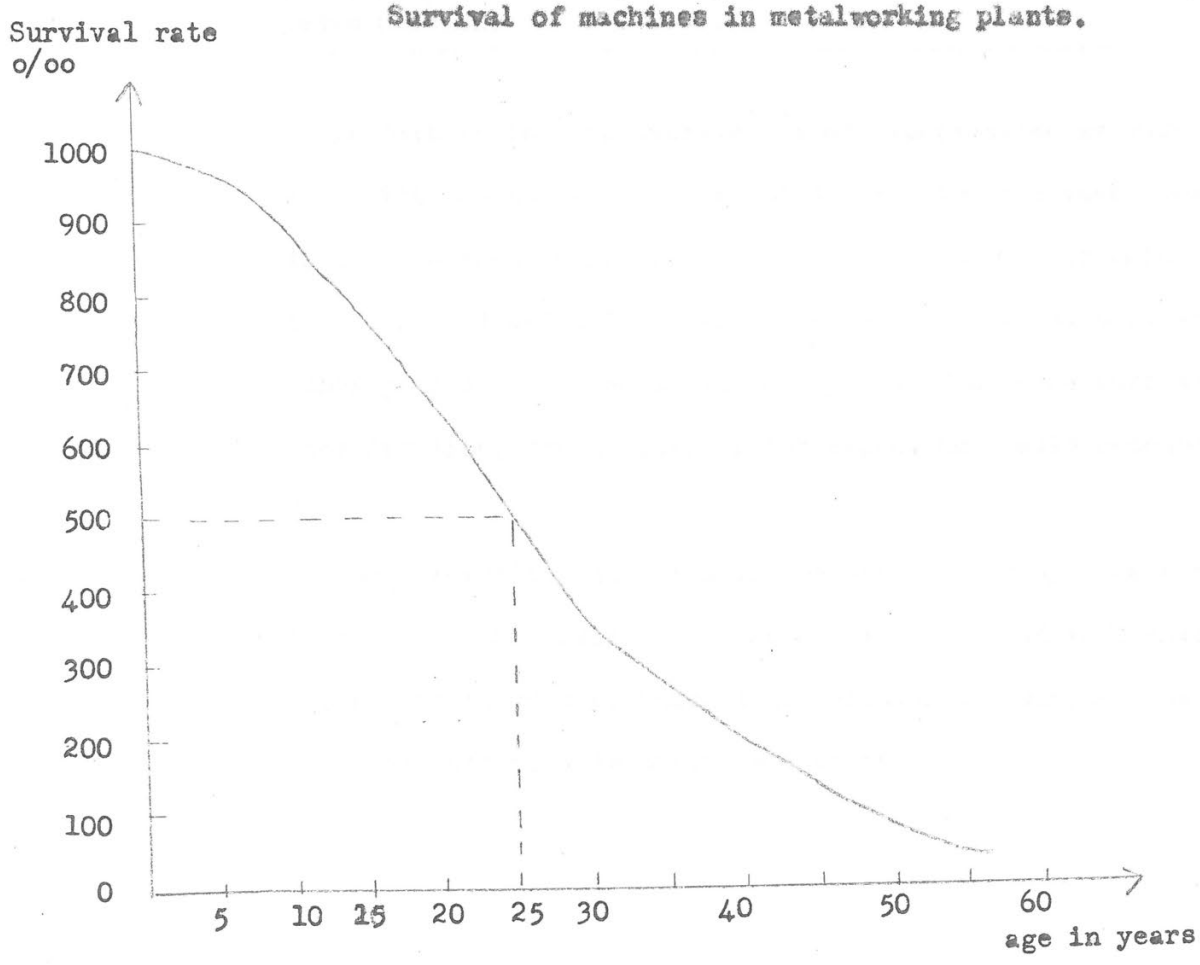
In our investigation we assembled data on the age-structure of all machines in use in 1959 and all the machines which were discarded between 1954 and 1959. By discarded we mean all machines which are scrapped or sold. For every firm we calculated mortality rates at different ages and, by cumulating them, we obtained survival curves. We must emphasise that the survival curves thus obtained are based on the decisions to scrap as well as to sell machines during the years 1954 - 1959. Table no. 9 shows mortality rates and survival rates for the machines as arithmethic averages for nine plants' equipment.

Table no. 9

Age-interval in years	Mortality-rate ‰	Survival rate ‰
0 - 2,5	15	985
2,5-7,5	42	944
7,5-12,5	125	826
12,5 - 17,5	143	708
17,5 - 22,5	167	590
22,5 - 27,5	300	413
27,5 - 32,5	242	313
32,5 - 37,5	228	241
37,5 - 42,5	306	167
42,5 - 47,5	331	112
47,5 - 52,5	403	67

Chart 1.

Survival of machines in metalworking plants.



The survival curve implies an average life service of about 25 years (medium) for the machines.

From table no. 9 we can see that some of the machines were discarded very soon after they were purchased. Most of these briefly-used machines were sold rather than scrapped. Our calculations are based on the number of machines sold as well as scrapped and the inclusions of these briefly-used machines lowers the survival curve.

The average "life" expectancy for the machines varied among the different plants from 18 to 35 years. (See table no. 10.)

Table no. 10

Plant number.	3	4	6	7	8	9	11	12	13	14	1	2
Average age expectancy in years (median)	18	35	20	32	32	21	23	28	28	18	35	50

In calculating the average "life" expectancies we were concerned only with the number of years of service the machines were expected to have in these nine firms. Machines which will be sold rather than scrapped undoubtedly will have additional years of service in other plants. If these additional years of service were taken into consideration, the average "life" expectancy would undoubtedly be higher.

One interesting question is whether the average age expectancy is the same for small and large machines. We had information from two of the firms concerning this question and divided the discarded machines according to their replacement value.

Table no. 11

The replacement value of the machines in Swedish crowns.	Average age expectancy in years (median)		
	Plantno.3	Plant no.8	Arithmethic average
under 10.000	21	28	25,5
10.000-50.000	12	31	21,5
50.000-	13	38	25,5
Weighted average	18	32	25

Table no. 12 indicates that there was no clear correlation between age expectancy and replacement value. It might be surprising that the less expensive machines had as high an average age expectancy as the more expensive machines. Once again we must emphasize the fact that these figures were calculated from the decisions to scrap as well as to sell a machine during the years 1954 - 59. The very high average age expectancy of the inexpensive machines corresponds with the figures in table no. 6.

In the interviews with company representatives we asked them their prediction of the average age expectancy of different types of machines in the future. All those interviewed felt strongly that rapid technological developments will mean larger, more complex, electronically-directed, automatic machines with probably shorter average life expectancies.

C. The connections between the discarded machines and their replacements.

In the interviews we asked questions concerning the replacements of the machines in our randome sampling which had been sold or

scrapped after July 1, 1954.

Table no. 12.

The new machine compared with the old one was:

a) about the same	14 %
b) much better	35 %
c) of a radically different kind	17 %
There was no connection between the old and new machine or there was no new machine	34 %
	≡ 100 %

Table no. 12 indicates that only in 14 % of the cases was there a real like-for-like machine replacement.

We learned that 49 % of the discarded machines were worn out and 51 % could still operate productively when discarded. These figures correspond with the fact that roughly 50 % of the discarded machines were sold and 50 % were scrapped. (See chapter 5, A.)

Table no. 13.

Of the 49 % of the discarded machines which were worn out, the new machine compared with the old one

a) was about the same	14 %
b) was much better	43 %
c) was of a different kind	24 %
d) had no connection	19 %
	≡ 100 %

Table no. 14.

Of the 51 % of the discarded machines which could still operate productively, the new machine compared with the old one

a) was about the same	13 %
b) was much better	29 %
c) was of a different kind	12 %
d) had no connection	46 %
	≡ 100 %

In table no. 14 it is somewhat surprising to note that 15 % of the machines which could still operate productively were replaced by new machines which were "about the same" as the old ones. This may be at least partially explained by the fact that firms frequently prefer to replace older machines with those which are newer and in better condition even if the old and new machines differ only slightly in performance. It may also be partly due to the not uncommon practice of shipping used machines abroad to company subsidiaries in underdeveloped countries where the labour skill is not so high.

Fifty-eight per cent of the machines which could still operate productively when discarded either had no connection with the new machines or did work of a radically different kind from that, done by new machines. This type of replacement was generally due to changed directions of production. Only 29 % of the machines which could still operate productively when discarded were replaced by machines which were much better than the older ones. This fact may imply that it is rather seldom that the firms actually plan to replace an old machine with a better one. From our interviews we obtained the impression that in most cases such planning is not done.

D. The decisions regarding the discarding of old machines and the acquiring of new ones.

1. By whom are the decisions made?

In most cases the section chiefs decide which machines they wish to discard and which machines they wish to acquire during the coming year. They assign priority ratings to the machines and prepare justifications for their decisions. The lists prepared by the various

section chiefs are then submitted to the plant manager. The board of directors and the plant manager decide on the investment quotas and designate which machines are to be purchased in the coming year and which machines will be deferred until a following year.

Individual machinery investments of less than 500 Swedish crowns are generally authorized by the section engineer while those between 10,000 and 50,000 crowns are authorized by the plant manager. The board of directors rules on only the most expensive individual investments.

New budgets for both current and future investments are drawn up every year and occasionally something will happen to cause the firm to change its future budget. It is very seldom, however, that a current budget is altered once it has been decided upon and only the board of directors may decide to increase investment allotments in a current budget. Some large investments (e.g. new factories) are planned four or five years before they are realized but for smaller investments (e.g. machinery) there is usually only one year of advance planning or, at most, from one to three years.

2) The economic and engineering considerations which influence the decisions to discard old machines and acquire new ones.

Machines which are most frequently discarded for "technical" reasons are those which have frequent, costly repairs, those which breakdown regularly and those which have low tolerances. A change in the direction of production often means that several machines are unadaptable to the new process and that new machines must be acquired. Frequently the outmoded machines stand idle before they are scrapped or sold.

In all these cases the reasons to discard old machines and acquire new ones are interpreted by the engineers as "technical" reasons rather than economic ones.

Another consideration affecting the decision to discard is the desire to produce at full capacity. Thus replacement machines are often acquired because the firm does not want to run the risk of having production delayed by break downs which are more common among older machines than new ones. This is especially true when the business situation is good and firms are trying to increase their production capacities. In such cases the firms usually consider investment calculations unnecessary. As one representative said, "We don't need calculations to know that we have to acquire new machines if we want to maintain top production standards."

Also mentioned as reasons for acquiring new machines were the considerations that new machines are easier to work with and not so much trouble to repair and that employees do not like to work with old machines.

A firm's insolvency may cause it to postpone discarding a machine in favor of repairing or renovating it. This is especially true if the replacement machine is to be about the same as the old one.

General business recessions or depressions may also cause fewer machine investments just because the low production demands create a feeling that there is no need for new machines.

3. The calculation methods.

Investment formulas are almost never used by firms to calculate their investment needs.(Only one firm reported using the MAPI formula). Some attempt is made to analyze the direct costs involved (most common

is the pay-off method) but this analysis is relied on less than intutition, common sense and informal opinions. During the interviews it was pointed out that the type of production of most of these firms made it difficult to calculate machine costs because the machines are used in different ways and for different lengths of time depending upon specific orders. The firm representatives also felt that it is difficult to assign monetary value to many factors (e.g. human, social) which are often as important as the economic considerations. A representative of a firm which had just modernized its casting department said, "The new machines we've installed will probably lengthen the life of many of these men. How do you calculate that?"

If there is a choice between several different types of replacement machines the firms try to figure out which one would be most profitable. But even here it is more likely to be "technical" points of view, the need of capacity, the risk for stop of production etc. rather than theorethic economic considerations which affect the final decision.

In cost accounting, the replacement value of the machines was written off in periods vaying[r/] from 10 - 25 years depending on the estimation of the life expectancy of different types of machines. In financial accounting, machines were usually written off infive years for tax reasons. Tools are considered to have a life expectancy of less than three years and so may be written off immediately for tax purposes.

The plant engineers very seldom had any knowledge of the relative costs of the machines but rather used the "most technically" suitable machine for different processes.

Chapter 6. Functional downgrading of the machines.

A. The exploitation of the machines.

From one firm we obtained data concerning how much the machines were used in 1958.

Table no. 15.

Plant code number	Percentage of machines that are			
	Continously used	Daily used	Periodically used	Σ
8	4 %	51 %	45 %	100 %

According to this table only about 4 % of all the machines in the plant were used continously (i.e. 2 - 3 shifts). All of the continously used machines had a replacement value of more than 50.000 Sw.cr. but they represented only about 17 % of all machines with a replacement value of more than 50.000 Sw.cr. in plant no. 8.

Table no. 16

Plant code number	The percentage more than 10 years old of	
	the continously used machines x)	All the machines with a replacement value of more than 50.000 Sw. cr.
8	47 %	52 %

x) all thie machines had a replacement value of more than 50.000 Sw. cr.

According to table no. 16 there seemed to be no significant tendency for the plant to use the newer, expensive machines more continously than the older, expensive machines.

Table no. 17

Plant code number	The percentage of periodically used machines by replacement value (in Swedish crowns.)			
	less than 10.000	10.000-50.000	more than 50.000	
8	69 %	26 %	5 %	100 %

The periodically used machines were in most cases auxiliary machines or machines used by more than one department. We divided the periodically used machines according to their replacement value and found that about 69 % of the periodically used machines were inexpensive ones (See table no. 17).

Table no. 18

Plant code number	The percentage distribution of all the machines by replacement value (in Sw.cr.)			
	less than 10.000	10.000-50.000	more than 50.000	
8	50,1 %	25,8 %	24,3 %	100%
Average for all the 14 plants	58 %	31 %	11 %	100%

According to table no. 18 half of all the machines in plant no. 8 had a replacement value of less than 10.000 Sw.cr. 44,5 % of these inexpensive machines were older than 10 years (See table no. 6.)

Table no. 19

Plant no. 8	The percentage distribution of	
	the inexpensive x) machines which are more than 10 years old by use	the inexpensive x) machines which are less than 10 years old by use.
Periodically used	71 %	47 %
Daily used	29 %	53 %
	100 %	100 %

x) replacement value less than 10.000 Sw.cr.

Plant no. 8 thus showed a tendency to use the old inexpensive machines more periodically than the young inexpensive machines. (See table no. 19).

We did not however, find a tendency for plant no. 8 to use the older, expensive machines more periodically than the new, expensive ones. (See table no. 20).

Table no. 20

Plant code number	The percentage over 10 years old of	
	the medium-expensive x) periodically used machines	the expensive, xx) periodically used machines
8	39,5 %	35,0 %

x) replacement value between 10.000 - 50.000 Sw.cr.
xx) " " more than 50.000 Sw.cr.

These facts may imply that, except for the inexpensive machines, the age of a machine did not play an important role in the decisions of the plant to use the machine periodically or daily. Instead, the decisions seem to have been influenced by technical points of view (e.g. was the machine essential to production or was it merely an auxiliarly machine?).

B. The scope of functional downgrading.

We obtained information on functional downgrading from two plants

Table no. 21

Plant no.	The percentage distribution of the machines by function				
	First line	Second line	Reserve	Service machines and others	
9	60 %	10 %	26 %	4 %	100 %
13	56	27	3	13	100 %
Average	58 %	19 %	15 %	8 %	100 %

Table no. 22 shows the age-structure of the machines in first line, second line, etc. for these same two plants.

Table no. 22.

Plant code number	The percentage distribution of the machines more than 10 years old by function.			
	First line	Second line	Reserve	Service machines and others.
9	43 %	95 %	100 %	75 %
13	35 %	94 %	72 %	21 %
Average	39 %	95 %	86 %	48 %

According to these two tables most of the machines in plants no. 9 and 13 were in the first line and only about one-third of these were old machines. About 19 % of all the machines were in the second line and about 95 % of these were more than 10 years old. About 50 % of the machines in the second line were more than 20 years old. Most of the reserve machines were also over 10 years old.

For plant no. 9 we learned how much the machines had been used in 1958. Of the machines in the second line about 76 % were used periodically (i.e. less than 1000 hours a year.)

According to the data from these two plants the second line almost exclusively represented old machines and most of these machines were used only periodically. Of all the machines that were more than 20 years old in 1958 only about 16 % were in the first line. The fact that a machine was old, however, did not necessarily imply that it was in the second line. Of all the machines in these two plants which were more than 10 years old, about 41 % were in the first

line. It is only when the machine was about 20 years old or more that it was rather unusual for it to be in the first line.

C. The interviews.

In the interviews we learned that in most cases machines were not consciously transferred to the second line. "It just happened so." The old machines frequently had low speeds, were often equipped only with high-speed steel and thereby had low capacities, and were seldom fitted for fine tolerances. This meant that, when demands for finer tolerances and higher capacities (e.g. higher speeds) increase the old machines gradually were transferred into the second line. This fact corresponds with G.Terborgh's words in "Business Investment Policy" (published by Machinery and Allied Products Institute, Washington D.C. 1958). He writes that the quality of the service of the existing machines may decline relative to available alternatives even when the machine does not deteriorate absolutely (page 9). Second line usage often implies that the service and repairdepartment, apprentice-school etc. take the old machines. Formerly, the subsidiary companies often constituted the second line. The very old machines are often used only periodically and are put aside as a sort of reserve until they finally are discarded. A change in the direction of production also often implies that some machines are put in reserve. We did not get any clear information of the scope of this functional downgrading, perhaps because the term "functional - downgrading" implies a rather theoretic conception.

A case-study of the metalworking industry.

Supplement.

"How the investigation was taken"

Supplement.

How the investigation was made.

In the summer of 1959 we asked 15 metalworking plants to take part in our investigation of the age-structure of their machinery. These factories were selected as representative of different branches of the metalworking industry as well as different types of firms -- medium-sized and large, producing for export and for home consumption, etc. All of the plants but one agreed to participate in our study and a representative from the Institute visited each of the 14 plants to explain the data wanted and the way in which to collect them. Questionnaires were also sent to the plants along with a list of the different types of machines we wished to have included in the study. (See appendixes 1, 2 and 3.)

For each machine in operation as of July 1, 1959 we received the following information: (See appendix 1.)

1) The year of purchase and, if different, the year of manufacture.
2) The actual purchase price.
3) The present-day replacement value.
4) The present-day actual value.
5) The number of operating hours during 1958.
6) The way in which used during 1959 (first line, second line, etc.)
7) The cost of repair from 1954 - 59.
8) The cost of renovating and rebuilding from 1954 - 59.

To get an idea of the amount of capital equipment on hand as of July 1, 1954 we also obtained data about all the machines which were

scrapped or sold after that date. (See appendix 2.) For each machine that was scrapped or sold we obtained the following data:

1) The year of purchase and, if different, the year of manufacture.
2) the actual purchase price
3) the number of operating hours during its last year in the firm
4) the way in which used during its last year in the firm
5) the cost of repairing, renovating and rebuilding from 1954 - 59.
6) the year in which discarded
7) the way in which discarded (sold or scrapped)
8) the price, if sold.

Seven of the factories in our study are considered large (i.e. from 1.000 to 10.000 employees) and the other seven plants are considered medium sized (i.e. from 300 to 800 employees.)

The total number of employees in these 14 plants represents 6,5 % of all employees in the Swedish metalworking industries.

From official files (Kungl. Kommerekollegium) we got the following data for each of the 14 plants in our investigation:

1) The insured value of the buildings, machinery, raw materials, manufactured goods and other assets for the years 1946, -53, 54 and -58.
2) The change in the value of commodities stock between the years 1956 - 57 and 1957 - 58.
3) The investment in industrial buildings, other buildings, motor vehicles, machines, employee housing, etc. in 1954, -55, -56, -57 and -58. For each year we got data about the planned, budgeted and accomplished investment.
4) The number of workers and office staff in 1946, -54, -55, -56, -57, -58.

5) The maintenance costs for motor vehicles, machines, employee housing, etc. in 1954, -55, -56, -57, -58.

6) The value added and the wages paid out to workers and office staff in 1946, -54, -58.

The interviews.

The work to collect all these data which formed the background material for our interviews took more time than anticipated. For many plants we had to collect the data ourselves and the remaining plants took a rather long time to do their part of the work. However, in November we were able to begin our interviews. One week before we arrived at each plant we sent plant representative a questionnaire. (See appendix 4.) For each plant we selected at random 15 - 20 machines which were more than 20 years old and belonged to important types of machines (e.g. drilling machines, lathes). We also selected at random 15 - 20 machines that were scrapped or sold after 1954. We spoke with directors, engineers, accountants and other specialists in each plant. The interviews took about one day per plant. In the interviews we followed the questionnaire which had been sent in advance to the plants (See appendix 4.) and also an interview guide (see appendix 5).

A case-study of the metalworking industry

Appendixes.

Appendix 1.

Machines in use 1.7. 1959

Type of machine (according to the code in the machine list. See app. 3)	The year the machine was bought (If the machine was bought used, state also the year the machine was manufactured)	The actual purchase price	If possible mention		The number of hours the machine was in operation during 1958	The way the machine was used (1st line, 2nd line or less exacting tasks?)	Cost of repairs 1954 - 59 (Replacement of broken parts etc. but not service.)	Cost of rehabilitating 1954 - 59 (renovating & rebuilding
			The machine's present day replacement value	The machine's present day value				

Appendix 2.

Machines discarded after 1.7 1954

Type of machine (according to the code in the machine list, See app. 3)	The year the machine was bought (If the machine was bought used, state the year the machine was manufactured)	The actual purchase price	The number of machine hours	The way the machine was used (1st line, 2nd line or less exact tasks?)	Cost of rehabilitation and repairs after 1954	The year the machine was discarded	The way the machine was discarded (scrapped or sold, etc.)	If sold, the selling price

Appendix 3.

A list of the types of machines included in the investigation.*

Code	Type of machine
1	Metal-cutting machines
101	Boring machines
	horizontal-
	vertical-
	sensitive-
	cylinder-, horizontal
	" vertical
	" single-spindle
	" multi-spindle
102	Drifting machines
	horizontal surface
	vertical " or comb.
	rotary "
	hydraulic
103	Broaching machines
	horizontal internal or. comb.
	vertical "
104	Cut-off machines, sawing and filing
	contour sawing and filing
	bandsaw (incl. friction)
	circular saw (incl. friction)
	pendulum circular saw
	circular saw bench
	cold saw (hor. & vert.)
	warm saw
	crosscut saw
	etc.

* This machine-list is a contraction of the original and includes only the main types of machines studied.

Code	Type of machine
108	Drilling machines
	sensitive
	jig boring
	multi-spindle
	radial
	upright single-spindle
	automatic
	centering
	etc.
106	Gear cutting machines
	wheel milling (automatic)
	circular pitch milling
	wheel milling machine spur gear
	" spiral bevel gear
	" racks
	gear planing (automatic)
	for chafing
	" grinding
	etc.
107	Grinding machines
	pendulum
	internal (hor. & vert.)
	universal
	centerless (internal & external)
	slide
	surface, horizontal
	vertical
	rotary-table type
	reciprocating type
	cylinder grinding
	cam "
	emery "
	tool (half automatic)
	jig grinders
	contour
	abrasive belt
	etc.

Code	Type of machine
108	Honing and lapping
	honing: internal
	external and surface
	lapping: surface
	cylindrical
109	Lathes
	slide rest
	centre (half automatic)
	bench
	high speed
	vertical turning
	turret
	reproducing
	cutting-off machine
	roughing
	precision
	facing
	shaft turning
	crankshaft
	turret lathes: Ram type
	" Saddle type
	auto chucking, single spindle
	automatic " multi "
	automatic screw cutting
	" bar machines (multi spindle)
	etc.
110	Milling machines
	horizontal
	vertical
	horizontal & vertical
	knee-type
	horizontal milling cutter
	universal
	multi spindle
	bench
	half-automatic
	profile
	circular
	etc.

Code	Type of machine
111	Planers
	horizontal
	vertical
	horizontal & vertical
	table planing machine
	shaping machine
	spline shaper
112	Milling & planer machines
113	Polishing & buffing machines
	smoothing mill
	trumbling barrel
	etc.
114	Slotters & key seaters
115	Threading machines
	female machines
	pipe "
	thread milling cutter
	" grinding machines
	" bulging "
	etc.
116	Ultra sonic cutting machines
117	Special multi-station machines
118	Other metal-cutting machines
	fluting machines
	punch cutting machines
	chafing machines
	etc.

Code	Type of machine
2	Metal-forming machines
201	Bending and forming machines
	rolling machines
	plate bending machines
	bending machines, pipe, bar and shapes
	rotary bending and forming machines
	etc.
202	Straightening machines
	straightening rollers
	etc.
203	Flanging machines
204	Machines for working up sheet-metal
	folding machines
	funnel bending roller
	border bending machines
	seaming machines
	stretching "
	etc.
205	Presses
	horizontal press
	vertical "
	hydraulic "
	column "
	screw "
	friction screw "
	crank "
	revolver "
	gang "
	ball "
	eccenter "
	etc.

Code	Type of machine
206	**Punching and shearing machines**
	perforating machine
	notching "
	nut "
	parallel shears
	crocodile "
	eccenter "
	hydraulic "
	gang sliting machine
	circular shears
	nibbling machine
	plate shears
	slag "
	pipe cutter machine
	hot bar shears
	etc.
207	**Forging machinery (excl. presses)**
	hammers (steam or air)
	forging machines
	hammers, mechanical (drop)
	swaging machines
	oven (plant) etc.
208	**Riveting machines**
	electrical riveting machine
	pneumatic "
	hydraulic "
	riveting ovens
	hammer type riveting machines
	clinching "
209	**Die casting machines**
	hot chamber
	cold "

Code	Type of machine
210	Plastic molding machines
	Injection
	Compression
	Extrusion
211	Other metal-forming machines
3	Welding equipment
301	Electric welding equipment
	Power source: motor generator set
	transformer and rectifier
	Arc weld machines (automatic)
	Resistance welders: spot
	gun
	seam
	butt and flash
	gas welding machines
302	Soldering machines
303	Flame cutting machines
4	Heating equipment
401	ovens for heating
402	" " drying
403	induction heating units
404	flame hardening units
405	baths oil-, water-, salt-, etc.

Code	Type of machine
5	**Casting equipment**
501	ovens and furnaces
502	equipment for sand preparation
503	moulding equipment
504	equipment for core preparation
505	cleaning equipment
506	after-treatment equipment
6	**Cleaning and finishing**
601	galvanizing equipment
602	degreasers
603	washing machines
604	drying equipment
605	steeping "
606	abrasive blast equipment
607	painting, enamelling equipment
608	etc.
7	**Industrial trucks**
701	lift
702	truck-tractor
703	powered hand trucks
704	crane trucks
8	**Other shop equipment**
801	balancing machines
802	air compressors
803	gear-checking machines
804	industrial vacuum cleaners
	etc.

Code	Type of machine
9	Other machines
901	machines for working up wood
902	" " packing
910	traversers, lifting equipment, cranes
920	winding machines

Appendix 4.

Questionnaire regarding the investment behaviour in the metal-working industry.

A. The relative importance of different kinds of investments.

In order to make production possible and to improve productivity firms make different types of investments. In this investigation we include in "investments" all types of inputs that mature over a longer period of time than one year.

What was the rough distribution of your firm's gross investment during 1958?

Investment in:	Amount in 1000 Sw.cr.
1) research and development (method-studies, product and equipment development etc.)	
2) education	
3) a/ industrial buildings b/ repair and upkeep of buildings	
4) a/ employee housing b/ repair and upkeep of employee housing	
5) a/ motor vehicles b/ repair and upkeep of vehicles	
6) a/ machinery b/ repair and upkeep of machinery	
7) tools (hand-tools and machine accessoires such as jigs, drills and fixtures)	

We have filled out this chart according to figures which have been reported to Kungl. Kommerskollegium by your firms.

Note that we have not included investment in sales in the above

chart. Are there any other type of investment which we have not included?

B. Maintenance (regarding the machines only.)

1) How much of the total costs for maintenance in recent years was for

a) rebuilding (changing the machines)
b) renovating
c) repairing (replacement of broken parts etc.)
d) service.

2) We have selected at random 15 to 20 old machines listed in supplement A.

We would like to get some idea of what kind of rebuilding these machines have undergone during their life at your firm. What effect has this rebuilding had on their production possibilities - volume and quality?

Did the rebuilding make possible

a) new types of products?
b) " " " processes?
c) greater accuracy?
d) labour or material savings?
e) improved capacity?
f) other types of changes (e.g. the machine can now do a simpler task than before)

There has been no rebuilding.

3. By whom are different types of maintenance decisions made?

4. How are the decisions made? When are they made? What considerations influence the decisions?

C. Scrapping and selling.

1. During 1954 - 59 your firm sold . . . . . machines and scrapped . . . . . machines. Why were some of the machines

scrapped and others sold?

2. In general the average age expectancy of machines in the metalworking plants seems to be rather long (roughly 25 years). It seems, however, that some types of machines are more longlived (short-lived) than others depending on the way they are used, their costs etc. Which groups are more long-lived (short-lived) than others and why is there this difference in lifetime between different types of machines?

What is your opinion of the relative importance of deterioration by time and by usage? Now? In the past? In the future? For different types of machines, etc?

3. During the years 1954 - 59 . . . . . machines were discarded. Which considerations influence the decisions to discard? In supplement B we have listed 15 - 20 machines selected at random from among those discarded by your firm between 1954 and 1959. It would be very valuable if, for each of these machines you could give us specific information as to why the machines were discarded.

4. When a machine is discarded a new machine is frequently bought as its replacement. How do the types of replacement machines compare with the machines listed in supplement B?

Is the new machine compared with the discarded one

a) about the same?

b) much better (e.g. lower costs, bigger capacity, better quality of the product?)

c) of a radically different kind?

There is no connection between old and new machine or no new machine.

Were the machines (in supplement B) worn out or could they still work productively when discarded?

5. By whom are decisions to discard made? Are there different procedures for different types of machines? Different types of decisions?

Do you speed up scrapping when labour costs are rising? When costs of rawmaterials are changing? Will a lowering of the rate of interest induce you to keep your machines longer or vice versa?

Do you have a systemized replacement program?

Is there any connection between writing-off periods and discarding? Do you ever scrap a machine that has not been written off?

D. Putting into the second line.

1. Is it realistic to divide the machines by classifications such as 1st line, 2nd line, etc. according to the way they are used?

2. What functions do the machines in the 2nd line have? (used in the apprentice-school, in reserve, etc.)

3. How are the decisions to put a machine into the 2nd line made?

Supplement A.

A list of 15 - 20 machines, selected at random, which were in use as of July 1, 1959.

Supplement B.

A list of 15 - 20 machines, selected at random, which were discarded during 1954 - 59.

Appendix 5.

Aide memoire for interviewing.

A. The relative importance of different kinds of investments

On the basis of our information from the official files and from the tables filled out by the factory try to get a picture of the importance of all different types of investments. How many different kinds are used in the production process during a 5 year period? Concentrate on types b, c and g as we know little about them. In some cases an estimate might be reached by counting the number of people that have worked full-time, part-time etc. with product-development etc.

Another point of departure might be to find out how much of the total costs are for method studies, repairing etc.?

B. Maintenance.

1. How much of the total costs for maintenance in recent time is for
   a) rebuilding (changing the machines)
   b) renovating
   c) repairing (replacement of broken part etc.)
   d) servicing.
2. Do you include the repairing and servicing of tools in the above cost? If yes, how much? What kind?
3. Select a small number of older machines and try to get an idea of what kind of maintenance they have undergone during their life. Find out the total maintenance costs and the costs of the different kinds enumerated above.

   What effect has this rehabilitation (i.e. rebuilding and renovating) had on the machines, production possibilities, volume and capacity?

Has it made it possible to
make a new type of product?
" " " " " process?
save labor or material?

Give examples.

4. By whom are the different types of maintenance decisions made?

5. How are the decisions made?

Probably c and d are made in a routime fashion, while another procedure might be followed with types a and b. Especially for these types the relevent questions for the firm are: If a renovation etc. should be made? When should it be made? How should it be made? How are these different kinds of decisions made? Go through some of the cases mentioned under 3 above and try to get an answer. Bring up also the following questions during the interview.

Do tax-considerations influence the decisions?

Why did you do it at that specific time? Your own initiative? Initiative from your customers, competition etc.?

Do you have a clear-cut maintenance policy? Go through the machines every second year etc.? Do you follow the plans?

Do you have records of maintenance costs for different machines?

How is the maintenance financed? Do you ever borrow to get the necessary money?

How are the maintenance costs calculated?

Do you postpone repairs, when your liquidity is not so good? When the future of the production does not seem so bright?

Have changes in interest-rates, labor costs etc. influenced your maintenance policy?

Do you sometimes have the choice to make a repair long-lived or short-lived? How and why do you make the choice? Do you make them short-lived because of the speed of technical development?

6. If the cost for the tools is included in cost for maintenance, questions should be asked about how decisions concerning these tools are made.

   If they are not included, questions should be asked about their size and where they are included.

C. Scrapping and Selling.

The basis for the interview are the decisions to scrap or sell that have been made during 1954 - 59. Try to divide the machines into groups according to their age at scrapping. Why is there a difference in life-time between different types of machines?

1. Why do you scrap some of the machines and sell others?

   What is the cost for installing an old machine? Is it prohibitive? Are there any firms to which you would not like to sell an old machine? Why?

   Is competition from firms which buy their machines second-hand of any importance?

   Is there a second-hand market for some machines and not for others? Why?

2. By whom are decisions to scrap (sell) made?

   Different procedures for different types of machines? Differe types of decisions?

3. To what extent did your scrapping (selling) involve:

   a) a real like-for-like replacement?
   b) replacement by a better machine? How much and in what respect?
   c) replacement by a radically different kind of machine?
   d) no connection between old and new machine or no new machine?

4. To what extent do you build your own machines? Why do you do so?

5. How is the decision to scrap/sell made? Pick out some examples and try to trace the procedure and reasoning in detail. The following questions should be brought up.

Do you speed up scrapping when labor costs are rising? When you expect them to rise in the future? When costs of rawmaterials are changing? Will a lowering of the rate of interest induce you to keep your machines longer and vice versa?

Do you have a systemized replacement program setting aside a certain sum for this purpose every year? What sum?

How do you select the machines that should be scrapped (sold) in a given year? (Because of their age, costs, product or out-of-date?processes? Not dependable enough? Not precise enough?)

Is there any connection between writing-off periods and scrapping/selling time? Do you ever scrap a machine that has not been written off?

How do general business-conditions influence your scrapping policy? Do you postpone scrapping when times are bad or vice versa?

Who takes the initiative in scrapping (replacing)? Somebody within the firm (from the selling department?) or outside? A representative for a machine firm? Forced to it by competition from other firms?

Show the firm a list of their machines that are more than 20 years of age and ask them why they have not been scrapped.

How do machines that have been "written off" enter into your cost account? How do you calculate capital costs in your cost-account?

What calculation methods - if any - do you use, when you make a reinvestment? What writing-off-periods do you use? How do they compare with actual scrapping-age?

You cannot write-off on the replacement value. Does that fact influence your scrapping policy?

Would you like to scrap some of the machines that you have now and buy new ones? Why? Lower costs? Other reasons?

Why don't you?

No money? Don't like to borrow for replacements? If you did, would you have to rebuild the whole factory?

6. What is your opinion of the relative importance of deterioriation by time and by wage? Now? In the past? In the future?

Do you have different writing-off-periods for sturdy or less sturdy machines?

D. Putting into the second line.

The basis for this part of the interview is the information that we have on how different machines are presently used and how many are in reserve (for special type of work, when demand is heavy etc.) performing less exacting duties, etc.

Give some examples of reservemachines and how they differ in capacity and work from new machines.

In what different ways are machines put in reserve?

Who makes the decisions? How is it made?

When you put a machine in reserve do you usually buy a replacement then?

Does the reserve system mean that you can expend your capacity when there is a boom? How much can you expand it from the normal level?

If the boom is lasting will you then buy new machines to be able to put the reserves in reserve again? How long time will lapse before you do so?

When and how is a reserve machine scrapped or sold?

Do all machines normally pass through a reserve stage?

Do you put machines in reserve when there is a recession?

E. The connection between different types of investments.

The basis for this discussion should be a complete record of all decisions made concerning investments during a certain period.

Try to find out if there are development blocks etc. Pick out some examples of investments and trace all other investments connected with them.

Part III

SOME FACTS ABOUT INVESTMENT OPPORTUNITIES IN SWEDEN

Some facts about Investment Opportunities in Sweden

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In answer to professor B.R. Williams 9/59 we have prepared the following background to our report on investment behavior. The subtitles are the same as in that letter.

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1. Supplies of skilled labour and wage arrangements

A manpower shortage has existed in Sweden in varying degrees during the past fifteen years. It was most acute in the late 1940's but has somewhat abated since the end of the Korean conflict. In the expanding mechanical industries there has been mainly a shortage of skilled labour.

The Swedish labour market has some distinctive characteristics as compared with those of other West European countries. Wages in Sweden are higher than those anywhere else in Europe. Even so, the stability of Swedish labour relations has been so noticeable that the country is considered something of an example among industrial nations. Since the thirties there have been very few serious labour conflicts.

The cost to employers of one hour's labour in Sweden is far higher than that of any other European country as shown in the table below.

European Wages in Manufacturing 1955. Hourly earnings in shillings

	All Wage Earners	Men	Women
Sweden	6.13	6.41	4.43
Denmark	4.54	4.67	—
Norway	4.44	4.75	3.20
Switzerland	4.13	4.82	3.07
UK	4.00	4.74	2.77
France	3.33	-	-
Belgium	3.15	3.64	2.07
Western Germany	3.03	3.33	2.09
Netherlands	2.33	2.80	1.64
Austria	2.24	-	-
Italy	2.12	-	-

Source: "Britain and Europe", page 31.

Metalworking industries in Sweden have higher wage level than manufacturing industries as a whole. Using 1958 figures, if the average wage level for manufacturing industries is given an index of 100, the comparable figure for the metalworking industries is 115.

Almost 95% of the Swedish labour force is organised according to the so-called industrial principle. The 44 Trade unions are members of the Swedish Confederation of Trade Unions (LO) which has the largest per capita voluntary membership of any labour movement in the world.

During the period under investigation, 1954-59, most labour-management contracts were negotiated centrally by the LO and the Swedish Employers' confederation (SAF). A negotiated agreement general lasts for either one or two years and during that time no strikes are allowed. Collective contracts are, so to speak, peace obligations and any local disputes which arises are settled by the Labour Court.

It should be mentioned that a large proportion of factory jobs are paid on a piece-rate basis. In the metalworking industries nearly 80% of the jobs are piece work.

Shift work, however, is scarce among the country's metalworking industries compared with other European countries. Night shifts are prohibited by law except in a few continuous-process industries. Two-shift operation, affecting less than 5% of the workers in the metal-working industries, is always organized on a rotating rather than a fixed basic.

The normal work week in Sweden before 1957 was 48 hours. Between 1957 and 1959 the work week was shortened by one hour each year until it is now 45 hours.

2. Size and legal structure of firms

The majority of Swedish industrial workers are employed in smal or medium-sized enterprises. Thirty per cent of the industrial workers are found in firms employing up to 50 workers and about 45% are in thos employing between 50 and 500 workers. Only about 25% are found in firm employing more than 500 workers. The average (arithmetic medium) Swedish firm in 1957 had 41 workers.

The average metalworking factory employed 54 workers in 1957 Among Swedish metalworking factories are some of the country's largest private enterprises - SKF (ball bearings, about 45,000 workers including subsidiary companies), ASEA (electrical appliances, about 35,000 workers) and Volvo (motor vehicals, 13,000 workers) - but there are also hundreds of very small enterprises.

The 50 largest factories in the metalworking industries or 1,5% of the total number of establishments, account for 50% of the total production. In expert production the predominance of a few large enterprises is even more remarkable. Fifteen factories, or less than 0.5% of the total number of establishments, account for about half of the industry's export production.

Ninety-one percent of all Swedish industrial workers are employed in privately owned and operated enterprises. Measured by value of output, private business accounts for 93% of the total. Government intervention in business has been primarily in the form of regulatory devices rather than actual government operations. Approximately 5% (by number of workers) of mining and manufacturing concerns in Sweden are state-owned. The few state-owned operations which exist in the industrial field are principally in the fields of iron mining, steelmaking and water power harnessing.

Private enterprise completely dominates the metalworking industries, employing 98% of the total number of workers.

Joint-stock companies are the most common form of private enterprise, especially among the large and medium-sized companies.

3. <u>Supplies of capital (share of loan capital, public funds, bank credit) to firms of different sizes and in different sectors</u>

(See special report by professor Erik Dahmén concerning the supply of capital to the Swedish industry 1950-57.)

Some elementary facts:

Commercial banks in Sweden are concerned mainly with granting credit to private firms. Most of the loans are short term - at least formally - and given to provide capital for industry and trade.

During the period under investigation, however, government policy encouraged commercial banks to make available large sums of money for housing construction. This decreased the availability of money for industrial loans.

Commercial Bank Loans, Nov. 1958 (classified by industry division)

	Mill kr.	%
Manufacturing	2,310	20.8
Trade and transportation	3,177	28.7
Housing construction	3,017	35.3
Personal, etc.	1,252	11.3
Total	11,088	100.0

440 savings banks and a few special credit institutions provid long-term loans.

The possibility of financing industrial investments by issuing bonds has been very limited during the fifties. This method of financing has been reserved almost exclusively for public need.

It is very expensive to provide investment capital by issuing new stock shares because of the very high taxes imposed on such shares On the other hand, the writing-off rules are still fairly liberal and facilitate a comparatively high degree of self-finance.

4. Markets for second-hand equipment and buildings

The Swedish second-hand market for machine tools is already mentioned in our report. (See part II chapter 5, A.)

5. Restrictions on foreing investment and enterprise.

Introduction

The discussions on a European economic integration have brought actuality to the question of the right of foreigners to engage in business in Sweden, to establish branches, to take employment or to perform services, as also the question of capital movements between countries participating in the integration. In 1957 the Federation of Swedish Industries made a preliminary investigation about the limitations and prohibitions applying at the time to foreign natural persons as well as corporations. For this purpose extensive use was made of records compiled by the Department for Foreign Affairs and the Trade Department. The results of the investigation were presented in a Memorandum a special section of which was devoted to certain considerations of principle relating to liberalized capital movements and the right of free establishment in a common European market.

Since there has appeared a larger than expected interest in the Memorandum and since the first edition has run out a new edition has been printed. In this, due consideration has been paid to new laws and common procedures.

It is clear from the investigation report that there are numerous and in some cases comprehensive restrictions in force in Sweden governing the economic freedom of movement of foreign enterprises and individuals. In some cases the regulations currently in force provide that permission may be granted under certain conditions but in other cases there are no possibilities to obtain an exemption. Affiliation on the part of Sweden to a European organization making farreaching demands for an economic freedom of movement will therefore require numerous changes in Swedish legislation. To which extent changes will be necessary is, however, difficult to judge at the present moment, since it will, naturally, depend on the terms of the agreements on which the organization will be based.

The investigation has been executed in the Federation of Swedish Industries by Mr. Lennart Körner, Mr. Ingvar Petzäll and Mr. Carl Anderberg.

Stockholm, June, 1959

THE FEDERATION OF SWEDISH INDUSTRIES

I. The right to engage in trade etc.

A. Natural persons

a) General rules regarding the right to engage in trade etc.[1)]

The basic rules relating to the right of foreign natural persons to engage in trade, industry, etc., in Sweden are put forth in the decree of the 18th June, 1864, providing for extended freedom to engage in trade etc. In § 26, section 1[2)] of this decree it is laid down that special permission from the King in Council is required for a foreign national to secure the right "in this kingdom to engage in trade or manufacturing activity, handicraft or other business".

Permission is not, however, considered necessary for occupation that is deemed to be in the nature of "primary production" (e.g. farming as a tenant), or a "production" such as scientific and artistic activity, certain teaching work, consulting functions in engineering etc. It should, moreover, be pointed out that this decree is only applicable to such activity as is carried on for the purpose of gain and is of a permanent nature. Hence, there is nothing to prevent a foreigner from engaging, without permission, in activity that is wholly directed to charitable objects. Nor is permission required for an occasional sale, even if this is made for gain.

A foreign national's application for permission to carry on trade etc. is considered by the King in Council after preparatory investigation in the Trade Department. According to the beforementioned decree the application has to include information as to the place where the business is to be carried on, certificate showing that the applicant is sui juris, and evidence of a trustworthy surety or other security for the payment of State and communal taxes for a period of three years.

On the other hand, the decree does not require a foreign national, in order to obtain such permission, to be resident in Sweden. But a long standing rule makes it necessary for him in practice to have resided for a considerable time in Sweden. The currently accepted period is about two years.

Further, it has become customary to require the foreigner to submit proof that he is not in a state of bankruptcy.

b) Special fields of activity

Mining or ironworks: a foreign national may not, without special permission, engage in the operation of a blast furnace or other smelting plant, bar-iron works, forge, foundry or other plant designed for utilising or refining the products of the mineral kingdom.

- Decree of the 18th June, 1864, regarding extended freedom to engage in trade etc., § 27 (SFS 1918:347)

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1) Extracted in the main from a memorandum prepared by the Department of Trade in November, 1955.

2) SFS (Statutory Rules and Orders) 1864:41 and 1918:347

A foreign national may not, without special permission, work a registered mineral deposit or engage in mining. If permission has been granted to a foreigner who is not resident in Sweden, he must appoint a representative who is resident in Sweden.

- Act of the 30th May, 1916, regarding certain limitations in the right to acquire real estate or mine or shares in certain companies, §§1 and 17 (SFS 1916:156, 1948:220 and 275 and 1954:315).

Special permission is required to manufacture war material. A foreign national cannot be granted such permission unless production on a minor scale only is in question.

- Decree of the 20th June, 1935, regarding the control of the manufacture of war material etc., § 1 (SFS 1935:395 and 1949:221).

Ambulatory handicrafts may not be undertaken by a foreign national without special permission.

- Decree of the 18th June, 1864, regarding extended freedom to engage in trade etc. § 26, section 3 (SFS 1914:171).

No activity in the form of "sales" [1] or assisting at sales may in principle be carried on by a foreign national. Exemption may be granted in cases where a relevant treaty with a foreign State is in operation.

- Decree of the 18th June, 1864, as above, § 26, section 2, (SFS 1914:171).

Peddling[2] may not be pursued by a foreign national, nor must a foreigner assist in such peddling. Exemption inadmissible.

- As above.

Fishing in public waters, as well as such fishing in private waters as every Swedish national has the right to pursue, is not permitted to a foreigner. Exemption admissible.

- Act of the 1st December, 1950, regarding fishing rights, §§ 4 and 21 (SFS 1950:596).

A foreign national who engages in timber floating in a public waterway shall provide surety for the fulfilment of his obligations as a floating contractor. A foreigner may not, without permission, be a member of the board of a timber floating association. (Special rules apply for floating in the Swedish-Finnish border rivers).

- Act of the 19th June, 1919, regarding floating in public waterways, §§ 39 and 83 (SFS 1919:426).

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1) By "sale" is meant an activity whereby a trader, outside the place where he normally engages in trade, sells stocks of merchandise during a brief period, at auction or privately except in a market place.

2) By peddling is understood activity by which a person himself or another on his behalf takes around merchandise for sale, otherwise than at a market, outside his place of residence.

Coastwise and inland lake shipping[1] may not be undertaken by a foreign national without special permission. Foreign vessels may, nevertheless, be placed on an equality with Swedish vessels as a result of treaties with foreign powers.

- Declaration of the 28th February, 1726, and Customs Regulations of the 7th October, 1927, § 128 (SFS 1927:391).

In order to engage in regular air traffic on a specified air traffic route permission is required for both Swedish and foreign nationals. Such permission cannot, however, be lawfully granted to a foreign national if the traffic covers only inland air transport.

- Decree of the 26th May, 1922, regarding air transport § 34 (SFS 1922:383 and 1943:803).

In order to give a public performance or concert, execute music, arrange masquerade, ball or children's play house, or organise a public meeting or any other entertainment to which the public has access, as also to assist in such performance, special permission is required for a foreign national if he is domiciled abroad or is living in Sweden but has not given a surety for three years' taxes. Permission is also required for a Swedish national residing abroad.

- Proclamation of the 31st December, 1913, regarding the right of foreign or Swedish nationals living abroad to organise public performances etc., within the Kingdom or to assist therein, § 1 (SFS 1913:380, 1920:865, 1932:201, 1944:435 and 1957.666).

c) Certain professions and titles' employment in Sweden

In order to practise as a pharmacist, certification is required. Such authorization can only be granted to a Swedish national.

- Directive to the Royal Medical Board of the 30th June, 1947, § 4, (SFS 1947:573).

Registration as a physician can be obtained only by a Swedish national. Permission to practise medicine may, however, be granted to a foreigner.

- Act of the 21st September, 1915, regarding competence to practise medicine, § 2 (SFS 1915:362 and 1934:44).

Registration as a dentist can be obtained only by a Swedish national. Permission to practise dentistry may, however, be granted to a foreigner.

- Act of the 18th May, 1951, regarding competence to practise dentistry, § 3 (SFS 1951:233).

In order to obtain certification as a physiotherapist, Swedish nationality is required. This rule is not subject to exemption in favour of a foreign national.

- Proclamation of the 5th November, 1937, regarding legitimation of physiotherapists (SFS 1937:864)

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1) By coastwise shipping is understood shipping in home trade between places situated on the Swedish coast.
By lake shipping is understood shipping in home trade between places situated on inland waters.

Registration as a veterinary surgeon can be given only to a Swedish national. Permission to practise veterinary surgery may, however, be granted to a foreigner.

- Directive to the Royal Veterinary Board, of the 30th June, 1947, § 2 (SFS 1947:496).
  General Instructions for the Veterinary Surgery, of the 17th November 1933, § 37 (SFS 1933:616).

The title "advokat" (lawyer) may be assumed only by a member of the Sveriges Advokatsamfund (Swedish Bar Association). Only Swedish nationals may be accepted as members.

- Court Procedure Act of the 18th July, 1942, Chapter 8, § 2 (SFS 1942:740).

As senior or junior Counsel, in actions at law, and Defence Counsel in criminal cases are to be selected Swedish nationals residing within the Kingdom; other persons, however, may be considered if the court sees fit, depending on the nature and circumstances of the case.

- Court Procedure Act of the 18th July, 1942, Chapter 12, §§ 2 and 22 and Chapter 21, § 3 (SFS 1942:740 and 1956: 230).

Brokers in a town (town brokers) engaged in the purchase and sale of moveable property and the preparation of agreements in respect of loans, rent, leases and insurances, as well as of other similar agreements, may not be foreign nationals.

- Brokers´ Rules of the 9th June, 1893, § 2 (SFS 1893:51).

Swedish nationality is a condition for becoming a member of the Stockholm Stock Exchange and a Stock Exchange Deputy.

- Rules for the Stockholm Stock Exchange of the 21st December, 1949, §§ 10 and 14 (SFS 1949:691).

Only a Swedish national may be appointed a Notary Public in Stockholm.

- Statute of the 18th of May, 1945, on Notary Public, § 13, (SFS 1945:196).

A foreign national may not publish a periodical publication or act in the publisher´s place.

- The constitutional law relating to freedom to print of the 5th April, 1949, Chapter 5, §§ 2 and 9 (SFS 1957:500).

An officer on a Swedish merchant vessel or fishing vessel must be a Swedish national. Exemption on behalf of a foreign national is admissible; in practice, however, it is not given when the officer is going to be a captain.

- Decree of the 12th June, 1936, relating to officers in Swedish merchant vessels etc. (Command regulations) §§ 3 and 29 (SFS 1936:315, 1951:100).

A labour permit is required in order to take up employment or to perform in other capacity than of a commercial traveller functions arising out of employment abroad. Anyone possessing what is known as a residential permit is, however, relieved from the obligation to obtain a labour permit, as also are Danish, Finnish, Icelandic and Norwegian nationals and certain other foreigners.

- Aliens Act of the 30th April, 1954, § 15 and Proclamation relating to aliens of the 4th June, 1954, § 37 (SFS 1954: 193 and 457 and 1958:124).

A foreign national cannot take employment (temporary or permanent) in the Swedish Civil Service, nor can he hold the position of a judge (neither in civil or communal service). Appointments of clergy within the Swedish State Church are treated on the same footing as the civil service. A foreign national of outstanding merit may, however, be appointed as a lecturer at a university (though not in theology), as a teacher, or in other capacity at institutions for science, handicrafts or the fine arts, and to medical posts. A foreign national of exceptional ability may further be appointed to a military post, though not as a fortress commander. A foreign national may be appointed an honorary consul.

- The Constitution Act of the 6th June, 1809, § 28 (SFS 1958: 444).
  Court procedure Act of the 18th July, 1942, Chapter 4, § 1 (SFS 1942:740 and 1948:71).

The King in Council may, where it is deemed necessary for the security of the kingdom so to do, prohibit a foreign national from taking employment without special permission in certain enterprises or companies of certain kinds. No such prohibition is at present in force.

- Aliens Act of the 30th April, 1954, § 17 (SFS 1954:193).

B. Corporations

a) General rules

By virtue of § 32 in the decree of the 18th June, 1864, regarding extended freedom to engage in trade etc., foreign companies and economic associations which have, in conformity with special regulations on the subject, secured registration of a branch in Sweden, may engage in trade and manufacturing activity, handicrafts or other business through the medium of the branch. The relevant regulations are contained in the Act of the 3rd June, 1955, regarding the right of foreign companies or associations to engage in trade etc. in the kingdom (SFS 1955:383). The rule would seem to imply that the activity to which the decree refers must in principle not be pursued in Sweden by foreign corporations which have not registered a branch.

Irrespective of registration as a branch, permission may, however, be granted to a foreign insurance company to engage in insurance activity in Sweden

- Act of the 9th June, 1950, regarding the right of foreign insurance institutions to engage in insurance business in the kingdom (SFS 1950:272); or to

a foreign corporation to operate a registered mineral deposit or engage in mining. (See below)

The branch shall be managed by a Managing Director who must be resident in Sweden. Permission is, moreover, required from the King in Council. Such permission may be combined with special conditions and provisions.

By this legislation, passed in 1955, an alternative has been made available to the method until then employed by foreign corporations of establishing subsidiary Swedish companies.

b) Special fields of activity

All prohibitions affecting natural persons are also applicable to corporations in so far as such prohibitions refer to matters which may be included in the activities of a corporation. Regarding prohibitions for natural persons, reference is made to the foregoing. In respect of certain of these restrictions, corporations are, however, specifically mentioned:-

The manufacture of war materials. Permission may - except in the case of manufacture on a very small scale - be granted only to Swedish nationals, to Swedish trading partnerships in which there are no foreign partners, and to Swedish limited liability companies whose share certificates are issued in registered form and in whose articles of association have been included reservations as indicated in § 2 of the Act of the 30th May, 1916, regarding certain limitations of the right to acquire real estate or mines or shares in certain companies; no exemption is admissible.

- Decree of the 20th June, 1935, relating to control of the manufacture of war materials etc., § 1 (SFS 1935:395 and 1949:221).

Permission to engage in inland air transportation by regular traffic may not be granted to foreign companies or other associations or foundations. Nor can such permission be granted to Swedish trading partnerships in which there are foreign partners or to Swedish limited liability companies whose shares are issued to bearer and to a greater extent than one-third are owned abroad. No exemption is admissible.

- Decree of the 25th May, 1922, relating to air traffic §§ 33 and 34 (SFS 1922:383 and 1943:803).

Associations of foreign companies and other combinations or foundations may not, without permission, operate a mine for which a concession has been taken out or engage in mining.

- Act of the 30th May, 1916, regarding certain limitations in the right to acquire real estate or mines or shares in certain companies, § 1 (SFS 1916:156, 1934:238, 1944:710, 1948:220 and 275).

II. The right to acquire and possess property, certain other rignts etc.

A. Natural persons

The right to take out a mining-concession is reserved to Swedish nationals. No exemption is admissible.

- Act of the 30th May, 1916, regarding certain limitations in the right to acquire real estate or mines or shares in certain companies, § 1 (SFS 1916:156, 1934:238, 1944:710 and 1948:275).

Real estate or mining-concessions may not be acquired by a foreign national. This applies to acquisition otherwise than by dissolution of nuptial community of goods, inheritance or testamentary provisions. Exemption is admissible.

- As above.

A foreign national may not acquire by subscription or transfer shares of an ordinary limited liability company which, in accordance with the company's articles of association, may not be acquired by a foreigner and which shares may be issued to bearer. Acquisition contrary to this rule is invalid.

- As above §§ 2 and 3.

A foreign national may not acquire shares in a joint stock bank whether by subscription or transfer. Acquisition contrary to this rule is invalid.

- Banking Act of the 31st March, 1955, § 18 (SFS 1955:183).

A foreign national may not own a periodical publication. No exemption is admissible.

- The Constitutional Act concerning the freedom to print of the 5th April, 1949, Chapter 5, § 1 (SFS 1957:500).

If a foreign national acquires shares in a Swedish shipowning company with limited liability, and joins the board of the company, no vessel belonging to the company can continue to be registered as Swedish.

- Maritime Act of the 12th June, 1891, Chapter 1, § 1 (SFS 1891:35 and 1906:19).

A vessel shall be regarded as Swedish if not less than two-thirds thereof is owned by Swedish nationals or else is the property of a limited liability company whose board is domiciled within the kingdom and is composed of shareholders who are Swedish nationals. If a foreigner acquires more than one-third part, the vessel can therefore no longer be deemed Swedish. Shares in a Swedish vessel may not be transferred without the consent of all shareholders to a person who is not a Swedish national if the vessel as a consequence of such transfer would cease to be Swedish; where this is done the transfer becomes invalid. A foreigner who has by way of inheritance, testamentary provision or marriage settlement received a share in a Swedish vessel, or a Swedish

shareholder who becomes a foreign national, are obliged - if the vessel as a consequence of such acquisition or change should cease to be Swedish - to transfer to Swedish nationals such share of the vessel as will enable it to remain Swedish.

- Maritime Act of the 12th June, 1891, Chapter 1 and §§11 and 5 (SFS 1891:35 and 1906:19).

In the event of war or risk of war in which Sweden is involved or otherwise in exceptional circumstances occasioned by war, the King in Council may issue prohibition against the transfer of a Swedish vessel or part thereof to a foreign national, or orders to prevent a foreigner from acquiring a share in a Swedish limited liability company which owns vessels or parts thereof by subscription or transfer or to deny the use of a Swedish vessel by a foreign national by means of timecharter or other utilisation. Transfer, subscription for shares or utilisation of a vessel contrary to such orders are invalid. Exemption is adm. admissible. Prohibitions of the kind here in question are at present in force.

- Act of the 22nd June, 1939, regarding prohibition in certain cases of transfer or utilisation of vessels etc., §§ 1, 2 and 4 (SFS 1939:299, 1939:592, 1949:612,and 1957:236 and 289).

A foreign national may not be a partner in a registered trade partnership without special permission.

- Act of the 30th May, 1916, including supplements to the Act of the 28th June, 1895, relating to registered trading partnerships and simple partnerships. (SFS 1916: 159).

Regarding the right to receive inheritance or benefit from testamentary provisions, the principle is that a foreign national normally is placed on an equality with a Swedish national. For a national of a State in which Swedish nationals may not acquire inheritance or benefit from testamentary provisions in a manner equal to the State's own nationals or must suffer larger deductions from such inheritance or testamentary provisions than the latter, a corresponding limitation shall, nevertheless, apply in Sweden if the King in Council so directs. No such order has hitherto been issued.

- Act of the 12th December 1958 regarding inheritance, chapter 1 § 3 (SFS 1958:637).

The managing owner in a ship-owning partnership shall always be a Swedish national, resident in Sweden. No exemption is admissible.

- Maritime Act of the 12th June, 1891, § 1 (SFS 1891:35 and 1906:19).

On land which is the property of the Crown, holdings may be allocated on lease to an individual farmer with a right for the lessee to purchase the holding leased to him. The transfer of this form of "social leasehold" can be made only to a Swedish national.

- Proclamation of the 11th June 1948, regarding own-home dispositions on Crown land, § 10 (SFS 1948:366).

shareholder who becomes a foreign national, are obliged - if the vessel as a consequence of such acquisition or change should cease to be Swedish - to transfer to Swedish nationals such share of the vessel as will enable it to remain Swedish.

- Maritime Act of the 12th June, 1891, Chapter 1 and §§11 and 5 (SFS 1891:35 and 1906:19).

In the event of war or risk of war in which Sweden is involved or otherwise in exceptional circumstances occasioned by war, the King in Council may issue prohibition against the transfer of a Swedish vessel or part thereof to a foreign national, or orders to prevent a foreigner from acquiring a share in a Swedish limited liability company which owns vessels or parts thereof by subscription or transfer or to deny the use of a Swedish vessel by a foreign national by means of timecharter or other utilisation. Transfer, subscription for shares or utilisation of a vessel contrary to such orders are invalid. Exemption is adm. admissible. Prohibitions of the kind here in question are at present in force.

- Act of the 22nd June, 1939, regarding prohibition in certain cases of transfer or utilisation of vessels etc., §§ 1, 2 and 4 (SFS 1939:299, 1939:592, 1949:612,and 1957:236 and 289).

A foreign national may not be a partner in a registered trade partnership without special permission.

- Act of the 30th May, 1916, including supplements to the Act of the 28th June, 1895, relating to registered trading partnerships and simple partnerships. (SFS 1916: 159).

Regarding the right to receive inheritance or benefit from testamentary provisions, the principle is that a foreign national normally is placed on an equality with a Swedish national. For a national of a State in which Swedish nationals may not acquire inheritance or benefit from testamentary provisions in a manner equal to the State's own nationals or must suffer larger deductions from such inheritance or testamentary provisions than the latter, a corresponding limitation shall, nevertheless, apply in Sweden if the King in Council so directs. No such order has hitherto been issued.

- Act of the 12th December 1958 regarding inheritance, chapter 1 § 3 (SFS 1958:637).

The managing owner in a ship-owning partnership shall always be a Swedish national, resident in Sweden. No exemption is admissible.

- Maritime Act of the 12th June, 1891, § 1 (SFS 1891:35 and 1906:19).

On land which is the property of the Crown, holdings may be allocated on lease to an individual farmer with a right for the lessee to purchase the holding leased to him. The transfer of this form of "social leasehold" can be made only to a Swedish national.

- Proclamation of the 11th June 1948, regarding own-home dispositions on Crown land, § 10 (SFS 1948:366).

In certain national parks holdings of land (Crown crofts) may be allocated with right of c ltivation. As occupier of a Crown croft may be accepted only a Swedish national.

- Proclamation of the 1 th June, 1943, regarding allocation of Crown crofts, § 2 (SFS 1943:532).

Family farms and "supplementary" farms may not be disposed of by the Board of Crown Lands by means of sale to other than a Swedish national.

- Decree of the 25th May, 1945, regarding sale in certain cases of Crown land etc. § 9 (SFS 1945:262).

B. Corporations

A foreign corporation may not acquire real estate or a mining-concession. Exemption is admissible.

- Act of the 30th May, 1916, on certain limitations of the right to acquire real estate or mines or shares in certain companies, § 1 (SFS 1916:156, 1934:238, 1944:710, 1948:220 and 275).

A foreign corporation may not take out a mining-concession. Exemption is inadmissible.

- As above.

Note. A Swedish trade partnership in which there is a foreign partner or a Swedish economic association or a Swedish limited liability company whose share certificates may be issued to bearer, is in general held to be on the same footing as a foreign corporation. The same applies to a Swedish limited liability company in whose articles of association has not been included a reservation which - if in no stronger terms - provides that only a certain part, at any one time less than one-fifth of the company's shares - or, if shares with differing voting power are issued, only so many shares as at any one time will correspond to a certain part, being less than two-fifths, of the whole share capital and likewise the total voting power of these comprises a certain part, being at any one time less than one-fifth of the voting strength of the total shares in the company - may be acquired by subscription or transfer by a foreign national, associ tion or foundation or by a Swedish trading partnership wherein there is a foreign partner, by a Swedish economic association, by a Swedish limited liability company whose share certificates may be issued to bearer or by other Swedish limited liability companies in whose articles of association no such reservations are included.

- Law as above § 2.

A foreign corporation may not acquire shares in an ordinary limite liability company which, according to the articles of association, may not be acquired by a foreign national and which may be issued bearer. Acquisition of shares contrary to this rule is invalid.

- Law as above §§ 2 and 3.

A foreign corporation may not acquire shares in a joint stock bank. Acquisition of shares contrary to this rule is invalid.

- Banking Act of the 31st March, 1955, § 18 (SFS 1955:183).

A foreign corporation may not own a periodical publication. No exemption is admissible.

- The Constitutional Law relating to the freedom to print of the 5th April, 1949, Chapter 5, § 1 (SFS 1957:500).

A foreign corporation may not acquire a greater part than one-third in a Swedish vessel. If a foreign national acquires a greater share, which can only be done with the consent of all shareholders, the vessel ceases to be Swedish.

- Maritime Act of the 12th June, 1891, §§ 1 and 5 (SFS 1891:35 and 1906:19).

In the event of war or danger of war or otherwise in exceptional circumstances caused by war, prohibition may be promulgated by The King in Council against transfer to a foreign national of a Swedish vessel or share therein, or against a foreigner's subscribing for or by transfer obtaining a share in a Swedish limited liability company owning a vessel or part thereof, or against placing a Swedish vessel at the disposal of a foreign national by time-charter or other form of utilisation as also against transferring to a foreign national the right to time-charter a Swedish vessel or other utilisation thereof. Transfer share subscription or utilisation contrary to such promulgation are without effect. Exemption is admissible. The prohibitions referred to here are at present in force.

- Act of the 22nd June, 1939, regarding prohibition in certain cases of transfer or utilisation of vessels etc., §§ 1, 2 and 4 (SFS 1939:299, 1939:592, 1949:612 and 1957:236 and 289).

III. The right to establish, to be a member of the board of, and to exercise certain functions in corporations etc.

A. Natural Persons

A foreign national may not without special permission be a member or a deputy member of the board of directors, managing director or deputy managing director, authorised signer for the firm, auditor or deputy auditor, liquidator or deputy liquidator and liquidator's auditor or deputy for him in an ordinary limited liability company. Such permission may not apply in respect of board members, liquidators and deputies, to more than one-third of the total number.

- Companies Act of the 14th September, 1944, §§ 79, 80, 88, 107, 149 and 152. (SFS 1944:705 and 1946:850).

The founder of an ordinary limited liability company and a trustee for supervising the company's liquidation must be Swedish nationals. No exemption is admissable.

- As above, §§ 4 and 153.

A foreign national may not without permission be a member of the board or deputy member, authorised signer for the firm, auditor, liquidator or deputy liquidator and liquidator's auditor in an economic association.

- Act of the 1st June, 1951, relating to economic associations, §§ 22, 23, 29, 46, 76 and 80 (SFS 1951:308).

A foreign national may not be the founder of a joint stock bank or a member of the board, deputy member, auditor, deputy auditor, liquidator, deputy liquidator, liquidator's auditor and deputy for him in a joint stock bank. No exemption is admissible.

- Banking Act of the 31st March, 1955, §§ 4, 72, 76, 97, 125 and 128 (SFS 1955:183).

A foreign national may not be the founder, a member of the board or deputy member, managing director or deputy managing director, authorised signer for the firm, auditor or deputy auditor, liquidator or deputy liquidator, liquidator's auditor or his deputy in an insurance company with limited liability, or in a mutual insurance institution. No exemption is admissible.

- Insurance Act of the 17th June, 1948, §§ 5, 72, 73, 81, 100, 142, 145, 167, 204, 206, 237 and 240 (SFS 1948:433 and 1950:320).

A foreign national may not be a member of the board of a Swedish limited liability company which owns a merchant vessel if the vessel is to be registered as Swedish.

- Maritime Act of the 12th June, 1891, § 1 (SFS 1891:35 and 1906:19).

A foreign national may not be a member or deputy member of the board, or authorised signer of a Swedish railway company. Exemption is not admissible.

- Railway Companies Act of the 22nd June, 1911, § 4, (SFS 1911:53 and 1947:649).

A foreign national may not be a founder of a savings bank, a member or deputy member of the board, an authorised signer for the bank, auditor, deputy auditor, liquidator, deputy liquidator, liquidator's auditor or his deputy in a savings bank. Exemption is not admissible.

- Savings Bank Act of the 3rd June, 1955, §§ 4, 36, 37, 42, 53, 65 and 66. (SFS 1955:416).

A foreign national may not without special permission be a member of a local commons supervision board or a local economic board.

- Act of the 18th April, 1952, relating to district (hundreds) commons, § 23 (SFS 1952:166).
  Act of the 18th April, 1952, relating to forest commons in Norrland and Dalarna, § 22 (SFS 1952:167 and 1954:137).

A foreign national may not without special permission be either a member or a board member of a joint cultivation association.

- Act of the 30th April, 1948, relating to joint cultivation associations, § 4 (SFS 1948:218).

A foreign national may not without special permission be a partner in a trading partnership.

- Act of the 30th May, 1916, containing supplements to the act of the 28th June, 1895, relating to trading partnerships and simple partnerships (SFS 1916:159).

B. Corporations

A foreign corporation may not

be a founder of an ordinary limited liability company. Exemption is not admissible.

- Companies Act of the 14th September, 1944, § 4 (SFS 1944:705)

be a founder of a joint stock bank. Exemption is not admissible.

- Banking Act of the 31st March, 1955, § 4 section one (SFS 1955:183).

be a founder of an insurance company with limited liability or a mutual insurance institution. Exemption is not admissible.

- Insurance Act of the 17th June, 1948, §§ 5 and 167 (SFS 1948:433 and 1950:320).

be a founder of a savings bank. Exemption is not admissible.

- Savings Bank Act of the 3rd June, 1955, § 4 (SFS 1955:416).

form or join a partnership. Exemption is not admissible.

- Act of the 30th May, 1916, containing supplement to the Act of the 28th June, 1895, relating to trading partnerships and simple partnerships (SFS 1916:159).

IV. The right to transfer capital to and from Sweden

By virtue of the Currency Act of the 22nd June, 1939, § 1[1], the King in Council or in some cases after having consulted the Parliament or subsequently having its approval may issue exchange control regulations in the event of war or danger of war in which the Kingdom finds itself involved, or if in other cases when so is deemed essential to achieve the object laid down for the currency policy of the Riksbank or with regards to the foreign exchange position of the Kingdom. In § 2 are detailed the measures that may be prescribed by such regulations.

The Currency Act is, consequently, an authorizing act and by its authority the King in Council issued, on the 5th June 1959, the Exchange Decree [2], that contains i.a. the following rules. By virtue of § 2 dealings in foreign exchange are, in principle, reserved for the Riksbank. In order to export currency, proofs of claims and securities, permission by the Riksbank is required in principle (§§ 4 and 5). In principle permission is also required for import of foreign exchange and securities (§§ 6-8).

Foreign exchange, bank credits, claims or securities belonging to a resident in Sweden may not without the permission of the Riksbank be disposed of in such manner as to reduce the owner's holding thereof. Such permission is, however, not required when such holdings are offered to the Riksbank or to an exchange bank (§ 9). A resident in Sweden having a claim abroad or having incurred a payment liability in a foreign country may not grant respite for payment or defer payment or make agreements on payment with other than regular media of exchange unless it is warrented by trade practice (§ 10).

The Riksbank may grant exemption from these rules. The Riksbank is also impowered to issue rules for the application of the Exchange Decree, and also direction to the commercial banks, which, in their capacity of authorised exchange banks, have to carry out certain functions of the Riksbank by virtue of the Exchange Act. (See the Riksbank circulars and directions to banks).

It is not possible in this context to attempt to clarify the significance and effects of the exchange control in different fields[3]. Here will be considered only the usage that has developed in relation to capital movements. Informations about these matters were published for the first time in Memorandum No. 1, 1959, (page 49-50) of the Parliamentary Riksbank Committee. Hereunder follows an excerpt from that document.

Concerning the direct investments, that is the formation of subsidiary companies or the acquisition of a controlling interest of an existing company, it applies that requests from foreigners for permission to make such investments in Sweden is generally approved. Likewise the re-export of capital is generally approved when such an investment is liquidated. (See also below)

1) SFS 1939:350, 1940:613, 1956:149, 1957:251 and 1959:262
2) SFS 1959:264
3) A critical consideration of the juridical aspects of the exchange control has been published by Lars Hjerner: Valutalagstiftning och Valutaförvaltning i Sverige 1939-54 (Exchange Legislation and Exchange Administration in Sweden), Ekonomisk Revy 1955:3 page 135 and subsequently.

Direct investments abroad are generally permitted when not on a speculative basis for the formation of a company to sell Swedish products or for a production based on Swedish raw-materials or semifinished goods that is necessary on account of custom prohibitions or import restrictions abroad, which would obstruct the sale of the finished product. Also otherwise investment-requests are treated liberally and permission is in most cases granted for transferring funds to foreign countries for investing in productive enterprises. To investments in the dollar area, however, applies that it should generally be made probable, that the investment will promote the export or in other ways cause an income of foreign exchange in excess of the direct returns on the investment. Here it may be noted that through an agreement between the OEEC countries, they are bound to permit direct investments in the other member countries, if the investment is not considered harmful to the country, and also to permit the export of funds arising when liquidating such investments. The Swedes have inserted a clause of the content that re-exports of such funds are not permitted when the foreign exchange markets is not stabilized.

Concerning portfolio investments, that is purchases of securities with a pure purpose of investing money, it may be said that foreign portfolio investments in Swedish securities are generally considered not to be approved of primarily because an increased resale to Sweden of such securities might be a strain on the foreign exchange reserve in times of unstabilized foreign exchange markets. Permission to those who are considered foreigners with regard to our foreign exchange laws (not persons who have newly emigrated from Sweden, however) to exchange Swedish securities into other Swedish securities is granted - however, not for exchange of bonds into stocks. Furthermore, the foreign exchange authorities permit sale in Sweden from abroad of foreign holdings of Swedish securities, but only to a limited extent from the dollar area.

Swedish portfolio investments abroad are not permitted on account of the scarcity of funds in the Swedish capital market and the risks that capital rapidly and in great amounts may be transferred to foreign countries in situations when there are fears of a decline of the value of the Swedish crown or expectations of an increase of the value of foreign exchanges. The change of Swedish holdings of foreign securities into other securities is, however, generally granted with some limitations, i.e. generally not the change of bonds into stocks. In 1958 the limitation has been made that the change of German bonds into other securities than German bonds is not permitted. This is because the Germans buy back existing holdings of German bonds abroad. Nothing prevents Swedish holders to sell foreign securities abroad and to import the payment.

Concerning commercial credits which might also and to a great extent influence the balance of payment when changes in the ways of payment occur, it may be said that credits of a duration up to six months for exports from Sweden are generally permitted. The exchange authorities, however, do not refuse credits of longer duration. Swedish importers may take advantage of a normal credit from foreign sellers.

V. Fundamental aspects of liberalised capital movements and freedom of establishment in a common European market

The means available to natural persons and corporations to engage in trade etc., acquire property and form companies in a country other than their own are closely dependent on the opportunities for transferring capital from the latter country to the former. It is obvious that freedom of establishment may exist whether capital movements are liberalised or not, but such freedom is not likely to be of major economic importance if capital (in the form of exchange, property, licencefees and the like) cannot be freely imported or exported to or from the country where the foreign national or corporation intends to establish business. Otherwise those concerned would many times lack the means to utilize the assets they possess in the home country.

Conversely it can be established that a condition for the most favourable social-economic return of a free capital movement is freedom of establishment, even though in this context it is not of decisive importance. If freedom of establishment is lacking, direct foreign investments will clearly to a large extent fail to materialize. The importance of the remaining possibility for documentary investment should not, however, be under-estimated.

In principle it would appear obvious that a successive lowering of the tariff walls in Europe would ultimately entail the liberalization of private long term capital movements. By way of illustration it is desirable that the social-economic implications of free Western European trade be briefly recapitulated.

Free trade can be expected to contribute to an increase in income and thence in living standards by the effect which the expanded market will exert on the development of productivity. The improvement in productivity may be conceived as taking place in a number of ways. Removal of the European trade obstacles may create better conditions for large scale production which will tend to bring with it operational economies and larger resources for research and development. But of even greater importance will probably be the new facilities for international specialization, with every production unit being forced to concentrate on the kind of manufacture for which, relatively, it is best placed, resulting in the production of a smaller range of articles in larger series making possible the more effective utilization of special machinery, craftmanship, etc. A free trade has also a favourable effect by turning to better account available natural resources and raw material flows and may further be expected to increase productivity by stimulating a more intensive international exchange of technical experience.

If these advantages of European integration are to be fully utilized, free international capital movements will be of vital importance. The removal of trade obstacles will bring about a progressive shift in the transformation of the industrial structure which is in continous progress in Western European countries. From this it follows that

capital needs will show a relative increase within certain undertakings, industries and geographical areas simultaneously with a contraction in others. It will hardly be possible to satisfy within the framework of each country's internal capital market these internationally conditioned demands on neither the extent nor the direction of the capital supply. Hence it is possible by liberalized capital movements not only to prevent the provision of capital from becoming a bottleneck that eliminates a large part of the favourable effect of integration on economic progress, but to facilitate the re-adjustment process in such industries as will be particularly hard hit by the sharpened international competition.

The above concept of the necessity for liberalized capital movements is in principle independent of whether the rules of establishment are liberal or not. It should, however, be strongly emphasized that the means for utilizing the economic advantages of European integration will be greatly curtailed if restrictive measures are introduced in respect of the right of establishment[1]. The situation may also be interpreted so that the advantages outlined for free capital movements would apply to an even higher degree if full establishment rights are allowed, so that capital movements can embrace to the fullest extent not only documentary investments, but also direct investments. As an example, a technically high ranking concern, which has been forced by European free trade into an unfavourable competitive position by reason of its geographical production situation, would in this way secure the means to move its plant to another country where natural resources, the supply of labour etc., make for more favourable facilities - an essential condition to enable the undertaking to make full use of its technical know-how.

It must be fairly obvious that the capital movements which may occur "voluntarily" in a free international capital market, will be economically more advantageous to countries importing capital. The increased supply of capital brings with it better means to utilize natural resources and man-power. The position of the countries exporting capital, on the other hand, appears to be somewhat less certain. At short sight it might be thought that the rate of expansion would tend to slow down in these countries, seeing that it is always possible to count on strong demand for capital where there is full employment, irrespective of the resources of the country. A drain on capital should then mean that the investment increment per worker, and as a consequence the increase in productivity, should be somewhat slower than would otherwise have been the case. But this trend ought - in a freetrade economy - to be counteracted, and on the long view wholly outweighed by the indirect effects accrueing from the more rapid economic expansion in the countries importing capital. The export of capital may be accompanied by increased sales abroad of capital goods, e.g. machinery and power plant. The rising standard of living in foreign countries resulting from the import of capital may lead to expanding markets for the export industries. Moreover, the exported capital may give rise to new important sources of imports.

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1) In the Rome Agreement far reaching claims for freedom of establishment are made.

The long-term private capital movements have after World War II been very moderate in volume in Europe, but have increased in recent years primarily as a result both of the strongly expanding capital exports from the U.S.A. and the rising volume of international credits granted by both Western Germany and Great Britain[1].

The fact that the capital movements have not become more extensive during the last ten years, must be seen partly against the background of the restrictions which various countries apply in dealing with different forms of capital transfer. Another contributory cause is probably that economic and political conditions have been relatively unstable in most countries, which has reduced the potential investors' inclination to place capital abroad.

To the extent capital transactions are liberalized, a common European market will probably bring about appreciably larger capital movements. This will not only be a consequence of the transformation of the industrial structure outlined above which may be expected to follow the removal of trade barriers and should not in itself necessitate increased capital movements. But as the various countries will in all probability be forced to coordinate to some extent their economic policies - in excess of the coordination already necessitated by the convertibility of current payments - it is likely that the general disposition towards capital export will rise along with the partial elimination of politically inspired risks.

The volume and direction of future capital movements cannot be predicted. In the first place it is difficult to determine in advance in what ways the trade exchange will be influenced in the long run. In the second place the question will depend on the relative capital yield in various countries, apart from the changes in the European investment pattern that may be brought about by the common market. Capital tends, of course, on the whole towards such objects as provide the best returns. How the relative capital yields in various European countries will work out when in twelve to fifteen years time the Continent is a free-trade area is clearly impossible to forecast. The capital return in a country is in fact determined, except by natural resources, technical inventions and wages, by such things as the interest rate, company taxation, personal taxation on income of capital, incidence etc. It is therefore in a high degree affected by the objectives and direction of economic policy. Relatively, the capital yield will also depend, among other things, on the possible difference between the various countries regarding long term trends of consumption, e.g. adjustments in the direction towards consumer goods which require more capital.

Hence it is not possible to judge what effect a European free-trade area and the rules applied to it regarding free capital movements can have on capital imports to and capital exports from Sweden. There does not, however, seem to be any reason to fear that such capital movements will, in themselves, cause difficulties or have injurious effects. Apart from institutional investment conditions, capital transactions are, as has been said, dependent on economic policy which, among other things,

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1) The extent of the capital movements to and from Sweden in recent years is summarised in Appendix 1.

must be pursued on the basis of, or at least with regard to, the investment activities. To the extent that undesirable capital movements to and from Sweden occur in a future free capital market, this both can and should occasion a re-consideration of the whole economic policy.

Swedish capital export and import in recent years

It is not possible to give precise statistical details of Swedish capital imports or exports since the war. For this purpose both internal and international statistics are deficient. In general it can be said, however, that Swedish capital transactions with foreign countries have been on a very small scale in recent years. This appears to some extent from the below table which is based on the Riksbank statistics of the balance of payments.

Sweden's Capital Import (-) and Capital Export (+) 1950-1958 in millions of kronor

Capital transactions	1950	1951	1952	1953	1954	1955	1956	1957	1958
Long-term, including gifts etc. (net changes)	-31	+172	+132	+31	-117	+1	+113	+33	+25
Estimated advance and rear payments (net changes)	+412	-326	-108	-55	+75	-407	-485	-201	-352

The item "long term capital transactions" covers export and import of securities, payments under the 1946 Washington agreement, disbursements arising from EPU undertakings, quotas in the International Monetary Fund etc., utilizations and instalment payments of Swedish Government credits and other capital transactions.

With regard to the different items the following may be said. Exports of securities (i.e. long-term private capital import) have ranged between 45 (1953) and 145 (1958) million kronor, whilst imports of securities have fluctuated between 45 (1951 and 1952) and 160 (1958) million kronor. Among current security transactions it may be noted that in 1953 and 1954 the Norwegian government issued two loans on the Swedish market each of 50 million kronor.

Under the heading "Dispositions of Swedish Government credits" a relatively large capital export (77, 150, 171 million kronor) is reported for 1950-1953, which probably was connnected with deliveries under the 1946 Russian agreement. For 1954 there is under this head a capital import of 123 million kronor, which was largely a consequence of the two Swedish State loans in Switzerland of that year, totalling 110 million Swiss francs.

"Estimated advance and rear payments" (what is known as the adjustment entry), refers to the result of changes in commercial credits and differences arising from shortcomings in the statistical material. The significance of this entry, which in the Riksbank accounts is simply shown as the difference between the real and the theoretical changes in the exchange reserve, is very imperfectly understood. It is possible that to some extent it also incorporates prolonged credits. Bengt Metelius points out in "Foreign transactions and the Swedish economy" (SOU 1955:13 page 24), that a good many transactions in that intractable field of capital movements never come to the knowledge of the exchange

control office. To this should be added - and it is probably even more important - that even within the framework of the exchange control there are ample facilities for entirely lawful variations in the commercial credits.

To the private capital exports and imports naturally the same quantitative difficulties apply as to the capital movements in other sectors. Apart from the deficiencies of the statistics on the balance of indebtedness and assessment of the scope of direct investments is made difficult or impossible by the fact that to a certain extent these investments do not result in exchange transactions.

The following are the different types of direct investments in foreign countries.

1. Transfer of private cash
2. Transfer of own machines, finished or semi-finished goods on consignment, etc.
3. Re-investments of profits in foreign countries
4. Transfer of loan funds (private loans to foreign natural person or corporation)
5. Loans in foreign countries for local investments there.

In the Riksbank Committee Memorandum No. 1, 1959 (pago 50) the following break-down is made of the permissions granted for direct investments abroad 1955-1958 (million kronor):

	1955	1956	1957	1958	Total 1955-58
The dollar area	22,5	29,3	74,1	60,8	186,7
Other countries	114,1	106,1	17,2	110,0	447,4
Total investments	136,6	135,4	191,3	170,8	634,1
Thereof so-called under-developed countries	64,7	68,4	61,5	91,8	286,4

According to the Memorandum the amounts include new subscription and increases of share and partner capital as well as advances and certain prolonged commercial credits. The transactions have taken place as money transfers, transfers of recoverable property or else exports of goods, and also by disposing of claims in foreign countries or other outstanding credits abroad or - to a small extent - by taking loans in foreign countries.

It cannot be said to which extent that the above figures are reliable. However, there are reasons to assume that the direct investments in foreign countries have been larger during the period since permission by the exchange authorities is not required for re-investments in subsidiary companies abroad. No information is available with regard to private capital imports for direct investments.

6. Particular Government measures that influence investment in the period

The following very important changes in economic policy took place during the investigation period.

a) At the beginning of 1955 the Swedish Government imposed a 12% tax on all industrial investments of more than 20,000 Swedish crowns per enterprise. Public companies were exempted from this special investment tax which lasted three years. Because of the tax, investment in private enterprise was considerably reduced during this period.

b) The same year the corporation state taxes, which are levied at a flat rate, increased from 40% to 50% for all joint-stock companies. Thus, from 1955 until the end of the investigation period, the state income tax rate for joint-stock companies was fixed at 50% of annual net profits less deducation of local income tax payments. Joint-stock companies do not, however, pay a state capital assets tax.

The profits of Swedish joint-stock companies are subject to double taxation. First of all, companies must pay a local income tax of, on an average, 13.5% on their taxable profit. After subtracting the amount of the local tax from their taxable profits, the companies pay the state income tax on the remaining profits. Together, these taxes reduce company profits by, on the average, about 57%. Secondly, shareholders must pay local and national income taxes on dividends received as well as a state capital assets tax on the value of the shares owned.

This high taxation rate makes the issuing of new shares a very expensive way of financing new investments.

c) Furthermore, the methods of writing off machines and other equipment and commodities stocks were tightened during 1955. Under the new laws the companies are still permitted somewhat to even out profits and losses between various years but they are not permitted to reduce one year's taxable profits by the loss sustained in a previous year.

Capital assets, which are subject to such rapid consumption that they have no presumed economic value after three years of use, may be totally written off in the year in which they are purchased.

The law specifies two methods for figuring depreciation and each year a company may choose that method which is most advantageous to the company. The first method states that machinery and plants may

be anually depreciated one third of the current book value. The second method states that each year an asset may be depreciated 20% of its purchase price. This second method is mathematically necessary in order to depreciate an asset to zero and makes it possible for the company to depreciate any machine or plant to zero in five years' time. From 1938 until the beginning of the fifties the writing-off methods for tax purposes were estremely liberal. This meant that a new machine, regardless of how expensive, could be completely written off the year it was purchased.

Under the new laws, a building may not be written off faster than what corresponds to the economic duration of the building.

Commodities stock may not be valued at a price lower than 40% of the value when bought, calculated either on a first-in-first-out basis or the present market value, whichever is lower. This means that the commodities stock may be written down a maximum of 60%. Before 1955 the Swedish taxation authorities had a rule-of-thumb stating that the commodities stock could not be valued at a price lower than 30% of the first-in-first-out value. An important provision today states that raw material or staple commodities may be calculated at the lowest market value which has occured during the last nine years. That lowest value may then be written down 30%.

d) Finally, it should be mentioned that the discount rate was raised by the Bank of Sweden 1% in April 1955 (from 2.75% to 3.75%), 0.25% in the autumn of 1956, and still another percent in the summer of 1957. It was subsequently lowered 0.5% in the autumn of 1958. It also became more difficult for Swedish commercial banks to lend money to the industry in 1955 because of government stipulations that higher cash reserves should be kept on hand.

All of the tax increases and regulations which took place during 1955 were due to the inflation scare. They resulted mainly in less favorable self-finance possibilities for Swedish industry. Consequently they affected the investment policies of industrial firms.