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National Income
of Sweden
1861 - 1930

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No. 5 a.

NATIONAL INCOME OF SWEDEN

1861—1930

IN TWO PARTS

WAGES, COST OF LIVING
AND NATIONAL INCOME
IN SWEDEN 1860—1930

BY THE STAFF OF
THE INSTITUTE FOR SOCIAL SCIENCES,
UNIVERSITY OF STOCKHOLM



VOLUME III
NATIONAL INCOME OF SWEDEN
1861—1930
PART ONE

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NATIONAL
INCOME OF SWEDEN

1861—1930.

BY

ERIK LINDAHL

EINAR DAHLGREN

KARIN KOCK

PART ONE

PREFACE.

The present publication constitutes Volume III of the series of studies on Wages, Cost of Living and National Income in Sweden 1860—1930. It contains the results of the investigations on the National Income of Sweden 1861—1930, carried on at the Institute for Social Sciences in the University of Stockholm. This volume is published in two parts. Part I contains a theoretical discussion of the income concept, a survey of the methods used, and an analysis of the results of the investigations. In Part II information on methods and calculations is given in greater detail.

Professor Erik Lindahl is responsible for the planning of the inquiry, and has written Chapter I and, together with Mr. Einar Dahlgren, Chapter II. Mr. Dahlgren has taken an active part in the whole work and has undertaken several independent investigations. He has written Paragraphs 8—11 of Chapter III on manufacturing, mining and handicrafts, and Appendices A, C, D (except the paragraphs on handicrafts, trade statistics, and production costs), E (residential building and public roads), F (except railway traffic), G (banking and state insurance), I, J (dwelling), K and L (merchandise, shipping, and gold statistics). Mr. Ture Göransson has undertaken part of the statistical work, especially in connection with Appendices B (vegetable production), D and F (railways), and has written parts of Appendix D (trade statistics and production costs). Dr. Karin Kock has been responsible for the completion of the work. She has acted as editor and has written Chapters III (with the above exception) and IV as well as the remaining parts of the Appendices. Miss Maj Ahlberg has assisted in the statistical work. She has plotted the charts and seen the book through the press.

PREFACE.

I take this opportunity of thanking all the numerous agencies and private persons who have generously placed material at the disposal of the Institute, and who have given their advice on the work, or read parts of the text.

As already mentioned in Volume I, all the studies on Wages, Cost of Living, and National Income have been financed by the Rockefeller Foundation.

Stockholm, June 1937.

Gösta Bagge.

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CHAPTER I.

"NATIONAL INCOME", THE CONCEPT AND METHODS OF ESTIMATION.

FUNDAMENTAL DEFINITIONS.

I. *National Income as the Total Income Produced in a Country, or the Total Income Received by its Inhabitants.*

By national income is to be understood here the sum total of such individual items of income that are connected in one way or another with a given country.

These items may be connected with the country either in that they derive from agents of production within the country, or in that they are received by its inhabitants, defined for instance, as every person who is a registered resident in the country.

In a closed community, the total income from all agents of production within it would coincide with the total income received by its inhabitants. In reality, however, when income from the agents of production in one country may be received by inhabitants of another, the two totals need not necessarily agree. In order to arrive at the total income received by the inhabitants of a country, the income received by them from capital which they own abroad must be added to, and the income drawn from the country by foreigners deducted from, the total income from the agents of production within the country. The point at issue is not merely one of different methods of assessing the national income, but of two different national income concepts that must be clearly distinguished.

The difference between them once defined, either concept may be used as the starting point of an analysis of

the national income. The one can be determined from the other simply by adding or deducting the difference between the income received from abroad by residents in the country and the income received from the country by residents outside its boundaries.

For several reasons it has been considered most expedient here to base the calculations on the first definition of national income, i. e. the total income from agents of production functioning within the country.¹ Unless expressly stated otherwise, national income thus means the total income derived from a given country in a given period.

2. *Income Defined as the Exchange Value of Services less Allowance for Consumption and Depreciation of Goods.*

To define more precisely the scope of the term national income, it is first necessary to decide what should be understood by income generally. As the problems connected with the concept have been discussed elsewhere², a brief summary of the main points will suffice.

Taking as a basis in the first place Irving Fisher's definition of income as a flow of services, and assuming that these services should be assessed according to their exchange value during the period to which the calculation of income relates, one main problem still remains to be solved: how is double counting to be avoided when adding up the services resulting in the production of goods, and the services rendered by these goods³?

The problem can be solved in several ways:

1) The principle underlying Irving Fisher's own solution is that only services leading to the direct satisfaction

¹ The term is here used in a sufficiently wide sense to include also vessels owned by Swedish shipping firms engaged in foreign trade. Corresponding services rendered in Sweden by foreign vessels are on the other hand not included.

² See LINDAHL, E., *The Concept of Income*. Economic Essays in Honour of Gustav Cassel. — As shown in this paper, income can be defined either as a flow of services or as a flow of value increase, that is, as interest accruing on a capital value. The former concept is developed here, though the latter one seems to be more consistent from a theoretical point of view.

³ It is assumed that services are rendered also by non-durable goods, when they are used up in the production and consumption processes.

of some desire should be included in the net income. Other services resulting in the production of goods are of course credited the agent of production rendering them, but are at the same time debited the goods receiving them; they will therefore enter the calculation as both credit and debit items, and cancel out. The total net income will consequently correspond to the value of consumption.

2) On the same assumptions, however, another procedure is possible, by which the formation of new capital is also included in the net income. Services resulting in the production of goods need not be debited the goods in the period in which they are rendered, but the debiting may be postponed until some later period, when these services mature into new services as the goods are used in production or consumption. All services — including those by which new goods are produced — that are rendered during the period for which the income is to be computed, are thus included, but from the value of services maturing through the utilization of goods the cost of reinvesting the corresponding services is instead deducted. The cost of reinvestment is here supposed to be calculated at current prices of the goods used and not at prices prevailing in the period when the goods were produced. The total net income will thus include not only the value of consumption but also the amount by which the value of the new goods produced exceeds the said allowances for goods being consumed or utilized.

By this method, income will thus be equal to the exchange value of services rendered during the period, less the value of non-durable goods used up — which can be assumed to be equal to the services rendered by them — and the depreciation of durable goods due to their utilization in production. The following points should be noted with regard to this income concept.

Firstly, the value increment due to accrued interest will only be included in the income in the period during which it is realized through the invested services maturing as new services. This item is equal to the amount by which the gross

yield of the capital goods exceeds the value of the corresponding reinvestment (reckoned in prices current during the period).

It should also be noted that any capital appreciation or depreciation that is due to incompletely foreseen events is excluded from the net income as here defined, in so far as it does not alter the difference between the value of the services rendered and the cost of reinvestment. Before the services begin to mature, such gains and losses will not enter into the calculation at all, any more than the accrued interest. During the period of maturing, on the other hand, they affect both debit and credit items, and thus for the most part cancel out. This is a consequence of the fact that in the period for which the income is calculated current prices are used in estimating both the services that are maturing and those that have to be reinvested to replace them.

3) Even if the second income concept is used, it may be expedient when applying it to some particular case to modify it to some extent in the direction of the first concept — on the one hand by excluding from the income calculation services resulting in the production of capital goods, and on the other by making no corresponding deductions in calculating the income from these goods.

This method of computation is primarily of use in respect of the personal capital represented by labour. In so far as direct expenditure (e. g. special costs of occupational training) for the formation of that capital can be computed, this is not included in the net income, while on the other hand earnings are calculated without deduction for any depreciation of the value of the personal capital.

It is, however, permissible to use the same method in respect of external capital goods also, i. e. in cases where it is particularly difficult to evaluate the services invested. If, for instance, the amount invested in a certain industry cannot be determined, the difficulty can be overcome by excluding the whole item, provided no corresponding deductions are made when calculating the relevant income from the said industry.

This modification of method 2) really only implies that, when calculating the income, the inclusion of the invested services is postponed from the period when the services are rendered to a subsequent period when they mature into products. But this will affect not only the distribution of the income in time, but also its absolute amount, as the evaluation of the invested services is now based on the prices current during the period when they mature, and not, as before, on the prices during the period of investment.

The income concept defined under 3) is probably the one generally used in computing national income, and has therefore been used as a basis for the following calculations.

3. *Four Methods of Estimating National Income.*

In order to estimate the national income, the exchange values of all services rendered in a given period by all the agents of production within the country must thus be added together, and the value of all goods used up as well as the depreciation of durable goods deducted.

This calculation can be made in different ways.

One method is to determine, for each of the production processes into which the agents of production are combined, the value of everything produced by it, and to deduct from this the value of services received during the production process from agents in other industries, in whose product value such services have already been included, as well as the value of goods used up and the depreciation of all durable goods used in the process.

A second method is to calculate the value of the goods and services that are the net result of all production processes during the period. This is obviously equal to the sum total of consumption and net real investment in the country, adding any export surplus or deducting any import surplus relevant to the period.

A third method is to take the different agents of production directly, and to estimate the exchange value of their services as the income received by the owners in return for these services. With regard to income from

capital, allowance must be made for the consumption and depreciation of capital goods, and nothing but the actual interest on the capital included in the calculation.

Finally, the population of the country may be used as a basis, and all the net incomes of individuals added up. By deducting from the total income of the population any incomes derived from other countries, and adding to it all income received by foreigners from agents of production within the country, the same result would be achieved as by the three former methods.

Below, the significance of each of these calculations will be examined more precisely.

NATIONAL INCOME AS THE AGGREGATE EXCHANGE VALUE OF PRODUCTION PROCESSES.

4. The Significance of the Calculation.

When computing the national income by the first of these methods, the value of the products resulting from each production process must first be calculated. The fundamental principle is that everything possessing an exchange value must be included, and evaluated by the relatively fixed measure provided by current market prices. This is essential in order to give to the estimate of the national income that stability which constitutes its value as a basis of economic analysis. As will be shown below, it is sometimes difficult to apply this simple principle consistently, and the nature of the difficulties differs in the spheres of an exchange economy, of a collective economy, and of an economy of individuals producing goods and services for their own account. The product values, estimated in this way, are the positive items of the national income calculation.

The next requirement is to calculate the debit items. It has already been said that in each production process the debit items consist partly of the value of services received from other production processes operating at the same time, and partly of the consumption and depreciation of capital

goods used in the process. This latter allowance must of course be differently estimated for raw materials, semi-finished products, fuel, or other goods that are wholly consumed in the production process, and for durable goods in use for longer periods. For the former, the total exchange value of the goods consumed has to be calculated, while for the latter the amounts to be written off their capital values must be determined.

The difference between the positive and negative items in each production process represents the contribution to the national income made by the agents of production engaged in it. The total national income will thus be the sum of all the different net incomes.

5. *Positive Items in an Exchange Economy.*

Considering first the products involved in an exchange economy, the calculation should be based on the actual prices paid or, if no sale has yet taken place, on current market prices.

The same principle should also be applied where commodity prices are kept artificially low by maximum price legislation combined with rationing, or — conversely — where they have been obviously inflated on account of the monopolistic position of the producers. Other prices might of course be used for these estimates, and would result in a correspondingly higher or lower value of the national income. The main point, however, is that the prices on which this computation is based should be the same as those used in constructing the price indices by which the subsequent corrections for changes in the value of money are determined. But to have any definite meaning, the price indices must reflect the fluctuations of market prices, and this is an important reason why the latter should be used also in the calculations on which the estimate of the national income is based.

The same point of view may be applied to any interference with free pricing by indirect taxation. If the prices of certain goods have been raised by tariffs and

excise duties, the actual current prices should still be used in computing the product values. The product value of such industries as produce commodities subject to excise duties will thus include any dues so paid. One consequence of this will be that the net income of such industries will exceed the incomes of the agents of production employed in them by the amount of the excise duty. (Cf. below, Paragraph 14).

In so far as the State, by direct subvention, pays part of the cost of private production, the same principle should be applied i. e. the product value should be included at actual market prices, although these are lower by the amount of the subvention than the total income of the agents of production employed in the industry.

6. *Positive Items in a Collective Economy.*

In respect of the contribution to the national income of public activities, the principle of assessing the positive items should be the same as in that part of an economy which is concerned with private enterprise, i. e. they should be reckoned at the market price of the services or commodities produced in the period under review. Where the services or commodities are supplied to the public against payment, the analogy is complete, but when estimating the value of collective activities in the strict sense, the results of which fall outside the sphere of exchange, the value must be based on the cost to the members of the community. These costs include everything in the nature of salaries, wages, and services of durable goods, whether represented by cash expenditure or by the utilization of publicly owned durable goods.

If the calculation of the positive items of public activity is based on actual cash payments, these payments must on the one hand be increased by the utilization value of publicly owned durable goods, and on the other hand reduced by certain important debit items, viz.:

1) All expenditure on poor and other relief directly consumed by the recipients must be deducted. The recipients

render no services in return for what they consume, and there is consequently no corresponding increase in the national income. In so far as the expenses include salaries of officials engaged in social work, they constitute an addition to the national income, and must not be deducted.

2) Interest on and amortization of public debt are not included. If the borrowed money is invested in plant, actually in use, the yield of this is already included in the national income, and the inclusion of the interest would thus be an obvious duplication. But in so far as the loans have been used to pay for previous public consumption — as was the case with the large loans raised during the War to meet expenditure on armaments and the maintenance of neutrality — it might be held that the interest forms part of current State expenditure, which should consequently be included in the national income at a correspondingly higher value.¹

But this is opposed to the principle on which all evaluations are made here, i. e. that they should be based on current market prices, whether or not they agree with the actual costs incurred in an earlier period. It should also be observed that if the interest paid by the State were included as expenditure for current administration, this would also affect the price index used to express the national income in a stable value of money. But these indices, as usually constructed, do not take into account such costs of public activities, and from this point of view also it is therefore more consistent to estimate these costs on the usual principles, wholly excluding the interest.

3) When estimating the contribution of public activities, any costs of purchasing durable goods should of course also be deducted, as their utilization is included in the value of public services.

¹ Cf. *Income in the United States (1921 and 1922)*, Vol. II, p. 12—13, where the inclusion of such interest in the national income is justified by the corresponding advantages to the taxpayers of the delay in repaying the capital. This argument is perhaps most easily refuted by a *reductio ad absurdum*, for it may be applied with as much force to the inclusion in the national income of interests on loans invested in plant actually in use, although the yield of the plant has already been taken into account, since in this case, too, we may speak of "the benefit to the taxpayers" of being given a respite from repaying the capital.

7. *Positive Items in the Economy of Individuals Producing for their own Account.*

Such products, finally, as neither enter into exchange nor are characteristic of a collective economy, but rather form part of the private economy of the individual, should also be estimated on the basis of current market prices. The agricultural produce retained by farmers for their own consumption, for instance, is to be evaluated on this principle.

Much work done by people for themselves or, from altruistic or other motives, gratuitously for other persons, have no actual market value, although they naturally are of personal value to both parties. On principle, such services should not be taken into account in a numerical estimate of the national income. When speaking of the national income in a real sense, it may of course be held to comprise all services resulting in psychic income, irrespective of whether they can be evaluated in money or not. But when the object is to obtain a definite measure of national income, arbitrary standards for the evaluation of services must not be adopted, and it is therefore necessary to restrict the calculation to such services as can be measured in money at current market prices.

It is not easy, however, to apply this principle consistently, for the border line between services that have a market value and those that have not is not only not amenable to strict demarcation in any given instance, but also varies from time to time. In many important cases — above all in respect of the large item of domestic services rendered by wives and daughters — it has therefore been necessary to resort to the expedient of drawing a conventional border line, keeping this unaltered throughout the period covered by the comparison.

8. *Deductions for Services Received.*

Various difficulties are also met with in the computation of the debit items.

The general principle is that deductions should be made for services received during a certain production process

from agents of production employed elsewhere, and that these deductions should be reckoned at the current market value of the services, which value has been entered as a positive item elsewhere. This presumes, however, that the services in question are not used in the production of durable goods subject to the usual allowance for depreciation, which is the only deduction to be made from the gross income in respect of the durable goods used in a certain production process (cf. Paragraph 10). The services considered here must thus either directly promote production during the period, or create capital in respect of which no future depreciation is calculated.

It is particularly difficult to apply this rule to the public services provided to assist private enterprise. The point is here to determine how much of the current public expenditure should be included in the total production costs of agriculture, manufacturing, and other industries.

If the rates and taxes paid annually by private producers corresponded to the annual value of the services rendered to them by the public activities, it would only be necessary to deduct these rates and taxes when calculating each productive contribution. But this is not so, at least not in Sweden. The costs of the public services can for one thing be met by other means than by rates and taxes, and for another the correspondence between the allotment of the rates and taxes imposed, and the services rendered in return for them, is by no means identical.¹

¹ In the American inquiry, certain taxes actually paid have been deducted in the calculation of the contributions of the different industries on the principle that "taxes which are added to selling prices should, and that taxes which are not added should not, be deducted from the value products of the industries taxed". (Income in the United States, I, p. 55). The objection to this distinction is of course that the question of transferring the burden of taxation to the consumers is irrelevant to the question whether they should be deducted as items of cost. If by taxing tobacco and spirits — which by increasing the prices of these commodities would transfer the tax burden to the consumers — the State procures money for paying school teachers and other officials, who chiefly serve the inhabitants of the country in their capacity of consumers, these taxes should not be deducted, as the national income should include both the value of public services and the value of the tobacco and spirits produced. True, the latter values are increased by the indirect taxes, but this is compensated by corresponding increases in the price index.

The only possible solution is therefore to estimate, on the basis of current expenditure on public services, how much of these costs can be imputed to services rendered to producers, and to consider that amount a debit item common to all industries. The result might then be divided and allotted to the various industries according to some conventional principle.

As many important branches of the public services, e. g. the judicature, both promote production and are of direct benefit to consumers, it will of course be impossible exactly to allot the costs to production and consumption. Occasionally it is perhaps possible to solve the problem roughly on the marginal principle. But frequently we must be satisfied with establishing the fact that the costs are common, and that they can only be allotted to producers and consumers on some conventional basis.

The main point is then to follow some definite, though arbitrary, principle. That will at any rate give some idea of the trend of the contributions from the different industries and of the total national income, although certain factors in the calculation of the absolute level of these items will be arbitrary.

The net value to the national income of the public services will thus only correspond to that part of the total costs which relates to the direct benefit of these activities to the members of the community in their capacity of consumers, and to what is employed for public investment, whether for production or consumption purposes.

These remarks relating to the public services are also to a great extent applicable to certain other services falling within the sphere of ordinary exchange economy.

9. *Deductions for Goods Consumed in the Process of Production.*

The value of raw materials, fuel, and other transient goods used in the production process, but derived from other industries and accounted for there as positive items, must be deducted from the gross income. The prices pre-

vailing when estimating the product value must be used in computing the value of these debit items.

This value may differ by a greater or smaller amount from the value of the same commodities when produced, including subsequent costs of transport, interest, and storage, i. e. the value at which they were entered as positive items elsewhere. Unforeseen price fluctuations may occur in the time between the completion of such transient goods and the completion of the goods in the production of which they are consumed. Their physical properties, too, may be changed by unforeseen events, causing a similar divergence between production costs and the value of the goods when used. These differences are capital gains or losses, and according to our definition of income they must be both debited and credited to the income, so as not to be included in its net value.

10. *Allowances for the Depreciation of Durable Goods.*

According to the definition of income adopted here, the amounts written off the value of durable goods in any given period should, theoretically, correspond to the concurrent costs of reinvesting services equal in value to the services which have matured in the same period through the use of the durable goods.¹

The full significance of this will most easily be realized if the simplifying assumption is made that the cost of reinvestment is left unchanged. Then, the sum of the amounts written off must obviously equal the original cost of the durable commodity. How to allot this total to the different periods can only be determined conventionally. Assuming that the durable commodity yields a uniform flow of services throughout its lifetime, it would be justifiable to spread the total amount uniformly over all the periods, i. e. to write off in each period an amount equal to

¹ This presupposes, however, a) that the capital values are credited to the production processes resulting in the production of such durable goods (cf. above, Paragraph 2, clause 2), and b) that these capital values are not immediately deducted as costs of production in the processes in which the durable goods are to be used (cf. above, Paragraph 8).

the original price of the commodity divided by the number of periods covered by its total length of life. This method is especially suitable in a computation of the national income, when depreciation allowances have to be estimated for the whole stock of durable goods in the country. If there are in each category of durable goods approximately equal numbers of the same age, i. e. under comparatively stationary conditions as assumed above, the different methods of calculating the depreciation allowances will lead to approximately the same result for the stock as a whole, and it is therefore best to adopt the simplest possible of these methods.

If, still presuming prices unchanged, it is assumed that the yield of the stock of durable goods varies from one period to another owing, for instance, to partially foreseen cyclical variations, the above simple method will not give the same result as other, theoretically more attractive, methods of assessing the depreciation. For whether the capital value is spread over the different periods so that the yield in each period corresponds to the amount written off plus interest accrued thereon — which would be most in accordance with the fundamental principle stated above — or so that the amount written off corresponds to the actual value decrement in each period, the amounts written off in each period will bear a certain proportion to the fluctuating yield. As, from a practical point of view also, it is expedient to write off more in good years than in bad, there are weighty reasons why the allowances for depreciation should be calculated as a certain proportion of the actual yield of the capital, defined as the ratio of the average allowance for depreciation (original cost divided by duration of life) to the average yield.

This principle for determining the rate of depreciation requires only a slight modification if the assumption of unchanged prices — which relates not only to the durable goods actually used, but also to such durable goods as might be substituted for them — is abandoned. In so far as the price changes are due to only partially foreseen eventualities, with corresponding losses or gains to the owners, it neces-

sarily follows from our definition of income, that the rate of depreciation in a particular period should be increased or decreased according as the new buying price is larger or smaller than the old. But in so far as the variations in capital values are due to changes in the expected yield of the durable goods, the amounts to be written off may be computed as the same percentage of the yield as before; the depreciation allowances will then vary in the same way as the capital values. It is also conceivable that fluctuations in capital values may be due to changes in the rate of interest at which the yield is capitalized, or to a change in the expected length of life of the goods. The prices current in the period in question must then be used, and the calculations corrected accordingly. Generally speaking, therefore, the amount written off in any given period must be so many per cent of the annual yield of the capital as correspond to the ratio of average depreciation to average yield, computed on the basis of the prices current in that period; but, as stated above, it is only in the last two cases that there need be any divergence from the general principle established.

Finally it may be pointed out that the principles outlined above may be applied analogously when the value of non-manufactured durable goods (e. g. certain natural resources, such as mines), or of durable goods the production costs of which are irrelevant to the income calculation, is reduced by the production process. A certain "initial value" of the durable goods, corresponding to the costs actually incurred in other cases, may then be constructed, and may further be conceived of as gradually "maturing" into the yield of subsequent years, which should hence be reduced by corresponding deductions for depreciation.

NATIONAL INCOME AS A TOTAL OF PRODUCT VALUES.

II. *The Significance of the Calculation. Consumption and Investment in a Closed Community.*

So far, the national income has been regarded as the aggregate of the contributions of the different production

processes, each calculated as the difference between some credit items (the value of commodities and services produced) and some debit items (the value of services received from other production processes and the consumption and depreciation of capital goods). The positive and negative items obtained when calculating the income on this method can obviously be split up and combined in such a way that the national income appears as an aggregate of the values which, for each category of goods and services, indicate the excess of production over and above what is used up for productive purposes.

Such an analysis of the national income is of interest primarily because it makes possible a closer study of total consumption and investment in the community.

If, to begin with, the complications introduced by foreign trade are disregarded, and the community is assumed to be closed, the total income in a given period will of course equal the sum total of consumption and net investment. The consumption group will include all services and non-durable commodities produced in the period that are ready for consumption, i. e. capable of satisfying, without further processing, human wants, to which must be added any consumption from existing stocks (similarly, any increase of stock must be deducted). The investment group comprises the balance of the net products, i. e. all items in excess of consumption, and consequently involving a corresponding increase in the stock of goods, whether consumers' or producers' goods. Services that do not directly benefit the ultimate consumers, but only promote production, as well as goods used in the process of production, will not affect the final sum, as the positive and negative items will cancel out completely.

In each of these two groups the components of income can be studied in detail. Total consumption, for instance, may be divided into the groups food, clothing, housing, etc., and in the investment group the following subdivisions may be distinguished: net increase of stock of non-durable consumers' or producers' goods, and excess production of durable goods over total amount written off. Divisions on

other lines may of course also be of interest, e. g. in respect of different industries, of the average duration of the investment period, etc.

The fundamental definition of income delimits the amount of net investment computed in this way. For instance it will not include any increase of value due to accrued but not yet realized interest, nor the value of such invested services, as will not be credited to income until later, although if income is taken in its wider sense they actually are savings. But most of the finished durable goods will be included in the calculation, and it is of course of great interest to have this group delimited, as these durable goods will cooperate with other agents of production, and thus be of special importance in the pricing of their services.

It should also be remembered that the net investment in a certain period need not necessarily represent the difference in the value of the stock of durable goods at the end and at the beginning of the period. The reasons for this are that the increments just mentioned are not included in the calculation, and that changes in the value of the stock may also be due to capital gains or losses that are not included in the net total income.

12. Consumption and Investment under International Conditions.

In the case of a country trading with other countries, it is also possible to calculate as above for different categories of goods and services the excess of production over and above what is used for productive purposes. And, as before, the net items can be classified according as they serve consumption or investment. But this will give no measure of the total consumption or investment within the country, as part of the goods and services produced in the country is exported, while other goods and services are imported from abroad.

The calculation must therefore be supplemented in the following manner. Firstly, the net value of goods and ser-

vices produced in the country as explained above (the gross product values less what is used for productive purposes) are reduced by the export values, similarly classified. The total income from the country can then be divided into: inland consumption (A), inland investment (B), and exports (C). Secondly, the import figures are analogously classified according to their use for consumption (a) or for investment (b). The sum of (A) and (a) will obviously equal the total consumption in the country, and the sum of (B) and (b) will give the total investment in the country.

The total income from the country ($A + B + C$) need not agree with the sum of the total consumption and the total investment in the country ($A + a + B + b$). It will only do so if exports equal imports ($C = a + b$). If exports are larger or smaller than imports, the total income from the country must be reduced by the export surplus or increased by the import surplus in order to represent the sum total of consumption and investment in the country.

NATIONAL INCOME AS A SUM OF WAGES AND INTEREST ON CAPITAL.

13. *The Significance of the Calculation. Complications in a Collective Economy.*

The net values derived from the various production processes, calculated by the first method of estimating the national income as the residue of the product values after certain deductions, are the results of the services performed by the agents of production directly employed in each production process. (In respect of durable goods, however, a deduction must be made for reinvestment.) In any given case, therefore, these net values must agree with the incomes received by the owners of the agents of production in return for their contributions, provided that in both cases the computation is made on analogous principles. The total national income can therefore evidently be com-

puted by directly estimating and adding together the incomes in question.

In comparison with the first of the above methods of computing the national income, this last one will lead more directly to the goal, and it has also the advantage of making possible a classification of the national income into different kinds of income. On the other hand, it gives no information as to the nature of the products included in the national income, and consequently does not permit a study of the extent of consumption and investment. In the following it is assumed that this method is used to supplement the others, in order to illustrate the distribution of the national income among the different kinds of income.

We shall begin by discussing some complications which arise in the application of this method to a collective economy.

Firstly, the contribution from public activities to the national income also includes the interest yielded by publicly owned durable goods. In order to correspond to the exchange value of the total contribution to the national income, the income from the agents of production employed in public activities must of course include this revenue, although its nature differs from that of the income received by individuals qua owners of agents of production.

According to the preceding methods, the contributions to the national income from the agents of production employed in private production processes should be calculated, inclusive of all rates and taxes paid, but with a general deduction for the costs to the State of promoting private production. But as income paid out by the different industries to the owners of agents of production is usually reckoned, that deduction is more or less formally determined, all rates and taxes paid directly out of the income received by each individual being included, but not those (excise dues, and the like) that are of the nature of manufacturing costs.

If such payments, which reduce the incomes of the agents of production, were to correspond exactly to the estimated costs of public cooperation, the total incomes accruing to

the agents of production employed in private production processes would obviously agree with the total contributions thus made to the national income.

In reality, however, the costs to the public authorities of promoting industrial production need not agree with the taxes debited this production in the form of excise dues. Public expenditure for these purposes may be partly covered by direct individual taxation, or, inversely, part of the excise revenue may be used to meet expenses that directly satisfy some want of the members of the community. The aggregate income of the agents of production, calculated in the usual manner, must then be reduced by the amount by which public expenditure for promoting private production exceeds the excise revenue, or increased by the amount by which that revenue exceeds the same public expenditure. Not until it is modified in this respect, will the total income be equal to the aggregate contributions to the national income of the agents of production.

14. *Contractual and Entrepreneurial Incomes. Wages and Interest on Capital.*

The various agents of production to which the income discussed here is to be attributed may be classified in different ways.

The economic character of the incomes makes it natural to divide them into contractual and entrepreneurial incomes. In so far as the agents of production taking part in a certain production process are not the property of the entrepreneurs, they will be paid in accordance with the agreement made between the entrepreneurs and the owners of the agents of production. These contractual incomes are not as a rule immediately dependent on the size of the productive contribution resulting from the production process. The amount of that contribution, however, will determine the income accruing to the entrepreneurs themselves as owners of the other agents of production, and may be regarded as a return for the services rendered by these agents, since entrepreneurial income or profits may

be defined as the amount by which the exchange value of the productive contribution exceeds the sum total of the contractual incomes.

Another and very significant way of dividing income is into wages and interest on capital in a wide sense. All returns for services rendered by individuals are regarded as wages which thus will include also salaries and all returns for services rendered by durable goods, including natural resources, less costs of reinvestment, as interest on capital.

As far as contractual incomes are concerned, there are no theoretical difficulties in distinguishing wages from interest on capital. Contractual wages are the full agreed returns for personal performance. Contracted interest on capital should primarily be considered as any interest actually paid by the entrepreneurs on borrowed capital and, in so far as they have leased houses, machines, or other durable goods, any rent paid for such over and above the depreciation due to the utilization of the durable goods concerned. In the latter case the outgoing interest on capital will thus only be indirectly determined by contract, as it will be obtained by deducting from the contracted income the amounts written off.

Profits being the joint return for the contribution of all the agents of production in the possession of the entrepreneur, its imputation to the various agents of production must be conventional. A corresponding division of this income into wages and interest on capital is therefore not so easy. The handiest method of solving the problem is to calculate with current wages and interest on the capital, making due allowance for any complications introduced by the risk factor. But as a rule the sum total of these will not equal the actual income received, and the calculation of the one kind of income or the other must then be modified accordingly. The exact method to be employed, however, cannot be determined by any objective rules.

An exact allocation of the total national income to wages and interest on capital is thus very difficult. Within a certain margin such allocations will be more or less arbit-

rary. They are nevertheless of interest, as they provide a basis for a general appreciation of how the national income is divided between the agents of production, the payment of which they represent.

NATIONAL INCOME AS A TOTAL OF INDIVIDUAL INCOMES.

15. *The Significance of the Calculation in a Closed Community. Corrections Necessary when Using Taxation Statistics as a Basis.*

It has already been remarked that the total income accruing to the inhabitants in a closed community must be equal to the total income derived from the agents of production within the community. In a community of this nature the result will thus be the same whether we add together, in a given period, all the individual incomes, or the exchange value of all the productive contributions. The only difference is that another method of estimating the national income is being used. The calculation now proceeds from the receivers of income, while previously it proceeded from its sources.

The principles on which the individual incomes are estimated must, however, be the same as those used when the productive contributions were calculated. If, thus, the incomes of actual individuals as assessed for taxation purposes are taken as the basis, presuming these incomes to be duly corrected for any errors in the declarations, their total should be modified in respect of any differences between the income concept adopted for taxation purposes and that on which the estimate of the productive contributions is based.

The most important of these modifications are:

1) For taxation purposes, individual incomes paid in kind are often not declared at their full value, and a corresponding addition should therefore be made when estimating the national income.

2) Capital gains and capital losses, which theoretically should be clearly distinguished from income, are to a great-

er or less extent — the taxation laws of different countries vary widely on this point — included in the assessable income. This is especially so in respect of capital gains, and a corresponding deduction should therefore be made when calculating the national income from the assessed incomes.

3) Finally, income originally received by legal persons must obviously ultimately accrue to some individual. But such incomes, in so far as they only benefit the interested individuals indirectly, are usually not included in their personal incomes, and a corresponding addition should accordingly be made. When the national income is taken as a sum of individual incomes, the latter must include every individual share in profits deriving from sources of a more or less collective nature.

The most obvious of these is that part of the income of limited liability companies which is not paid out to the shareholders, but funded by the companies. These funded incomes ought clearly to be credited to the shareholders, although they are usually not included in their personal declarations for taxation purposes. Analogous points of view may be adopted in respect of income received by economic associations, such as cooperative societies, and not distributed to their members. Similarly, the income from capital owned by idealistic associations, such as charities, whether spent on the general objects of the associations or funded by them, may be regarded as the income of the members of the association. It is harder to point to any individual as having an ownership interest in the incomes passing through foundations and such-like legal persons. Such incomes might possibly be held to constitute a value to all physical persons interested in the activities of the foundations. As long as these physical persons live in the country the national income of which is to be estimated, it matters little who they are; the point is that these incomes must be included in the national income.

4) In several respects public activities represent an additional personal income for the members of the community. In the first place, any interest yielded by the net wealth owned by the State and other public corporations should

be added. This net wealth consists in the capital invested in public administration — which in most cases does not yield interest in the form of a money income, but only in the form of public services performed by the administration — and other public property, less all debts. The public debts may of course exceed the value of the public assets, and a corresponding deduction must then be made for the amount by which the interest paid by the administration exceeds all interest received (including interest received on the administration capital). In the second place, the amount by which the excise dues exceed public expenditure for promoting private production must also be added, as it is here assumed that all individual incomes are inclusive of all rates and taxes except excise, which is paid from the production result before this is divided between the individuals who receive the income. In so far as the excise revenue is not used for expenditure that directly promotes production, an addition must evidently be made; in so far as it is smaller than such expenditure, a corresponding deduction must instead be made. The argument previously used in respect of the adding together of the incomes accruing to owners of agents of production also applies here.

16. *The Significance of the Calculation under International Conditions. The Relations of Total Consumption and Savings of the Inhabitants to Total Consumption and Net Investment in the Country.*

Under international conditions the individual incomes can to a great extent be calculated and totalled on the above principles. But if the calculation is based on the number of inhabitants, the resulting aggregate income will, as pointed out in the introduction, differ from that deriving from agents of production within the country. The difference is due to the fact that, on the one hand, income received by the inhabitants of the country from property abroad will now be included, while on the other hand income deriving from the country, but accruing to residents abroad, will be excluded.

The total income of the inhabitants can be divided into a consumed part and a saved part. It is of some interest to correlate the consumption and savings of the inhabitants with total consumption and total investment in the country.

Firstly, the consumption and savings of the inlanders will be larger than the total consumption and investments in the country by the amounts by which a) the inlanders consumption abroad exceeds the inland consumption of foreign visitors, and b) the inlanders' investments abroad exceed foreign investments in the country.¹

There is, however, also another relation between the total income of the inlanders and the sum of inland consumption and investments. It has already been argued that the total income of the inhabitants of the country will exceed the total income derived from the country by the surplus income from the inlanders' investments abroad. The total income derived from the country, again, will exceed the sum of inland consumption and investments by the amount of the export surplus (of goods and services). The total income of the inlanders will consequently exceed the total of inland consumption and investments by the amounts of both the surplus income of the inlanders from abroad and of the export surplus.

This relation will, if combined with the former, give the following equation: the sum of the inlanders' net consumption and investments abroad will equal the sum of their net income from abroad and the export surplus. If three of these four quantities are known, the fourth can be computed by this equation.

The above is merely an outline of the solution of the most important problems involved in an estimate of the national income. These problems, and the special circumstances obtaining when computing the national income of a particular country, will be considered in greater detail in the following chapter.

¹ Investments abroad by inlanders may be made out of income received from abroad. Similarly, foreign capital is invested in the country when residents abroad let income obtained from the country remain there. When an income is invested, it will thus depend on the domicile of the recipient, and not on the country in which the income originates, whether an investment should be regarded as inland or foreign.

CHAPTER II.

THE MEASUREMENT OF THE NATIONAL INCOME OF SWEDEN 1861—1930.

THE STATISTICAL MATERIAL.

I. *Introduction.*

THE aim of this investigation is to measure the national income of Sweden over a number of years, and to elucidate the factors affecting its size and variations. Which method, out of those described in the previous chapter, to choose for such a calculation, and the choice of the period to be covered by the investigation, will depend primarily on the nature of the available statistical material.

It must, however, always be borne in mind that in an investigation of this kind it will not be possible to calculate the absolute value of the national income quite satisfactorily, since this would obviously necessitate an extremely thorough and detailed statistical knowledge of every economic activity carried on in the country. The calculations must therefore either be restricted to those industries in respect of which the statistical information is relatively good, or be supplemented by estimates in respect of the remaining activities. Whichever path is chosen, the resultant income aggregates will neither be entirely reliable nor complete. The aim of every investigation of this nature must therefore primarily be to determine, as near as may be, and by uniform means throughout the whole period under review or parts thereof, the probable order of magnitude of the national income, whence comparatively reliable conclusions may be drawn regarding the relative distribution of, and

changes in, the national income from one year to another in any given period.

From the statistical material available in Sweden it is possible to estimate year by year, practically from the beginning of the eighteen-sixties, the national income with a degree of reliability which is approximately the same within fairly well defined periods. For this reason it has been decided that this investigation shall comprise the years from 1861 to 1930.

2. *Official Statistics.*

The main source of information on the economic conditions of Sweden in the period thus determined upon is the official Swedish statistics. In 1858 most of the relevant publications were combined, each under its own letter, into one common series called "*Bidrag till Sveriges officiella statistik*" (Contributions to the Official Statistics of Sweden). In 1911 this was replaced by the much more comprehensive series "*Sveriges officiella statistik*" (Official Statistics of Sweden). Other official statistics now include the "*Statistiska meddelanden*" (Statistical Reports), and independent reports, the latter published either serially or in the form of special inquiries. Under the same heading should be included several series of "bulletins", annual and other reports, partly statistical, published by various Government Departments, as well as a large number of investigations by special committees, or by experts appointed by the different Departments. For the names of such publications quoted in this book, see list of references, Part II, p. 618.

As regards organization, the official statistics have of old been collected mainly by each Government Department concerned compiling the statistics relating to the branches falling under its administration. But this principle of decentralization is not always applied quite consistently, and the three Government statistical offices — the Central Bureau of Statistics (*statistiska centralbyrån*), the Board of Trade (*kommerskollegium*), and the Social Board (*social-*

styrelsen) — also deal with statistics not directly connected with their spheres of work. The statistical branches dealt with by each of these Government Offices are briefly enumerated below.

The Central Bureau of Statistics, established in 1858 as the central statistical Government department, is responsible for statistics relating to population, agriculture, finance, etc., besides issuing general statistical publications, e. g. "*Statistisk årsbok för Sverige*" (The Sweden Statistical Year Book) and "*Årsbok för Sveriges kommuner*" (Year Book of the Swedish Municipalities). — The population statistics give annual information on the number and changes in the population, of the composition of which a more complete analysis is also given decennially. These censuses, which are the only source of knowledge of the occupational distribution of the whole people, are of special importance to an estimate of the national income, as they provide data from which estimates can be made of the income of occupations, in respect of which no other material exists. Unfortunately, the occupational information in the earlier censuses is not altogether reliable. The last census (1920)¹ is the best in this respect; it also includes very comprehensive statistics of income and property, which would have been particularly valuable if monetary values had been more normal in that year. — Since 1865, the agricultural statistics have contained annual data on the harvest, as well as certain information regarding the quantities of live-stock kept. The primary data for these statistics are collected by the Agricultural Associations (*hushållningssällskapen*), which are semi-official organizations established in each county for looking after the interests of agriculture. These statistics, at first rather incomplete, were gradually improved, mainly by the successive introduction of local investigations since 1870. Annual crop reports are also collected by the County Governments (*länsstyrelserna*). These data make possible fairly reliable estimates of vegetable agricultural production, but those relating to the animal production are necessarily more summary. The

¹ When this was written, the 1930 Census had not yet been published.

agricultural section of the Central Bureau of Statistics also prepares statistics of the dairy factory and fishing industries. The figures given, particularly in respect of dairies, furnish for certain periods material from which the net income of these occupations can be estimated. — Taxation statistics in Sweden are very scanty in comparison with those of many other countries. Up to 1910 the farmers were only taxed on real property, and no information can therefore be obtained on the income of this, the largest and most important of the occupational groups. The data referring to other incomes are also very deficient. Those given annually are generally restricted to summary statements, formerly of the total assessments for the combined real estate and income tax (then known as *bevillning*), and after 1910 of the amounts on which income and property tax was paid. For a few years here and there the material has been subjected to a more thorough preparation, but without appreciably increasing its serviceability for estimating the national income. — The Central Bureau of Statistics also deals with various other statistical data, e. g. on municipal finances and the savings banks. Up to the end of 1905, when quinquennial reports on economic conditions in the counties were rendered by each County Government, the Central Bureau also prepared summaries of these reports for the whole country. These form very important sources of information on economic life.

The Board of Trade, established in the 18th century, deals with statistics relating to manufacturing, mining, commerce, and shipping. The Board also collects material of wholesale prices. — The primary data for the industrial statistics originally consisted of tabulated summaries of industrial plants and their production, etc., forwarded each year by the local authorities to the Board of Trade. The early statistics are somewhat incomplete. Gradually, however, improvements were introduced, chiefly by the reforms of 1896 and 1913; these have resulted in a more systematic collection of data, and a centralization of the preparation of the statistics. From 1913 the annual industrial statistics reach a very high level of completeness

and reliability. In respect of handicrafts, information was collected every fifth year through 1915 on the number of masters and men and their incomes, but this was very incomplete, and is of small value for an estimate of production not accounted for in the industrial statistics. The data for the mining statistics are sent in by the mines. These statistics, being very detailed, are of the same special nature as the annual report on dairy factories, mentioned above. Before 1896, however, they only contained quantitative information on production. — The trade statistics published by the Board of Trade are almost entirely restricted to foreign trade, on which very complete information is given. The statistics are nowadays ultimately based on the returns made by importers and exporters to the Customs. Important changes have been introduced in these statistics, especially in 1871 and 1914, and in order to be completely comparable the figures must therefore be adjusted. Generally speaking, however, comparatively reliable figures can be obtained for the annual quantities and values of imported and exported commodities. In respect of the inland trade, on the other hand, there is practically no direct information of any value. — From 1873 the annual shipping statistics gives detailed information on the gross freights earned by Swedish ships in foreign trade. This part of the shipping statistics also contains a variety of information which is of value to an estimate of the national income, e. g. on the shipping dues paid to the revenue authorities, on the size of the mercantile marine, and — from 1913 onwards — on its declared value. For the present purpose, however, the data regarding coastal and inland waterway shipping, which were first included in 1913, are extremely scanty and unsatisfactory, and of very little assistance towards an appreciation of the economic importance of this branch.

The Social Board is the third of the mainly statistical Government Offices. Originally, it was a labour-statistics section of the Board of Trade, but was re-organized in 1912 as a separate Government Office for social questions. — The Social Board is responsible for most of the so-called

"social" statistics, which comprise both continuous investigations and various special inquiries. The sections of these statistics relating to wages in agriculture, industry, commerce, communications, and many other occupations, food prices and rents, cost of living, constructional work, and housing conditions, are of direct importance to an estimate of the national income in recent years. As a rule, the above sections go as far back as 1913, and sometimes further. They are supplemented by a number of valuable monographs on labour conditions and wages in various special trades, usually covering one or more years after 1920. Periodical rent and housing censuses are included in this category.

There are, however, several important branches of official statistics not dealt with by the above Government offices, but by the administrative authorities. The Board of Crown Lands and Forests (*domänstyrelsen*) publishes an annual report with statistics on the Crown and certain private forests under its control, which between them cover a third of the wooded area of the country. — The State Railway Board (*järnvägsstyrelsen*) prepares very detailed statistics of the traffic on both State and private railways. — The Board of the General Post Office (*generalpoststyrelsen*) and The Board of the Telegraph Office (*telegrafstyrelsen*) also publish annual information on the postal, telegraph, and telephone services, from which the contributions of these branches can be estimated. — Since 1912 the Insurance Inspectorate (*försäkringsinspektionen*) has issued annual reports on the private insurance companies. The Bank and Stock Exchange Inspectorate (*bank- och fondinspektionen*) performs a similar service in respect of banking.

3. *Other Statistical Sources.*

Apart from the official statistics, there is in existence ample statistical material to illustrate the economic conditions of the most diverse industries. A detailed account of the vast material used for this investigation would take far

too much space, and only the most important publications are therefore mentioned below.

Detailed statistical accounts of the population and economic activities of the three largest towns are given in the Reports and Year Books issued annually by the Stockholm, Gothenburg, and Malmö Bureaux of Statistics. The Agricultural Associations mentioned in connection with the Agricultural Statistics also publish valuable annual reports. Among other periodicals giving statistical information may also be mentioned the annual reports, or bulletins, published by private business houses, and by trade or other associations such as banks, industrial, commercial, and transport companies, the Swedish Banking Association, the Swedish Insurance Association, the Swedish Ironworks Association, the Swedish Wood Exporters' Association, the Swedish Wood Pulp Association, the Swedish Cellulose Association, and others.¹ To these should also be added a large number of special inquiries, published either separately or in the form of essays or lectures in trade and technical papers, as well as the monographs and commemorative publications of various establishments, which frequently contain more or less detailed statistical information of their activities over long periods.

If the official and other available statistics briefly referred to above have thus formed the main material for the inquiry, this has nevertheless in many respects had to be supplemented by additional data. Such have also on occasion very courteously been put at the disposal of the inquiry, both by public and private enterprises and institutions, and by private persons. The knowledge obtained in this way has been invaluable to the inquiry, and has materially facilitated and assisted the work.

¹ *Svenska Bankföreningen, Svenska Försäkringsföreningen, Svenska Järnverksföreningen, Svenska Trävaruexportföreningen, Svenska Trämassaföreningen, Svenska Cellulosaföreningen.*

THE PLANNING OF THE INQUIRY.

4. *The Method Based on Production Statistics.*

In Chapter I it has been argued that the national income, in the sense of the total income from a given country, may be estimated:

1) by adding together the net incomes of the different industries;

2) by adding together the net results of national production, i. e. the total consumption and total net investments, plus or minus, respectively, any export or import surplus;

3) by adding together the incomes accruing to the owners of agents of production in return for their contributions; or

4) by adding together the incomes accruing to the inhabitants of the country, less their receipts from investments abroad, and plus the incomes of foreigners from investments within the country.

The statistical material, briefly indicated above as being available for an estimate of the national income of Sweden from 1861 to 1930, does not allow of a free choice among these methods.

The fourth method, for instance, which involves the use of the income returns of the Taxation Statistics, and which has mostly been used for the computation of the national income in other countries, would, as far as Sweden is concerned, give a relatively unsatisfactory result. Before 1910 no data were available regarding incomes in agriculture, the most important occupation in Sweden, and even subsequently, when compulsory income tax declaration was introduced, it is very difficult to arrive at any estimate, not only of the incomes exempt from taxation, but also of other incomes which may not have been declared. These two items, as a matter of fact, are so large that calculations made on the basis of this source of information would be of very limited value, even for recent years.

Nor can the third method, which is based on an estimate of wages and interest on capital in a wide sense, be used throughout. The information on average wages and the

degree of employment of the various categories of labour is so deficient in many important instances that estimated total earnings would be very unreliable. A direct estimate of the income from investments (including land rents) meets with still greater difficulties, as the information on the yield of investments in the different industries is only sporadic. It would thus be impossible to arrive at a satisfactory estimate of the whole national income in this way.

The primary calculations are therefore based on the production statistics, which, generally speaking, permit an estimate of the national income by the first two methods, i. e. as the aggregate contributions of the various industries, or as the sum of total consumption and of net investments. This has, however, necessitated very extensive preliminary calculations, of which an account will be given below.

5. *Classification of Industries.*

In the first place, the various industrial processes have had to be apportioned to the different industries. The governing principle has been to do this in a manner that will facilitate as far as possible the calculation of the positive and negative items which, when combined, determine the respective productive contributions.

As far as the positive items are concerned, it is most expedient to group the processes according to the nature of the products and services, whose values are to be calculated. The negative or debit items, on the other hand, will sometimes be more easily calculated if the production processes are grouped according to the nature of the productive agents involved in each. In view of these circumstances, the following classification of the productive activities in Sweden has been found most expedient. In this account no regard has been taken to such modifications as have been necessary because of deficiencies in the statistical material.

1) *Agriculture and its Subsidiary Occupations.* In this group is included all production of primary products in agriculture, cattle farming, horticulture, and fishing. Ca-

pital investment in agriculture is not included in the calculation except in respect of live-stock. Soil improvement and other more permanent work, and all building activities, should thus be relegated to "Building and Constructions". Agricultural implements manufactured by the farmers themselves are not included either as credit or debit items. The product value includes such transports as may be assumed to be effected by the farmers themselves, but no carriage by railway, steamer or commercial motor lorry. The product value at the place of dispatch — railhead or ship — is thus what is calculated. Any value added to the primary products by work on the farms is carried to the category "Domestic Work". This applies for instance to the churning of butter, home slaughtering, etc.

2) *Forestry*. The production of all timber from the forests, up to the point where it is taken over by other industrial processes or by ultimate consumers, has been included under forestry as far as statistical material has been available. All logging operations thus come under this heading. Construction and maintenance of floating channels, on the other hand, should be carried to constructional activities. New investments due to the cultivation of forests, and the increase in their value due to annual growth, have not been included, but no deduction has, on the other hand, been made for loss in value by cutting. Value added by the work of the lumbermen is included in forestry as well as the value of carrying the timber to the mills or to the place of dispatch.

3) *Manufacturing, Mining, and Handicrafts*. This group mainly consists of industry in the narrow sense as at present defined for the purposes of the Industrial Statistics. The production of gas and electricity and the distribution of water have thus been included, but not the construction of permanent plant (houses, roads, and the like), which has instead been attributed to a separate branch. All product value added by work done on a small scale, though professionally, has been relegated to handicrafts. All values refer to the value at the place of work.

4) *Building and Constructions*. All construction of houses, plant, etc., whether utilized in agriculture, manufacturing, or any other industry, or intended for consumption purposes, such as dwelling houses, etc., have on general principles been included under this heading. Maintenance of buildings and plant, in so far as this is not done by the staff of the establishments and therefore included in the net income of other branches of occupation, is also included here. It should be noted that in so far as a building is used for several purposes, for instance for residential, shop, and office accommodation, its value should be divided between such different purposes. Dwelling and business premises, for instance, have been differentiated, although they often relate to the same building. Public building activities have been included, with a similar proviso in respect of maintenance.

5) *Transport and Communications*. In this group have been included all professional transport services not forming part of any other business activity such as shipping, railways, tramways, buses, motor transport, and the posting, postal, telegraph, and telephone services. Agricultural, industrial, commercial, etc. transports effected by the staff employed in these branches and by means of their own transport equipment are thus not included here, nor those coming under what might be called individual requirements, for instance the utilization of private motorcars or boats.

6) *Commerce, Hotels and Restaurants, Banking and Insurance*. For practical reasons, the meaning of "Commerce" has been restricted to include only the distribution of non-durable goods and durable goods sold to the ultimate consumers, and of goods exported. This means that other commercial activities, involving a turnover of raw materials, machines, and the like, from one group of producers to another, will fall instead under the relevant industries. When computing the costs of industrial raw materials, for instance, no allowance has been made for the value increment corresponding to the merchanting charges, which consequently will instead be directly included in the net

value of the respective industries. In the case of commodities that are exported, however, it is necessary to estimate the merchanting charges included in the f. o. b. prices. The value of other foreign trade, which is not included in the import and export values, has had to be omitted from the calculation owing to the difficulties of estimating it.

Catering is included in "Hotels and Restaurants" if conducted professionally, otherwise it is relegated to "Domestic Work".

"Banking and Insurance" comprise all private activities, as well as certain public offices, of that nature. When estimating their contributions to the national income, the interest on capital lent to or invested in other industries is not included, that being included in the product values of such industries.

7) *Professional Services*. These include all professional services not belonging to any other group.

8) *Domestic Work*. The group has been defined in two ways, which result in two different income estimates. According to the first of these, it covers all the domestic work performed by paid servants, which may also include working up products, or rendering services, sold to outsiders. The churning of farm butter, and home-slaughtering of animals, for sale to rural households are examples of this. — According to the second definition, the estimated contribution of this occupation also includes the large item consisting in the work in the homes of wives and daughters.

9) *Services rendered by Durable Consumers' Goods*. That part of consumption which relates to the services yielded by dwelling houses (including the appurtenant gardens, parks, etc.) and other goods of a certain durability, owned by the households, is entered as a separate item. The value of dwelling is estimated exclusive of fuel, lighting, housework, and other services, which are included in the contributions of other industries. The use of furniture, utensils, motor cars, and other durable property for personal use, is estimated on analogous principles. The line of demarcation between durable and non-durable goods of this nature has been drawn at a durability of at least one year.

10) *Public Administration.* In so far as the State, the communities, and other public corporations, are carrying on the same or similar kinds of business as private firms, the productive contributions of these activities have already been included in the relevant industries. These items eliminated, there remains that branch of public activities which may be designated Public Administration proper. As has been remarked in Chapter I, however, the contribution from this source cannot be directly measured by the public expenditure of money. The yield of publicly owned durable goods ought also to be included.

6. *The Main Details of the Preparation of the Statistical Material.*

The annual product values in each of the above industries during the period under review have first to be computed. In some important instances it has been possible to base this calculation on direct information. In other cases, indirect calculations have been made from other statistical material. These product values are the positive items of the national income calculation.

The next task is to estimate for each industry the debit items, i. e. the value of services and commodities received during the year from other production processes — which should therefore be deducted from the gross values — as well as the depreciation costs of durable equipment. The computation of these debit items would have been a comparatively simple matter if detailed information on the distribution of the production costs in the different industries had been available. As this is only exceptionally the case, it has been necessary to resort to an indirect method of computation, which, although it does not provide a correct estimate of the net contribution in each individual instance, nevertheless may be considered to have given relatively satisfactory results for large units and for long periods.

The *modus operandi* has been as follows. By correlating the annual product values in respect of various categories of commodities and services with the data of the Trade

Statistics on the annual exports and imports, it is possible to compute the internal supply, i. e. the annual surplus of each category available for use at home. By making the commodity specification as detailed as the Swedish production and trade statistics allow, it will as a rule be possible to deduce from the nature of a commodity how it is used: whether for instance it serves as raw material for industry, or is an article of personal consumption. The values of the production and trade statistics can thus be allotted to the different uses. This allotment, which must naturally be rather approximate, can either relate to the computed net value of production less exports plus imports, or else separately to the product values and to the export and import values, which are then combined. In either case figures are obtained giving the annual supply of commodities and services allotted to different uses. By adding together all the items relating to a given use, the total internal supply for the different purposes will be obtained — with due correction for any changes in the stocks. On these lines it is possible to compute the national income as the sum of the net incomes of the different industries. Another great advantage of preparing the statistical material in this way is that it will then be possible at the same time to compute the national income by the second method: as the sum of total consumption and total investments (adding any export surplus or deducting any import surplus).

The total consumption each year is obtained as the annual supply of commodities and services intended for consumption purposes. The total investments will equal the amount by which the annual supply of durable goods exceeds the allowances for depreciation.

The above indicates that the statistical work on which this inquiry into the Swedish national income is based is divided into the following main parts:

- I) Estimating the annual product values of every industry.
- II) Making the export and import values fully comparable with the product values, so that the two groups can be collated.

III) Allotting the annual supply of commodities and services to their respective uses.

IV) Computing on the basis of these values the annual debit items of the different industries, and deducting these from the product values of each industry; the national income can then be computed by adding together the net contributions thus determined.

V) Finally, after due re-grouping of these positive and negative items, computing the total consumption and investments in the country, which sum, increased or reduced as the case may be by any existing export or import surplus, equals the total income from the country.

In most cases the three first of the above computations involve very extensive statistical calculations. As the material submitted is very comprehensive, and as the argument often relates to questions which are of relatively subordinate interest to the account as a whole, these sections of the work have, for the sake of convenience, been relegated to a series of *Appendices*. Each large industry is dealt with in a separate appendix describing the computation of the gross product values, of the corresponding export and import values, and the allotment of these values to different uses.

By this means the main text has been reserved for a short survey of methods, and an analysis of the final results.

The remainder of this chapter is devoted to a more detailed account of the problems met with in the preparation of the statistical material as outlined above.

THE METHODS ADOPTED IN THE INQUIRY.

7. *Product Values.*

Owing to the manner in which the different industries are classified complete data regarding the total product value of any industry have not been obtainable direct from the available statistical material. Various methods

have therefore had to be adopted in order to estimate the product values. In the main they are as follows:

1) *Direct value data.* In respect of several important sections of certain industries, data regarding the annual product values are available. These data have naturally proved of great importance to the inquiry, but they are not always quite suitable for immediate use, as they are often either incomplete or include incomes referable to other industries. As a rule, therefore, the figures have had to be adapted or supplemented in one way or another. This is, for instance, the case with the product values given in the Industrial Statistics, which are incomplete for the early years, since a number of important branches were not included until later. One or another of the methods described below has usually been employed for the necessary corrections. From the figures relating to the railways and the postal, telegraph, and telephone services, income which is not derived from the working, but from the ownership of other property, has had to be deducted.

2) *Quantities and prices.* In other cases only the quantity of the annual production, but not its value, is given. Average prices in these categories of production have then had to be computed from other sources. The aggregate values of the vegetable agricultural production, for instance, and of mining in the early years, have been calculated in this way.

3) *Indirect methods of computation.* In the remaining cases, where no direct information on the annual production was available, it has been necessary to resort to more indirect methods of computation. These have been mainly of two kinds.

a) The value of the annual contribution of a branch is calculated from data relating to the agents of production engaged in it, and the other items included in the product value are then added.

Sometimes the calculation has had to be based mainly on information as to the capital factor. In respect of the animal agricultural produce, for instance, information on the quantity of live-stock each year has been correlated with

data regarding the percentage killed and the average prices of the live-stock. Another example of a product value calculated from the capital factor is provided by the estimate of the taxicab and bus traffic services, which is based on the yearly returns of the number of registered motor-cars and buses.

For some occupations, e. g. handicrafts, hotels and restaurants, professional services, and domestic work, the calculation has been based on the estimated number of persons employed in them each year. The series obtained have then been multiplied by series representing the average annual earnings of the various kinds of employees; by making additions for the capital used, for the consumption of raw materials, and for other items included in the gross value, final annual figures are then obtained. Sometimes, as in respect of public administration and banking and insurance, data as to total salaries and expenditure for other purposes have been available, and have had to serve as the starting point of the calculations.

b) By the second method, the total internal supply in each year of a given category of products is first calculated, and any export or import surplus respectively added or deducted.

All such calculations must as a rule be very approximate. In the case of consumers' goods or services, all there is to go by is scattered data relating to home consumption at different times. The figures for intermediate years have therefore had to be interpolated on the basis of population changes. The internal supply of producers' goods must be computed from the output of the branches of industry where they have been used. The figures computed in this way can as a rule not claim to be a correct representation of the annual changes, but are more in the nature of moving averages. When subsequently the corresponding production has to be determined from these figures of the supply, there is as a rule no information as to any changes in stocks, although relatively reliable annual values of exports and imports are available. The changes in the annual production figures obtained in this

way will consequently mainly reflect fluctuations in foreign trade, while in reality these are either diminished or increased by changes in the internal supply and in stocks. In spite of these drawbacks, the figures are of a certain importance as a basis on which averages for long periods can be calculated.

Two methods have been tried for building and constructional work, but neither has led to acceptable results for the whole period. One takes as its starting point the value of the internal supply of building materials, and of the transport services assignable to this branch. To this value have been added estimated total wages and the yield of the machine capital employed. The second method proceeds from the estimated value of constructional and maintenance work in each industry. Both these methods presume the possibility of computing the allowances for depreciation and maintenance. It is only for recent years that the results have proved sufficiently satisfactory to be accepted as an approximate measure of the magnitude of the gross and net values.

The estimate of the value of commerce has also been based on the computed value of the home consumption of consumers' goods, to which has been added the value of commercial services in the export trade.

8. *Export and Import Values.*

In order to make the statistical data relating to foreign trade comparable for the whole period under review, a large number of corrections have had to be introduced. Since 1871, for instance, all export and import values refer to the Swedish frontier, while before that date goods carried in Swedish ships were evaluated at the foreign port of discharge or loading, and other goods according to their current prices in Sweden. From 1861 to 1870 therefore, the export and import value returns have had to be adjusted to apply to the Swedish frontier. Appendix D gives an account of numerous other corrections also contributing to the improvement of the estimated values.

The principal task, however, has been to adjust the data given in the Trade Statistics, so that they may be correlated with the figures relating to total production. In other words, the export and import values have to be made comparable with the product values.

As the exports are valued f. o. b. Swedish ports, while the corresponding product values are estimated at the place of production, the former will exceed the latter by the amount of transport and merchanting charges. The export values have therefore been reduced all round, and brought down to the level of the product values. The import values have been increased by the import duties, which are shown separately in the statistics, but not by any inland transporting or merchanting charges, as the values at the port of entry have, from the buyer's point of view, been considered comparable to the values applying at inland places of production.

The allotment of the export and import values on the same principles as those applied to the product values also involves a complete re-grouping of all the material of the Trade Statistics. The official classification of these, being mainly conditioned by customs tariffs, has had to be replaced by a grouping into agricultural and industrial products, with such sub-groups as are used in the production statistics.

Apart from the exports and imports dealt with in the Trade Statistics, there are also "invisible" exports and imports of services, regarding which it is more difficult to obtain statistical information, but which can in principle be treated analogously. The value of services derived from industries like commerce and communications may thus be correlated with the value of similar services rendered to or received from other countries.

Commercial and transport activities relating to exported goods (from the inland place of production), or to imported goods (up to the ports of entry), or otherwise to commodities outside the frontiers of the country, give rise, for instance, to a national "export value", in so far as they are carried on by Swedes. Such services are "imported", on the

other hand, when for example goods are carried by foreigners between Swedish ports. Similarly, it is possible to speak of export and import of services in banking and insurance.

In spite of the difficulties of applying these distinctions consistently, an effort has nevertheless been made to do so, at least approximately, this being a necessary corollary of the general plan of the investigation. In calculating the value of the supply of goods and services in the country, whether for consumption or for further use in production, it is necessary to take into account foreign relations in respect of both goods and services.

9. *Internal Supply of Goods and Services.*

The aim of the above adaptations of the production and trade statistics is to make it possible to estimate the net values of various commodities and services available each year for use within the country. When adding together the product values and the export and import values, these have therefore at the same time been allotted according to the use to which the commodities or services have been put.

This allotment has been made on the following principles. First, a general differentiation has been made between non-durable and durable goods. All goods that may be assumed to have been consumed within a year are, as already mentioned, considered non-durable goods. These include all raw materials and fuel, and — of consumers' goods — provisions, clothing, and household utensils of brief durability. All services also come under this heading. Durable goods include all plant, dwelling-houses, machinery, implements, and generally all goods, the durability of which exceeds one year. The annual utilization values in this category cannot, as in the former, be regarded as corresponding to the product values less the export and plus the import values, but must be calculated separately in each case according to the durability of the goods concerned.

Secondly, a further sub-division of each of these two categories has been made, according as the commodities and services are intended for consumption or for further

use in production. In the latter case they have also been allotted to the industries in which they are used, though a couple of closely related groups (on the one hand agriculture and forestry, and on the other commerce, hotels, banking etc., and professional services) have been combined into one. Building activity, on the other hand, has been split up into two sub-groups: building and road construction.¹

The following symbols have been adopted for the groups now outlined, for use in the tables, etc., of the appendices.

	Non-durable goods	Durable goods
Agriculture, etc., and forestry	A	AD
Manufacturing, mining, and handicrafts	I	ID
Building	B	BD
Road construction	R	RD
Transport and communications	T	TD
Commerce, hotels and restaurants, banking and insurance, professional services	K	KD
Public administration	P	PD
Consumption	C	CD

As regards the lines of demarcation between the different groups, the Reader is referred to the account already given. The only observation that need be made here is that not only everything directly satisfying the demands of ultimate consumers, but also the raw materials used in the following industries — hotels and restaurants, professional services, and domestic work — have for convenience sake been allotted to consumption.

To classify in this way, year by year, all the product values and all the export and import values, has naturally proved very difficult. For each year the multitude of commodities included in the production and trade statistics has had to be examined and classified, and all the items of each category added together. The labour involved in these classifications and summations has been very extensive. Although every possible care has been taken, the results can only be considered approximately correct.

The following is an account of the principles on which the work was done.

¹ These two groups have again been amalgamated in the final calculations.

The cases in which the allotment to different uses could expediently proceed from the internal supply, that is to say production less exports plus imports, were first dealt with. This has been done in respect of the most important of the agricultural products, and of all categories of services. These commodities and services are accounted for separately, and specified information on each category is given in the appendices.

In the other cases both the inland product values and the export and import values have been classified according to uses. The classification of the whole domestic production, and of the imports, is then obtained by adding together the values resulting from this allotment. These sums are given in the appendices. All the amounts relating to each use have then been brought together in the main text, and thus make up the annual totals.

The classification of the different commodities has frequently been very complicated owing to the statistical schedule of commodities not being sufficiently detailed. For the earlier years in particular, but also to some extent at the present time, the Trade Statistics — and still more the Industrial Statistics — contain a number of collective headings, frequently including very heterogeneous commodities. Further, separately specified commodities may be used in different ways. The headings of the statistics have therefore frequently had to be divided up according to the different uses to which the commodity in question may be put. This has generally been done in the following way. For a certain commodity the total value of what is consumed or used for further production in the country has been allotted to different uses. The percentage ratios thus obtained have then been applied both to the product values and to the export and import values. The internal supply (production less exports plus imports) has thus been allotted in accordance with the calculated inland consumption by producers and ultimate consumers, which is here of the most importance.

When interpreting the figures relating both to production less exports and to imports, it is consequently necessary

to bear in mind that the same ratios have in both cases been used for the allotment to different uses. Even if these ratios are correct as far as the total consumption in the country is concerned, it is of course conceivable that the imports are not distributed in the same proportions as the part of the domestic production that remains in the country. As a rule it has been impossible to make any allowance for these divergencies. Only in certain exceptional cases, when the available material has permitted the determination of special distribution ratios, on the one hand for production less exports, and on the other for imports, has the general rule been modified so as to give better agreement with reality.

Even at best, the allotment ratios can only be calculated with approximate reliability, and it has therefore not been considered worth while to sub-divide any items of small value. If, thus, a commodity is chiefly used in a certain way, though small quantities may be used for other purposes, the commodity as a whole has been allotted to its principal use, as minor differences will presumably cancel out in the summation.

It should also be observed that the items have been classified primarily with reference to the situation in recent years (1927). The same schedule has been applied to the whole period, unless there were special reasons for making a modification. Generally speaking, the figures are thus less reliable for the early years of the period than for the later.

10. *Debit Items and Net Value.*

The above preliminary calculations provide all the essential data for a computation of the net contributions of the various industries, and of the total national income.

The product values already computed form the positive items of each industry. The debit items, on the other hand, are not immediately evident. The calculation differs according as it relates to services and transient goods, or to goods of a certain durability.

As far as services are concerned, all that need be done is

to add up those received by a certain industry from other industries in the course of the year. Since services are made use of, as and when rendered, no divergence can arise between the corresponding credit and debit items. As has been remarked above, however, the allotment of certain services to different industries is occasionally difficult, and certain deductions — in respect of banking, insurance, and public services received — have therefore had to be made jointly for all industries.

The calculations of the annual value of raw materials, fuel, and other transient goods used in the production process of a certain industry are based, like those relating to services, on a summation of the corresponding positive items for the same year. Assuming that there are no changes in stocks throughout the year, the amount thus computed can be immediately entered as a debit item, as the raw materials used in a given year must be evaluated according to the prices current in that year, from which the product values are also estimated. The vegetable production, which forms part of the gross income of agriculture in each harvest year, is an exception. In that case the gross production has been allotted on the assumption that it is used in the following calendar year.

Sometimes the production of raw materials is subject to seasonal changes other than the production of the finished goods, and prices may then change between the time when the materials are produced and when they are used. An instance of this is the industrial processing of vegetable agricultural produce (primarily cereals), which is fairly constant throughout the year. The raw materials should therefore rightly be evaluated according to the average prices during the year in which they are used by industry. The crops, on the other hand, are included in the product value of agriculture at the prices current in the autumn, at the time of the harvest. Owing to the difficulty of obtaining satisfactory price series, however, the raw materials have been evaluated at the same prices as the crops.

The situation is still more complicated if the stocks of transient goods change from one year to another. In that

case, there will also be a quantitative difference between production and consumption of these goods in a certain year, in addition to the value change. If stocks are increased, the value of that addition should not be included in the value of the transient goods used. When stocks are reduced, the latter value should, on the other hand, be increased by a corresponding amount.

The introduction of corrections for changes in stocks would, however, necessitate the computation by some means or other of such changes. In this particular case it has not been possible to make any reliable estimate, and it has therefore been considered best to disregard for the present these differences between production and consumption of transient goods. The debit items are consequently too large, and the net contributions too small, in years when the stocks of transient goods were increased, while the opposite is the case in years when stocks were reduced. As the annual fluctuations to some extent neutralize one another, the averages for a series of years will be better than the actual annual figures. But even the averages require correction for the annual trend, which implies a gradual increase of the stocks, connected with general economic progress.

The using-up of durable goods is entered as allowances for depreciation. These should correspond to the decreasing value of the durable goods as a result of their being used, notwithstanding repairs and other maintenance, which are already deducted. As stated in Chapter I, the depreciation allowances may conveniently be computed as a certain percentage of the annual yield of the capital which percentage corresponds to the ratio of average depreciation allowance to average yield. That percentage has been calculated in different ways according to the nature of the material. As a rule it has been estimated as a certain ratio of the product value, but in some cases, e. g. for transport establishments, data have been available allowing of a direct estimate of the normal depreciation allowances for both plant and transport materials.

CHAPTER III.

GROSS AND NET INCOME BY INDUSTRIAL DIVISIONS.

1. *Introduction.*

IN Chapter II it was laid down that owing to the nature of the material the computation of the national income of Sweden must be based on the production statistics. The gross and net income of each industry or group of industries should thus be calculated, and the national income would then be obtained as the aggregate sum of all the net incomes.

A detailed description of the methods used in the primary calculations of the gross product value, and of the debit items of each industry, is given in Part II of this book; it will therefore be sufficient to give in this chapter a short account only of the main principles underlying this work, and of the sources used. Moreover, the value of the final results will be discussed. Gross income and debit items for each group of industries will then be combined in the computation of the net income.

Certain minor modifications of the original classification of industries, as given in Chapter II, Paragraph 5, have been necessary. Owing to the impossibility of differentiating between raw materials and services used in agriculture and in forestry, these two industries have been combined in the final computation of the net income. Approximately, the gross income of forestry may be said, however, to equal the net income. The same method has been used for commerce, banking, insurance, restaurants, and professional services. For certain of these minor branches direct estimates of a more or less approximate character have

been made of the net income. For the whole group the net income has been calculated without depreciation allowances being deducted. This item has been estimated for this group inclusive of "public administration", and the final calculation of the net income has thus been made for all these industries together.

Owing to the great differences between the several industries with regard to material, methods, etc., and the reliability of the calculations, the analysis of the result differs from case to case. In certain industries the estimate of the gross and net income has been too approximate to allow of any analysis at all. For other industries, e. g. agriculture and the manufacturing industries, the material is more reliable, and an analysis from different viewpoints of the development in the seventy-year-period has thus been possible. Certain discrepancies between the different parts of this chapter are therefore unavoidable.

AGRICULTURE AND FORESTRY.

AGRICULTURE, HORTICULTURE AND FISHING (Appendix B).

2. *Methods.*

In estimating the gross income of agriculture and its subsidiary occupations the first step has been to compute the quantitative output of the several products. By adding to this the imports and deducting the exports of corresponding goods, the supply of each product available in the country is obtained. That supply has then been allotted to the various uses.

The prices required for estimating the gross income have as far as possible been taken from official sources such as the *Marhegång* scales,¹ the agricultural statistics, and the

¹ A description of the nature and method of compiling the *Marhegång* scales is given in *The Cost of Living in Sweden 1830—1930*, pp. 25 ff. The "special" scale has been used here.

price statistics of the Social Board. Only when the requisite information was not available from such sources have any prices been obtained from other sources. All prices used should be producers' prices, i. e. those actually received by the producers, which do not include costs of any transports normally effected by professional transport services and not by their own staff. It is obviously often difficult to estimate the producers' price, and the value of certain transport services (possibly also some merchandising charges) may therefore conceivably be included in the product values.

Certain agricultural products have been excluded in the computation of the vegetable product value. This applies to as important items as hay and straw, succulent cattle food, and pasturage, owing to the statistical data being too deficient to permit an estimate of their quantity and value. As imports and exports of these products take place only occasionally and are, moreover, insignificant in value, their product value will approximately equal the debit item which corresponds to the use of such products as cattle food. No deduction of this kind being made from the gross value of animal products, however, the exclusion will not affect the total net income, but only its allotment to vegetable and animal production. The value of the forage will thus be included both in the gross and the net value of the animal products, while the gross and net value of the vegetable products is returned exclusive of such forage. — Some other products have also been excluded in view of the small amounts involved.

The methods and sources used for the computation of quantities differ in respect of the vegetable and the animal production. The vegetable production includes grain (wheat, rye, oats, barley, dredge, peas, beans, vetch) and roots (potatoes, sugar beets, and roots for cattle food). Official harvest data relating to these products are available for the greater part of the period 1861—1930, and can as a rule be used for computing directly the quantities produced. The only years when, for lack of data, they have had to be

estimated are 1860—1865. Some of the official figures for the years 1921—1926 have also, for reasons given in the appendix, been revised.

As to the supply of the vegetable products, allowance must be made for the fact that the years of the harvests do not coincide with the years of consumption. The harvest in a given year has been taken as a measure of the production in that year, which is only gradually consumed during the twelve months elapsing until the next harvest. These twelve months ought therefore to be considered the "year of consumption". For statistical reasons, however, the year of consumption has been regarded as coincident with the calendar year following on the harvest. This involves the assumption that the corn and root crops are stored from the harvest to the end of the same year, and then gradually consumed in the course of the next twelve months. By harvest year is therefore in the following meant the calendar year in which the crops are harvested, and by consumption year the ensuing calendar year.

The value of the internal supply ought therefore, strictly speaking, to be computed on the basis of the average prices during the year of consumption (cf. Chapter II, Paragraph 10). Owing to the deficiencies of the price material, the prices current at the time of the harvest have been used here, however, for evaluating both production and internal supply. This matters little in periods when prices are stable, but when they fluctuate much from one year to another, as they did during and immediately after the War, the internal supply will be over-valued when prices fall, and under-valued when they rise. The net product value of industries in which vegetable agricultural produce is used as raw materials, i. e. Agriculture and Manufacturing, will consequently be under- or over-estimated accordingly. In so far as vegetable agricultural produce goes directly to the ultimate consumers without any previous processing, the value of human consumption will also be affected in the same way.

While the vegetable production can thus be obtained direct from the official statistics, special calculations have to be made to ascertain the quantities and values of the animal production. In respect of all animal products (meat and pork, milk, eggs), these must be based on the actual numbers of cattle and poultry.

The annual meat (or pork) production is defined as "the quantity of meat that corresponds to normal breeding in the year, and which in one form or another is obtained, or could have been obtained, from the stock without changing the number of animals in stock."¹ This definition includes in the production not only the animals destined for killing, but also those sold for export or used for increasing the stock. Any reduction of the stock would appear as a negative item in the calculation. But this definition obviously does not include that part of the production which takes the form of an increase in the average weight of the cattle without the number being altered. As no material is available for a calculation of this nature, that part of the meat production² has been entirely disregarded in the following. The investment represented by variations in the live-stock has therefore been restricted to numerical changes in the stock.

A quantitative estimate of the meat production presumes knowledge of the number of animals of each different kind, and their normal production ratios. The produced quantities, expressed in number of animals, can then be computed. Up to 1912, annual information is available on the numbers, and can subsequently be obtained from the cattle censuses and local investigations of 1913—1920, 1927, and 1930. The figures for the intermediate years have been obtained by interpolation. After 1913, the figures refer to varying dates, and special calculations have therefore been necessary to make them applicable to the end of the year, as in 1861—1911. The lack of data between the end of

¹ HÖJER, E., *Den animaliska produktionens storlek (Meddelanden från A. lantbruksakademiens ekonomiska afdelning. 19.)*, p. 33 (our translation).

² If one year is compared with the following, this part of the production is probably of slight importance.

1911 and the middle of 1913 has made interpolations necessary. No corrections have been made for the obvious deficiencies of the material before 1913. The number of animals (especially cows) will consequently be too low in some periods, while in others it will be too high.

The production ratios have been computed on the basis of estimates made by FAHLBECK, LÅFTMAN, and HÖIJER.¹ It must be strongly emphasized that the figures are very approximate, especially in respect of the early years. There has been some possibility of checking the figures for the period 1920—1930 by comparing the computed killing figures with the official returns from slaughter houses, export abattoirs, and inspection bureaux.

By deducting from the production any imported and exported animals, the supply available in the home market for killing or for increase of the stock is obtained. This supply corresponds to the normal turnover in each kind of stock, and would under static conditions give the animals' average length of life. As the changes in the stock are known, the number of animals killed can be obtained as the difference between the total supply and the increase (or decrease) of the stock. In some cases the calculations are based on the turnover percentage instead of on the production ratio.

The product value may be obtained either by estimating the average dead weight of the animals and multiplying the total meat quantity by current meat prices, or by direct multiplication of the number of animals by the average price per animal. In the latter case, the product value will also include the value of the by-products from killing, which in the first case will have to be estimated.

For our purposes, the second of these methods has been employed, as relatively reliable cattle prices are available in the *Markegång* scales, while no data are obtainable with reference to the weight of the animals in the early years. Since 1913 a modified method has been used, in that the prices per head of most kinds of cattle have been calculated on the basis of the price per kg of living weight, multi-

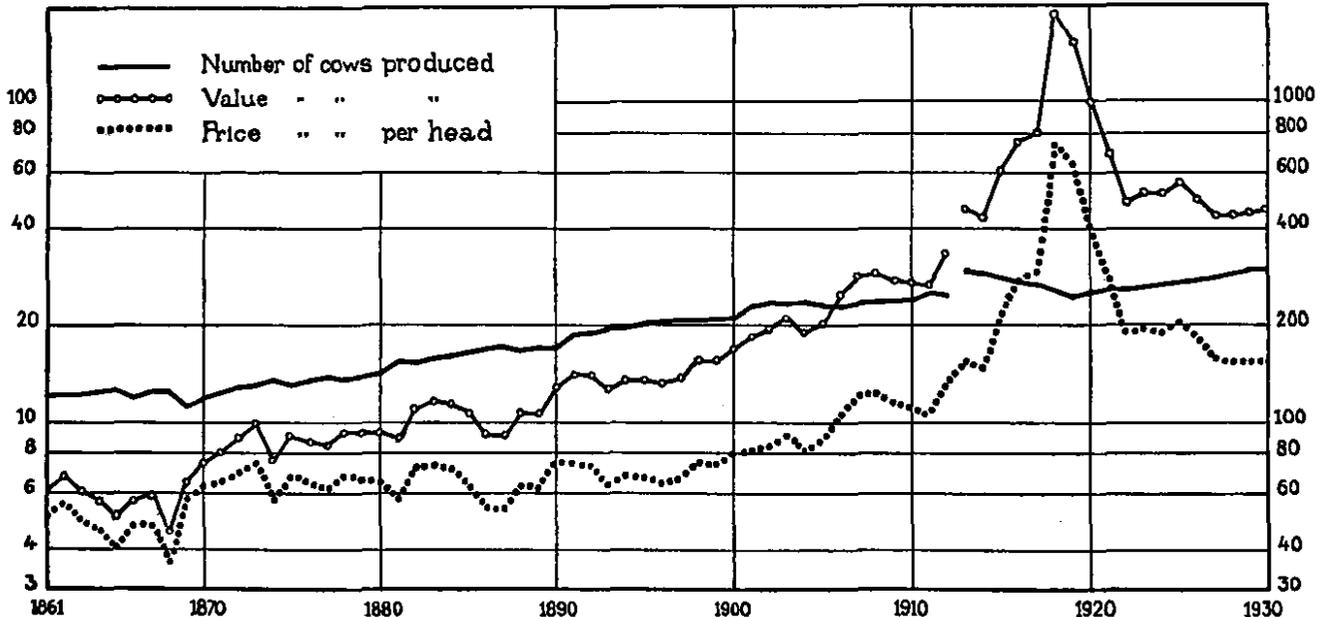
¹ For references, see Appendix B.

plied by an estimated weight, which latter has been assumed to be constant throughout the period. These prices, which refer to animals to be killed, have also been used for the stock animals, which means that the value increment due to the increasing yield of the stock has been disregarded. For this and other reasons, and in view of the nature of the price material, the values are probably too low.

When considering the final result, it must be remembered that prior to 1913 the figures giving the number of heads do not, owing to the nature of the material, reflect the annual fluctuations. As the quantitative calculations of the production are based on these figures, that remark also applies to the number of animals produced, as can be clearly seen in Charts 1 and 2 relating to the production of cows and pigs. The quantity curve is steadily rising up to 1913, except for some years in the eighteen-sixties, when the failure of the harvests in 1867 and 1868 caused a large number of cattle to be killed, thus reducing the stocks considerably. The values will consequently only reflect the price fluctuations, without any possibly levelling effect of contrary changes in the quantities produced. The charts also show the close agreement between the value curve and the price curve.

As the values of imports and exports, and of production and killing, have been estimated from the same prices, the former will differ from those given in the official statistics and in Tables 104—105. The differences are partly due to imports and exports being differently composed than the production. As far as exports are concerned, the differences also include transport and merchanting charges in accordance with the principles applied in other industries. As the Trade Statistics do not give any information on the composition of the imports, the use of a method differing from that used in other parts of the national income investigation has been necessary, but the import figures are generally so low that the consequent error will be insignificant. Some of the differences should, moreover, be considered a capital profit or loss, as for instance in the case of exports during the War. A considerable portion of these were due to the opportunity

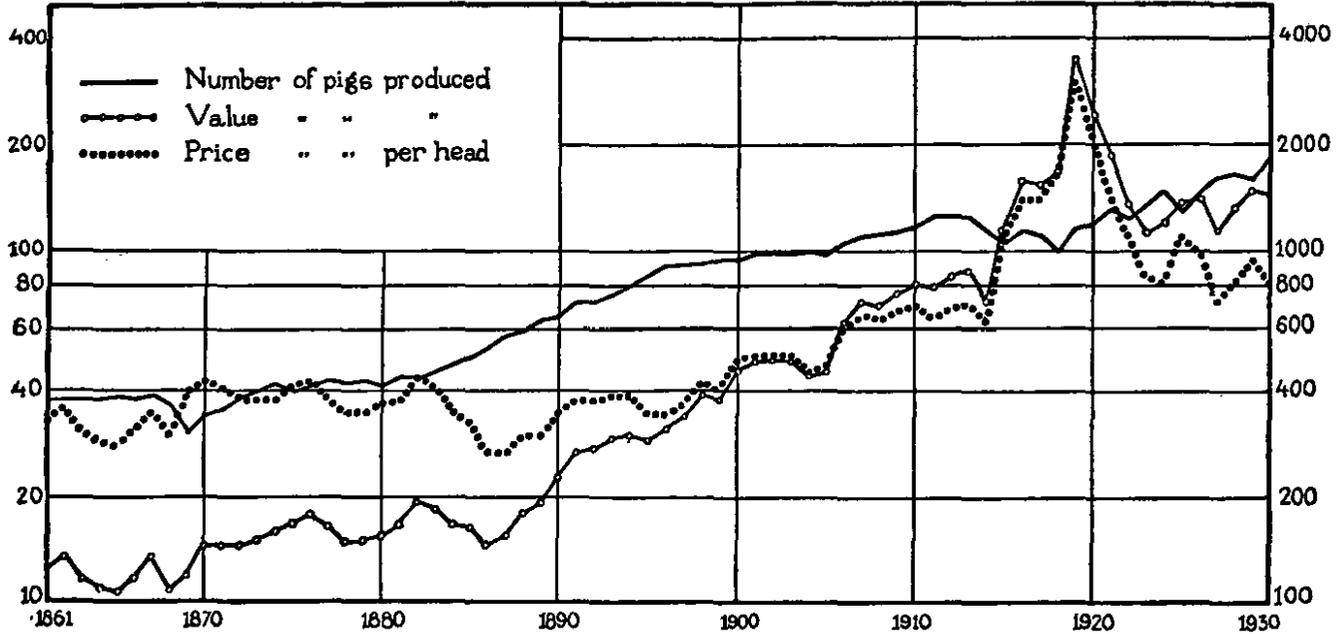
Chart 1. Cows: Production and Prices 1861-1930.



Note. The left hand scale refers to the value of production in mill. kronor. The same scale, multiplied by 10, is used for prices per animal in kronor. The right hand scale refers to animals produced in thousands.

6-35822. 1.

Chart 2. Pigs: Production and Prices 1861-1930.



GROSS AND NET INCOME

Note. The left hand scale refers to the value of production in mill. kronor and to prices per animal in kronor. The right hand scale refers to animals produced in thousands.

Table 1. Gross and Net Income of Agriculture (incl.

Year	1	2	3	4	5	6	Debit items	Net income
	Gross income							
	Vegetable products ¹	Animal products	Horticultural products	Fish	Forestry products	Total		
1861	197.7	103.6	15.0	2.0	87.7	406.0	118.7	287.3
62	213.6	105.3	15.0	2.1	82.7	418.7	122.3	296.4
63	188.3	107.3	15.0	2.1	82.9	395.6	129.0	266.6
64	183.5	98.2	15.0	2.2	82.7	381.6	107.6	274.0
65	171.2	93.9	15.0	2.3	88.9	371.3	107.9	263.4
66	207.7	97.1	15.0	2.4	92.4	414.6	100.4	314.2
67	230.8	111.8	20.0	2.6	94.6	459.8	121.2	338.6
68	222.7	100.7	25.0	2.8	93.2	444.4	151.7	292.7
69	232.8	106.5	20.0	3.0	88.1	450.4	122.6	327.8
70	246.7	132.0	20.0	3.3	97.1	499.1	127.8	371.3
1871	263.3	131.1	20.0	3.7	112.4	530.5	144.1	386.4
72	255.4	146.3	25.0	4.1	139.6	570.4	164.8	405.6
73	307.0	158.6	25.0	4.6	169.8	665.0	159.5	505.5
74	280.7	151.4	25.0	5.0	183.1	645.2	185.8	459.4
75	303.0	146.2	30.0	5.7	159.2	644.1	163.9	480.2
76	278.6	171.5	30.0	6.2	182.1	668.4	193.8	474.6
77	276.3	165.0	30.0	6.3	181.0	658.6	185.9	472.7
78	270.0	176.9	25.0	5.9	140.5	618.3	173.7	444.6
79	261.4	181.1	25.0	5.8	125.7	599.0	169.6	429.4
80	315.1	170.5	30.0	6.1	154.9	676.6	172.7	503.9
1881	282.3	163.5	30.0	6.5	167.4	649.7	220.2	429.5
82	288.4	178.2	30.0	6.6	173.9	677.1	195.4	481.7
83	269.2	199.0	30.0	6.5	162.1	666.8	201.4	465.4
84	277.6	191.4	30.0	6.7	152.0	657.7	199.6	458.1
85	239.1	184.3	25.0	7.0	152.3	607.7	201.5	406.2
86	236.9	160.0	25.0	7.5	133.1	562.5	167.8	394.7
87	210.0	151.9	25.0	8.1	135.5	530.5	174.0	356.5
88	243.9	165.5	30.0	9.2	154.4	603.0	169.9	433.1
89	247.7	172.0	30.0	10.6	162.8	623.1	198.2	424.9
90	289.5	184.3	30.0	11.6	159.9	675.3	203.3	472.0
1891	324.0	216.7	35.0	11.8	159.7	747.2	222.5	524.7
92	314.7	213.7	35.0	11.4	152.5	727.3	240.5	486.8
93	285.5	214.9	30.0	11.7	151.8	693.9	239.1	454.8
94	256.2	211.0	30.0	11.8	158.8	667.8	224.6	443.2
95	263.1	230.4	30.0	12.0	159.3	694.8	217.2	477.6

¹ Harvest year.

GROSS AND NET INCOME

61

Horticulture and Fishing) and Forestry 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8
	Gross income						Debit items	Net income
	Vegetable products ¹	Animal products	Horticultural products	Fish	Forestry products	Total		
1896	278.2	231.9	30.0	11.5	153.5	705.1	230.0	475.1
97	295.1	226.9	30.0	11.3	177.5	740.8	233.9	506.9
98	329.7	253.2	35.0	11.1	178.5	807.5	253.0	554.5
99	300.2	279.1	35.0	10.8	186.4	811.5	288.7	522.8
1900	356.9	279.3	35.0	10.7	211.8	893.7	270.8	622.9
1901	315.5	296.2	35.0	11.0	186.4	844.1	311.1	533.0
02	321.9	293.0	40.0	11.0	182.8	848.7	292.6	556.1
03	351.0	318.1	40.0	12.0	207.8	928.9	315.3	613.6
04	327.1	315.6	40.0	13.1	195.3	891.1	348.4	542.7
05	373.8	292.0	40.0	14.5	179.4	899.7	330.3	569.4
06	416.7	348.7	40.0	16.5	194.3	1016.2	379.0	637.2
07	409.1	424.5	45.0	15.5	196.7	1090.8	408.9	681.9
08	456.5	458.6	45.0	17.5	195.4	1173.0	405.6	767.4
09	445.8	470.5	50.0	17.1	183.1	1166.5	441.5	725.0
10	450.2	465.5	50.0	18.8	221.1	1205.6	444.4	761.2
1911	445.7	450.0	45.0	18.0	213.1	1171.8	455.0	716.8
12	488.7	477.1	50.0	22.5	235.1	1273.4	467.5	805.9
13	471.2	532.3	50.0	20.0	253.5	1327.0	502.9	824.1
14	580.5	520.2	55.0	21.0	259.5	1436.2	505.3	930.9
15	691.1	650.5	70.0	36.7	281.3	1729.6	617.9	1111.7
16	736.3	777.7	80.0	52.6	410.4	2057.0	708.1	1348.9
17	786.0	889.9	105.0	57.7	505.4	2344.0	760.4	1583.6
18	1158.1	1343.4	155.0	101.6	597.2	3355.3	911.0	2444.3
19	1197.1	1580.0	200.0	59.2	664.3	3700.6	1246.6	2454.0
20	1235.7	1400.6	190.0	48.2	938.5	3813.0	1298.4	2514.6
1921	783.4	1069.8	155.0	34.7	399.2	2442.1	1176.1	1266.0
22	549.9	801.9	120.0	29.7	378.4	1879.9	749.1	1130.8
23	608.1	781.7	110.0	32.1	427.8	1959.7	720.6	1239.1
24	645.4	799.2	115.0	33.6	434.1	2027.3	753.9	1273.4
25	698.9	825.7	120.0	37.0	417.7	2099.3	791.5	1307.8
26	682.7	801.9	115.0	37.7	422.1	2059.4	814.0	1245.4
27	623.9	766.1	115.0	38.0	441.2	1984.2	833.7	1150.5
28	653.8	793.5	115.0	35.7	439.8	2037.8	804.6	1233.2
29	610.5	822.9	115.0	35.1	470.0	2033.5	826.1	1227.4
30	541.8	759.9	110.0	37.2	421.6	1870.5	775.9	1094.6

of obtaining favourable prices for horses sold abroad, while the consequent reduction of the stock had to be covered by breeding at home. The same can be said of imports in the first post-war years.

The milk production is also estimated on the basis of the number of cows and an estimated quantity of milk per cow. It has already been pointed out that the data regarding the number of cows before 1913 are inadequate, and that the annual variations, in particular, are not shown. If the number of cows is too low, however, this will be compensated by a too high figure for the quantity of milk per cow, and vice versa, as that factor was computed for the period 1861—1912 with the assistance of an index based on the supply of food per unit of cattle, which index thus varies inversely with the number of cows. Since 1913 both the number of cows and the milk quantity per cow are more reliable. The estimated quantities and values of the milk produced are very approximate, however. The margin of error is probably considerable, and no importance must be attached to variations in the values of 5 or 10 %. Milk being a considerable part of the agricultural production — towards the end of the nineteen-twenties it was about one third of the total gross value — this is of importance to a just appreciation of the gross income from agriculture.

The egg production has been estimated on the same principles as the milk production. The result is very approximate, but as the share of the eggs in the total production is insignificant this will make little or no difference to the total gross income.

Of the subsidiary branches of agriculture only horticulture and fishing have been investigated and their gross product value estimated. The results are very approximate.

3. *Gross Income.*

The sum of the vegetable and animal product values, given in Table 1, constitute the gross income of agriculture proper. From the above it will be noticed that a close analysis of this income — from the cyclical point of view,

for example — is hardly possible. The time series are nevertheless of a certain interest, as they illustrate the structural changes during the septuagenary period reviewed.

The computed product values contain many duplications, as an appreciable portion of the home production is used in agriculture as raw material for continued production. For a study of the changing relations of vegetable to animal products, such duplications must be eliminated from the gross product values. This can be done in two ways. The vegetable production may either be computed less the quantities used for seed, but inclusive of the value of the corn and roots used for cattle food, in which case the whole value of vegetable cattle food except hay, straw, and succulents will be deducted from the animal production; or else both cattle food and seed may be deducted from the estimated vegetable production, which would credit the animal production with all the cattle food produced. Milk used as cattle food must in either case be deducted from the gross animal product value. As the value relating to the allotment of corn and roots to different uses computed in the appendix also includes imported products, it has been necessary to assume the seed to be wholly home produced, and that no imported corn or roots except maize is used for cattle food. The computed value of the maize has therefore been deducted from that of the corn used for cattle food. On the whole, this assumption is probably correct. All duplications being thus eliminated, the total product value will be the same in either case; its allotment to the two branches of production alone will be changed. Table 2 gives the results of the calculation by both these methods. As the calculated value of the cattle food is based on an estimate only of the proportion of corn or roots used for this purpose, the figures will obviously be uncertain, but may nevertheless be of service in judging the trend.

As the production of cattle food depends directly on the animal production, the latter method will be the best if it is desired to illustrate the relative importance of the two branches of production to the final value of agricultural products. The following percentages are computed in that way.

NATIONAL INCOME

Table 2. Gross Agricultural Income less Products Used in

Year	1	2	3	4	5
	Vegetable products less seed	Animal products less cattle food	Vegetable products less cattle food and seed	Animal products less milk used for cattle food	Total
1861	166.2	29.0	101.5	93.7	195.2
62	179.6	29.3	113.5	95.4	208.9
63	155.6	24.3	82.4	97.5	179.9
64	153.2	34.4	99.1	88.5	187.6
65	144.9	25.0	85.7	84.2	169.9
66	178.4	39.0	129.6	87.8	217.4
67	198.1	38.2	134.2	102.1	236.3
68	177.3	11.2	97.6	90.9	188.5
69	187.9	46.8	137.7	97.0	234.7
70	212.4	55.4	145.6	122.2	267.8
1871	229.9	39.4	148.2	121.1	269.3
72	218.7	41.8	125.0	135.5	260.5
73	267.7	63.3	183.8	147.2	331.0
74	233.9	41.5	136.1	139.3	275.4
75	254.0	61.7	182.2	133.5	315.7
76	235.6	53.5	131.6	157.5	289.1
77	231.3	58.2	139.1	150.4	289.5
78	222.7	79.3	139.5	162.5	302.0
79	222.7	78.1	132.7	168.1	300.8
80	274.2	71.5	188.2	157.5	345.7
1881	237.8	27.7	116.6	148.9	265.5
82	241.7	66.4	143.9	164.2	308.1
83	226.6	78.5	120.2	184.9	305.1
84	235.9	70.4	129.3	177.0	306.3
85	199.4	60.6	89.8	170.2	260.0
86	200.6	60.9	116.1	145.4	261.5
87	174.5	45.7	82.6	137.6	220.2
88	214.1	60.9	123.6	151.4	275.0
89	211.1	52.5	106.2	157.4	263.6
90	252.1	65.4	147.6	169.9	317.5
1891	282.1	81.0	162.1	201.0	363.1
92	267.4	69.9	140.3	197.0	337.3
93	244.8	62.1	109.0	197.9	306.9
94	215.7	73.9	95.2	194.4	289.6
95	226.8	95.3	108.8	213.3	322.1

GROSS AND NET INCOME

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Agriculture for Further Production 1861—1930. Mill. kronor.

Year	1	2	3	4	5
	Vegetable products less seed	Animal products less cattle food	Vegetable products less cattle food and seed	Animal products less milk used for cattle food	Total
1896	242.9	88.5	118.1	213.3	331.4
97	257.7	90.2	139.8	208.1	347.9
98	288.3	109.2	164.0	233.5	397.5
99	252.1	110.6	105.2	257.5	362.7
1900	306.9	135.2	185.2	256.9	442.1
1901	272.2	109.1	107.9	273.4	381.3
02	274.2	138.0	143.3	268.9	412.2
03	305.1	140.4	151.5	294.0	445.5
04	281.9	119.4	110.0	291.3	401.3
05	323.4	124.8	180.5	267.7	448.2
06	369.7	144.6	191.8	322.5	514.3
07	361.4	192.0	156.4	397.0	553.4
08	403.9	225.9	200.3	429.5	629.8
09	395.8	205.9	160.2	441.5	601.7
10	398.6	210.2	172.9	435.9	608.8
1911	396.7	188.6	165.1	420.2	585.3
12	431.4	234.3	218.5	447.2	665.7
13	411.2	256.2	171.7	495.7	667.4
14	529.3	232.4	277.8	483.9	761.7
15	604.1	354.7	352.4	606.4	958.8
16	652.6	376.2	300.7	728.1	1028.8
17	683.0	447.9	306.3	824.6	1130.9
18	1025.9	913.2	692.9	1246.2	1939.1
19	1018.7	991.7	543.7	1466.7	2010.4
20	1090.2	732.2	519.1	1303.3	1822.4
1921	622.3	423.9	¹ 50.6	995.6	1046.2
22	463.8	436.6	¹ 151.5	748.9	900.4
23	540.4	428.8	243.2	726.0	969.2
24	563.7	447.2	270.1	740.8	1010.9
25	597.2	456.6	285.2	768.6	1053.8
26	603.8	412.6	268.4	748.0	1016.4
27	545.2	364.0	197.5	711.7	909.2
28	557.1	468.7	290.3	735.5	1025.8
29	530.7	444.4	208.5	766.6	975.1
30	472.7	393.1	155.3	710.5	865.8

¹ Cf. p. 54.

Table 3. Ratios in per cent of Vegetable and Animal Production to Total Agricultural Production (Values) 1861/65—1926/30.

Year	Vegetable	Animal
	production %	production %
1861/65	51	49
1866/70	56	44
1871/75	53	47
1876/80	48	52
1881/85	42	58
1886/90	43	57
1891/95	38	62
1896/00	38	62
1901/05	33	67
1906/10	30	70
1911/15	33	67
1916/20	30	70
1921/25	20	80
1926/30	23	77

Note: The production of vegetable food essential for the animal production is in this table entered as animal production. Exported cattle food is included in the vegetable production.

This table shows that the importance of the animal production, and the production of cattle food connected with it, has been steadily increasing since the eighteen-seventies, when it was barely half of the total gross value. The introduction of the corn duties in 1888 checked this trend temporarily, but it became apparent again in the beginning of the twentieth century, and has also continued after the abnormal conditions of the war years. By the end of the period under review the animal production had grown to about 75 % of the total production. The 80 % in the 5-year period 1921/25 is misleadingly high, owing to the method of computing the debit items, which — when prices fell strongly in 1921—1922 — resulted in the cattle food being overvalued in relation to the product value (cf. p. 54).

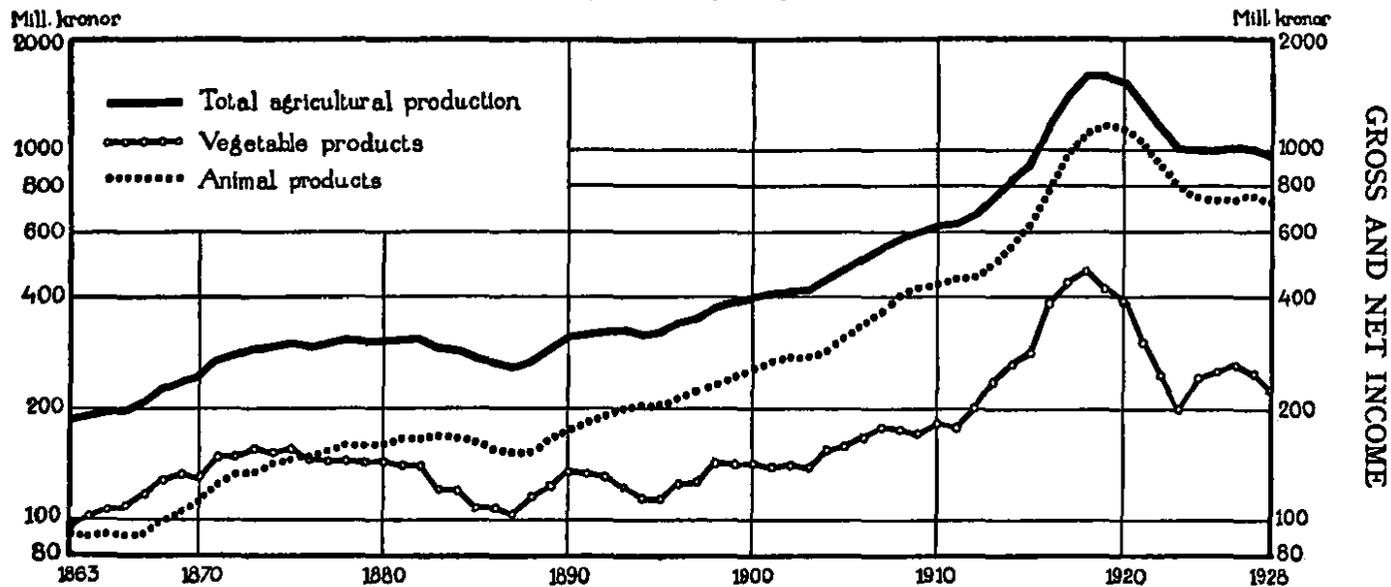
The development of animal to vegetable production as illustrated by Table 3 and Chart 3 will be influenced by changes in both prices and quantities. A study of corn prices — which dominate the vegetable production — and of animal product prices indicates that the relation between them has changed in favour of the latter. The fall in prices between 1870 and 1890 appeared later, and was moreover much less pronounced in respect of animal products than of vegetable

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Chart 3. Gross Value of Agricultural Production 1863—1928.
Five years' moving average.



Notes. For the computation of the five years' moving averages the figures in Table 2, Cols 3—5, have been used.

products. The subsequent increase — apart from the abnormal conditions of the war years — raised the corn, or at least the cereal, prices to a level which was but slightly higher than the earlier maximum in 1866—1875, while the prices of animal products rose considerably more. The latter were appreciably higher at the end than at the beginning of the period. Their trend was also favourable when compared with the general price level. Prices of corn for cattle food — oats and dredge — developed slightly more favourably than those of cereals. Potato prices rose even more.

Table 4. Price Indices of Certain Agricultural Products.
(1861/65 = 100.)

Year	Vegetable products					
	Wheat	Rye	Barley	Oats	Dredge	Sugar-beets
1861/65	100	100	100	100	100	100
1866/70	116	120	120	119	118	100
1871/75	116	115	116	131	126	100
1876/80	105	107	109	124	120	100
1881/85	95	98	97	109	106	96
1886/90	78	78	82	91	91	96
1891/95	76	88	89	98	105	96
1896/00	85	91	96	103	117	85
1901/05	83	94	98	117	119	105
1906/10	91	102	103	119	123	133
1911/15	106	129	123	152	137	128
1916/20	222	258	235	280	253	293
1921/25	119	138	138	156	139	210
1926/30	118	137	130	145	130	140

Year	Vegetable products		Animal products			
	Roots for cattle food	Potatoes	Cows	Pigs	Eggs	Milk
1861/65	100	100	100	100	100	100
1866/70	120	113	104	116	100	102
1871/75	112	120	139	126	121	106
1876/80	130	122	135	123	128	119
1881/85	146	121	141	123	119	111
1886/90	110	112	127	97	112	98
1891/95	137	118	143	123	123	100
1896/00	127	147	147	129	133	103
1901/05	118	158	176	155	142	119
1906/10	110	150	235	210	158	130
1911/15	98	188	310	242	174	148
1916/20	207	397	951	613	542	376
1921/25	158	298	431	342	326	244
1926/30	140	286	329	274	247	197

Note: These indices are computed on the basis of the prices given in Tables 68 and 73 a—b.

This trend must be seen against the background of the European agricultural crisis in the eighteen-seventies and 'eighties. The development of agriculture in Sweden reflects the general tendency to change from vegetable to animal production due to the heavy drop in corn prices resulting from the beginning wheat exports from America. Another contributing factor has been the growing demand for animal food and the tendency to stabilization of the demand for cereals due to the progressing change in the habits of consumption. The gradual improvement in the quality of animal products has also contributed to the rise in relative prices.

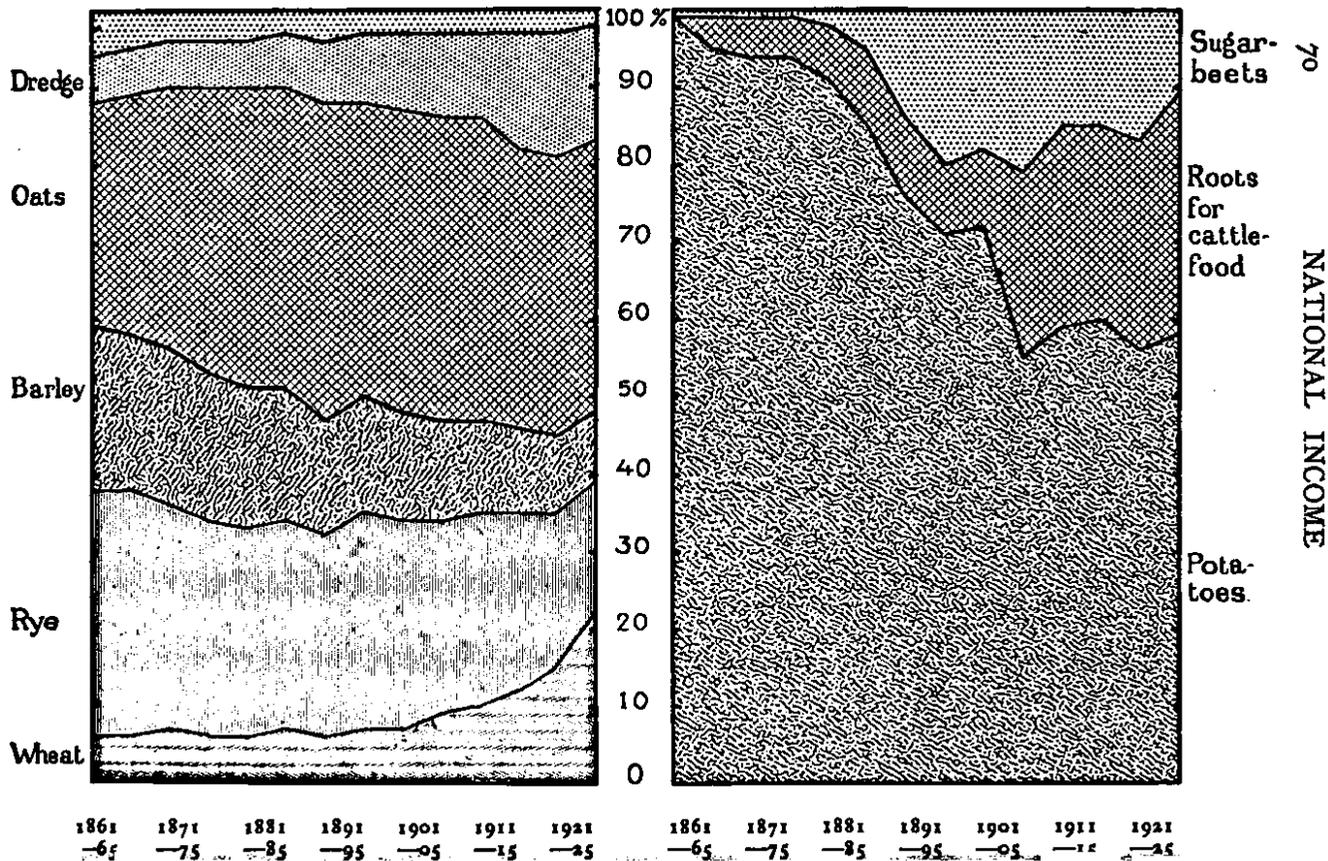
The production did not, however, change as radically in Sweden as in certain other countries, owing to the corn duties introduced by the tariff reform of 1888. Duties on cattle and animal food were also imposed at the same time, but the corn (and flour) duties were the most important, and the only ones involving positive protection.¹

The effects of the duties can be traced in the trend of the agricultural product prices. Their fall was checked, and they became stabilized while the general price level was still receding. This is especially characteristic in respect of corn prices, which had been falling continuously since the beginning of the eighteen-seventies.

It was pointed out above that, owing to the reaction from the animal production, the price movements of corn for cattle food were more favourable than those of cereals. This reaction is further illustrated by the increased importance of roots and corn (oats and dredge) for cattle food noticeable in Table 5 and Chart 4. There was also a strong increase in the production of succulents and hay, which is best illustrated by the rapid expansion of the area under grass (including succulent cattle food) in relation to the total ploughed area. From 27 % of the total area in the beginning of the 'seventies, the relative share of the pastures gradually grew to 38 % in 1913, while the area under

¹ *Betänkande angående tullsystemets verkningar i Sverige före världskriget. 1. (Statens offentliga utredningar. 1924: 37: Tull- och traktatkommitténs utredningar och betänksanden. 36.)*

Chart 4. Distribution, in per cent, of Vegetable Products (Values) 1861/65—1926/30.



corn simultaneously diminished from 50 to 46 %. In 1927 the corresponding area percentages were: pasture 42.2 % and corn 42.5 %.

Table 5. Distribution, in per cent, of Vegetable Products (Values) 1861/65—1926/30.

Year	C o r n					R o o t s				
	In % of the total production	Of which ¹					In % of the total production	Of which ²		
		Wheat	Rye	Barley	Oats	Dredge		Pota-toes	Roots for cattle food	Sugar-beets
1861/65	88	6	32	21	29	6	12	99	—	1
1866/70	87	6	32	20	31	6	13	95	4	1
1871/75	86	7	29	20	34	6	14	94	5	1
1876/80	86	6	28	19	37	6	14	94	5	1
1881/85	85	6	27	18	39	6	15	91	7	2
1886/90	83	7	27	17	39	7	17	85	10	5
1891/95	82	6	26	15	41	8	18	76	10	14
1896/00	81	7	28	15	38	9	19	71	9	20
1901/05	77	7	27	14	39	10	23	72	10	18
1906/10	75	9	25	13	39	11	25	55	24	21
1911/15	74	10	25	12	39	11	26	59	26	15
1916/20	69	12	23	11	36	15	31	60	25	15
1921/25	65	15	20	10	36	16	35	56	27	17
1926/30	68	22	17	9	35	15	32	58	31	11

Chart 4 also indicates the rise in wheat-growing since the beginning of the century at the expense of barley and rye. The quantity of wheat grown has increased considerably, especially in the nineteen-twenties. In 1900 the wheat crop amounted to about 130,000 tons, in 1910 it had risen to 200,000, in 1920 to 250,000, and in 1930 to over 500,000 tons. The area under wheat simultaneously expanded from 72,000 hectares in 1900 to 145,000 hectares in 1920 and 262,000 hectares in 1930. The figures indicate that a considerable part of the increase of the production in the nineteen-twenties was due to higher yield per hectare.

The structural change in the vegetable production is not confined to the above relative changes, but is also evidenced by a change in the relation of home production to the total

¹ In per cent of the corn production.

² In per cent of the root production.

internal supply. Table 6 and Chart 5 illustrate this trend in respect of the three principal crops that go in foreign trade, viz.: wheat, rye, and oats. In computing the ratio of production to internal supply, allowance has been made for the fact that imports and exports partly consist of flour and groats, which have been recalculated to corn.

**Table 6. Production of Corn in per cent of Internal Supply
1861/65—1926/30.**

Year	Wheat	Rye	Oats
1861/65	95	91	126
1866/70	84	83	143
1871/75	90	85	145
1876/80	73	76	148
1881/85	54	74	132
1886/90	54	77	122
1991/95	44	83	114
1996/00	46	84	101
1901/05	39	84	95
1906/10	47	91	94
1911/15	54	89	96
1916/20	61	99	99
1921/25	56	93	97
1926/30	71	88	98

Note: The following grinding percentages have been used for converting flour and groats into corn: wheat 75 %, rye 80 %, oats 50 %.

A small part of the internal supply of wheat and rye was at the beginning of the period covered by imported grain and flour. In the eighteen-seventies the imports, especially of wheat, began to grow, and by the beginning of this century the share of the home production of wheat in the consumption had been reduced to 40 %. In the last three decades, home production of wheat has again increased in relation to imports, largely owing to the intense efforts made to produce species of wheat suitable for cultivation in Sweden. The duty on wheat, introduced in 1888 and raised in 1895, made little difference to the trend of wheat imports as far as unground wheat was concerned, but the tariff affected the import of wheat meal, which fell rapidly after 1895. Meal had earlier constituted a considerable portion of the total wheat imports.

The effect of the duties on the imports of both rye meal and unground rye was considerably stronger. The chart

shows a beginning change already in the latter part of the eighteen-eighties, and the share of the home production rose until the country was practically self-supporting. The tendency in the nineteen-twenties to reduce the area under rye, and thus also the harvests, was apparently much stronger than necessitated by the steadily decreasing consumption, and the natural consequence of this has been increasing imports.

In respect of cereals — wheat and rye — it will be seen that the country was self-supporting to practically the same degree in the 5-year period 1926—1930 as in the eighteen-seventies, the home production being about 80 % of consumption. But while both production and consumption of rye has diminished, not only relatively but also absolutely, the wheat production has increased more than five-fold, and the consumption about six-fold. The very strong increase of consumption characterizing this period has thus been met by the wheat.

A considerable net quantity of oats was exported in the early years of the period. In this respect, too, the 'seventies mark a turning point, in that afterwards the export surplus diminished rapidly. It had in the beginning of this century been converted into a slight import surplus. This was partly due to the strong increase from that time of the demand on the home market on account of the increasing profitability of the animal production, and partly to the relation of the oat prices in the home market to those in the export markets. The indices in Table 4 show that the trend of oat prices, in spite of the absence of a protecting tariff (except from 1888 to 1892), was on the whole similar to that of rye prices. The duties on cereals thus apparently affected the price of oats, and made the latter less able to compete in foreign markets.¹ In this connection it is worth noting that oats are exported as cattle food, and imported mainly in the form of oat-meal, groats, and raw material for the mills.

¹ *Betänkande angående tullsystemets verkningar i Sverige före världskriget. 1. (Statens offentliga utredningar. 1924: 37. Tull- och träthattkommissionens utredningar och betänkanden. 36.), p. 171.*

Chart 5. Production of Corn in per cent of Internal Supply 1861/65—1926/30.

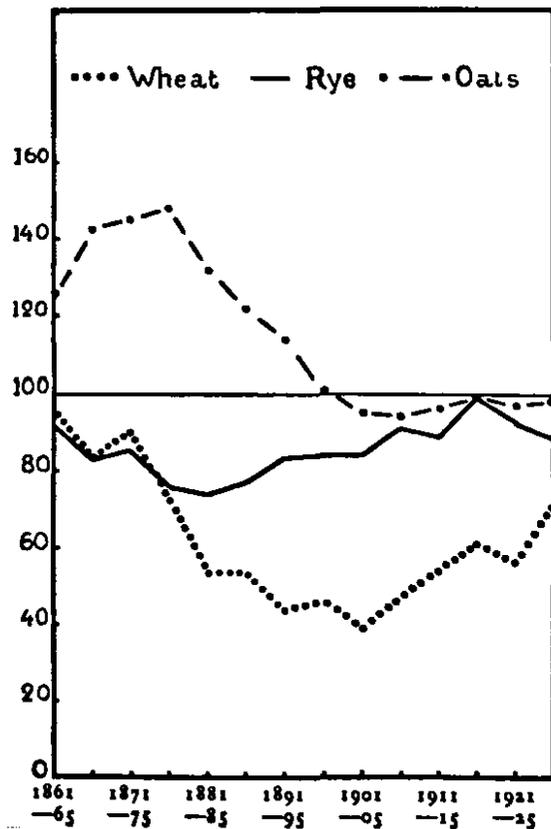
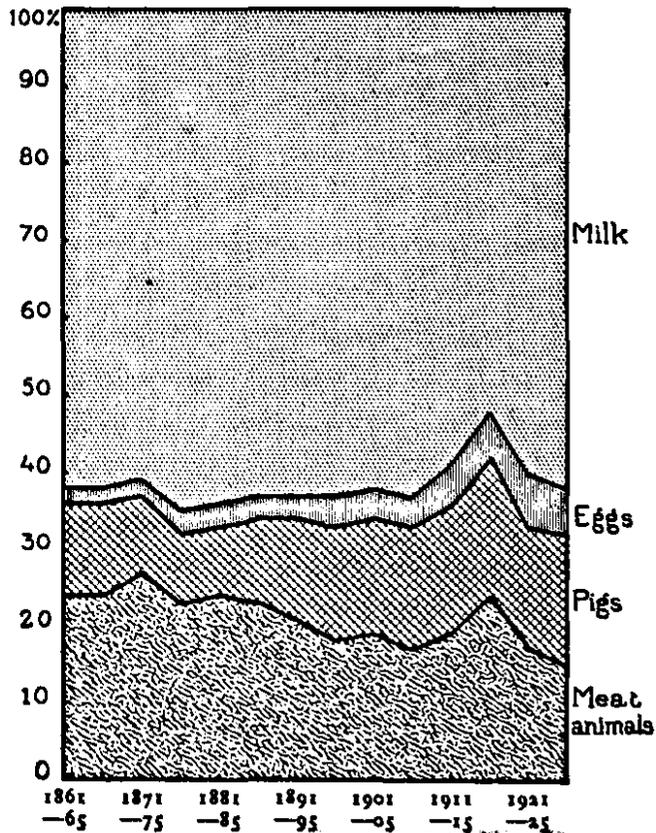


Chart 6. Distribution, in per cent, of Animal Products 1861/65—1926/30.



To sum up, it may be said that the degree to which Sweden has tended to become self-supporting has been affected by the tariff policy and its effect on home prices in relation to international prices, by technical changes in the production, and finally by the improvement in the standard of living and the consequent changes in consumers' demands.¹

Considering the group Animal Products, it will be seen from Table 7 and Chart 6 that milk has maintained throughout the period its position as the most important product, its contribution to the value of the animal production being more than 60 %.² Of the other products, eggs are of minor though gradually increasing importance. The composition of the meat production, on the other hand, has altered considerably; by the end of the period the value of the pig production was one sixth of the total product value. Simultaneously the price of pigs has fallen in relation to the price of beeves, which means that the relative increase in the value of pork is due to a rise in quantities proportionately greater than the relative fall in prices. This indicates that there has been a change in the character of the consumers'

Table 7. Distribution, in per cent, of Animal Products
(Values) 1861/65—1926/30.

Year	Meat animals	Pigs	Eggs	Milk
1861/65	24	12	2	62
1866/70	24	12	2	62
1871/75	27	10	2	61
1876/80	23	9	3	65
1881/85	24	9	3	64
1886/90	23	11	3	63
1891/95	21	13	3	63
1896/00	18	15	4	63
1901/05	19	15	4	62
1906/10	17	16	4	63
1911/15	19	17	5	59
1916/20	24	18	6	52
1921/25	17	16	7	60
1926/30	15	17	6	62

¹ Cf. *Belånkande angående tullsystemets verkningar i Sverige före världskriget. 1.* (Statens offentliga utredningar 1924: 37; Tull- och tvaktarbemittlans utredningar och belånkanden. 36.), p. 157 ff.

² No correction has been made for the duplication due to milk being used as cattle food.

demand. It should also be observed that the milk and egg prices have risen relatively less than the prices of cattle and pigs.

The foreign trade in live-cattle has never been important to Sweden. The exports of meat, pork, and butter — the most important of the processed animal products — are therefore of more interest. Table 8 gives the surplus imports or exports of these products. The figures prove that, as far as meat and pork are concerned, Sweden has been an importing country for the greater part of the period under review. When, towards the end of last century, the animal production began to increase, the import surplus dwindled, and was after 1910 converted into an export surplus (except in the years 1916/20). The very strong increase in pork exports in the 'twenties is especially marked, while the exports of other meat diminished.

**Table 8. Annual Average Import (–) and Export (+)
Surplus of Certain Products (Tons) 1861/65–1926/30.**

Year	Meat, other than pork	Pork	Butter
1861/65	— 397	— 1,480	— 902
1866/70	— 281	— 825	— 195
1871/75	— 608	— 7,258	+ 1,637
1876/80	— 1,039	— 13,002	+ 1,792
1881/85	— 1,367	— 8,065	+ 5,301
1886/90	— 1,233	— 2,632	+ 11,773
1891/95	— 317	+ 1,314	+ 19,175
1896/00	— 796	— 6,187	+ 21,650
1901/05	— 142	— 3,842	+ 18,838
1906/10	— 1,051	— 2,089	+ 18,197
1911/15	+ 7,046	+ 9,723	+ 20,071
1916/20	— 1,205	— 4,292	— 2,644
1921/25	+ 3,467	+ 8,516	+ 1,448
1926/30	+ 615	+ 19,538	+ 20,523

In respect of butter, the import surplus changed into an export surplus already in the eighteen-seventies. About 1900 butter exports reached their highest level, but in spite of some regression in the next decade they were nevertheless still considerable at the outbreak of War. The War caused a withdrawal from the foreign markets, which have only been gradually regained in the nineteen-twenties.

By the end of the period the animal production had thus become so extensive that there was a considerable surplus over and above the home consumption. The growing foreign demand for bacon has naturally had great influence on the development of the home production, and on the above-mentioned change to greater production of pigs at the expense of other meat. The heavy increase in the milk production in the 'twenties apparent in Table 75, is due to the greater foreign demand for butter. The growth in home demand, on the other hand, has been covered by a considerable expansion of the production of margarine.

4. *Allotment to Different Uses.*

In the allotment of the gross income to different uses, Agriculture proper has been combined with Horticulture and Fishing, while Forestry has been treated separately. This is but natural in view of the varying nature of the products.

In the classification of the Trade Statistics (see Part II, p. 249) imports and exports of home-grown agricultural products have been separately accounted for under the heading "specified products". Only the Trade Statistics data on quantities have been used, the values having been calculated by means of producers' prices. The value of imported and exported agricultural products of other kinds, such as colonial produce, horticultural produce, fruits and berries, other animal produce, fish, etc., has been allotted to different uses according to the classification schedule in Appendix D. The allocation of the total internal supply of agricultural products to the three principal uses (raw materials for agriculture and for manufacturing industries, and consumers' goods) may be obtained by adding the figures in Tables 9, Col. 5 (a small amount is also included in the value of imports given in Table 78, Col. 3), 29, Col. 1, and 59, Col. 3.

A considerable portion of the internal supply is made up of raw materials produced on the farms and used in agricultural production, or of similar products imported

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Table 9. Allotment of Home-grown Agricultural Products

Year	1	2	3	4	5	6	7	8
	Production	Imports	Exports	Internal supply	Of which to			
					A	AD	I	C
1861	318.9	7.2	15.5	310.6	106.1	—	79.9	124.6
62	320.1	6.3	12.3	314.1	110.0	+ 0.8	75.1	128.2
63	338.0	6.3	14.7	329.6	115.7	+ 0.6	85.3	128.0
64	303.7	7.1	15.0	295.8	94.1	+ 1.5	77.9	122.3
65	294.7	1.4	18.4	277.7	95.2	— 4.8	68.8	118.5
66	285.7	3.0	17.3	271.4	87.4	+ 3.2	65.2	115.6
67	342.1	8.7	24.3	326.5	106.3	— 0.8	81.8	139.2
68	359.3	18.8	18.8	359.3	134.9	— 11.0	92.2	143.2
69	352.2	16.3	26.0	342.5	104.6	+ 8.8	105.0	124.1
70	388.1	5.0	34.7	358.4	110.9	+ 5.5	91.0	151.0
1871	401.5	2.4	35.8	368.1	125.1	+ 4.8	90.0	148.2
72	438.7	6.0	31.3	413.4	141.2	+ 5.6	97.9	168.7
73	443.6	8.7	35.9	416.4	134.6	+ 6.7	97.9	177.2
74	488.4	23.1	35.7	475.8	156.7	— 5.0	137.4	186.7
75	462.6	12.4	39.6	435.4	133.5	+ 7.7	123.2	171.0
76	510.7	11.1	43.1	478.7	161.1	+ 1.1	113.6	202.9
77	479.9	23.7	34.0	469.6	152.0	— 2.2	123.4	196.4
78	484.1	23.3	49.0	458.4	145.2	+ 3.7	109.0	200.5
79	481.9	16.4	42.4	455.9	141.8	+ 0.3	111.2	202.6
80	468.0	21.8	39.5	450.3	141.0	— 0.4	111.0	198.7
1881	515.1	30.2	27.9	517.4	180.4	— 1.7	144.3	194.4
82	497.1	30.9	41.9	486.1	158.6	+ 5.3	124.3	197.9
83	523.9	34.4	40.5	517.8	163.3	+ 3.2	135.6	215.7
84	497.3	29.8	29.7	497.4	163.1	+ 2.8	123.4	208.1
85	493.9	33.3	29.0	498.2	164.1	+ 3.4	137.5	193.2
86	431.6	18.2	31.7	418.1	135.7	+ 1.5	115.3	165.6
87	421.9	19.8	29.9	411.8	141.8	— 2.3	115.6	156.7
88	414.7	25.3	18.1	421.9	134.4	+ 2.0	120.3	165.2
89	456.5	26.9	14.7	468.7	156.4	— 1.2	132.7	180.8
90	473.6	29.0	12.2	490.4	156.8	+ 5.1	144.8	183.7
1891	553.0	32.3	20.6	564.7	177.9	+ 1.4	161.6	223.8
92	584.1	33.8	15.2	602.7	191.7	+ 4.1	197.6	209.3
93	571.3	28.1	21.3	578.1	193.8	+ 0.6	178.7	205.0
94	538.3	33.2	16.8	554.7	177.9	+ 4.3	176.0	196.5
95	528.6	29.9	10.1	548.4	171.6	+ 2.6	160.1	214.1

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to Different Uses 1861—1930. Consumption Year. Mill. kronor.

Year	1	2	3	Internal supply	5	6	7	8
	Production	Imports	Exports		Of which to			
					A	AD	I	C
1896	536.5	30.7	9.6	557.6	178.9	+ 0.7	164.8	213.2
97	546.4	29.0	4.9	570.5	174.4	+ 0.2	184.1	211.8
98	594.4	45.3	4.8	634.9	186.2	+ 2.2	201.5	245.0
99	654.6	59.4	4.9	709.1	217.8	+ 0.1	212.1	279.1
1900	625.2	59.4	2.8	681.8	194.6	- 1.5	216.3	272.4
1901	699.1	45.3	4.9	739.5	230.9	+ 0.5	226.6	281.5
02	659.5	71.5	3.1	727.9	202.9	- 2.0	236.5	290.5
03	692.0	69.1	2.7	758.4	223.8	+ 0.1	227.0	307.5
04	719.7	74.7	2.8	791.6	241.6	- 5.3	238.8	316.5
05	673.6	63.3	3.9	733.0	218.0	+ 1.0	229.5	284.5
06	779.0	57.0	4.9	831.1	251.6	+ 5.6	250.8	323.1
07	901.7	51.5	4.7	948.5	280.5	+ 1.2	261.5	405.3
08	930.2	62.7	4.5	988.4	285.7	+ 5.7	265.0	432.0
09	994.1	67.4	4.6	1056.9	315.5	+ 3.6	287.9	449.9
10	980.1	64.3	6.8	1037.6	307.7	+ 3.3	286.5	440.1
1911	963.2	56.7	12.7	1007.2	311.9	- 6.0	288.1	413.2
12	995.3	79.5	9.6	1065.2	311.0	- 13.1	307.3	460.0
13	1091.0	69.1	20.0	1140.1	342.0	- 13.6	305.6	506.1
14	1067.4	51.8	21.7	1097.5	345.7	- 19.4	296.3	474.9
15	1337.7	120.9	16.5	1442.1	418.2	- 11.2	435.6	599.5
16	1601.4	56.2	11.9	1645.7	491.0	- 4.6	483.4	675.9
17	1788.9	38.1	2.8	1824.2	549.4	- 39.8	413.2	901.4
18	2386.0	72.6	6.5	2452.1	574.3	- 89.7	362.5	1605.0
19	2997.3	113.3	5.4	3105.2	792.5	+ 40.9	542.4	1729.4
20	2835.9	135.0	18.2	2952.7	825.1	+ 15.8	722.9	1388.9
1921	2495.2	105.8	37.8	2363.2	825.4	- 5.1	653.5	1089.4
22	1735.0	54.4	18.4	1771.0	458.3	+ 1.5	520.9	790.3
23	1473.7	99.2	10.2	1562.7	430.4	+ 3.6	394.9	733.8
24	1555.9	124.7	7.7	1672.9	446.2	+ 4.7	458.9	763.1
25	1628.1	118.4	6.4	1740.1	485.5	+ 7.8	433.4	813.4
26	1653.5	80.7	24.3	1709.9	483.0	+ 10.4	475.5	741.0
27	1601.8	115.8	28.1	1689.5	504.8	+ 12.0	494.6	678.1
28	1568.1	135.1	25.9	1677.3	452.7	+ 16.5	517.1	691.0
29	1626.8	107.0	36.2	1697.6	470.6	+ 17.5	523.3	686.2
30	1517.6	68.0	15.7	1569.9	450.3	+ 13.6	449.4	656.6

Note. Production: the gross product value of corn and roots (for the preceding year), meat animals and pigs, eggs, milk, horticultural produce, and fish. Imports and exports: the value at producers' prices, of imported and exported corn and roots, live-stock, and eggs. Internal supply: production + imports - exports (cf. below). Utilization: A = agricultural raw materials from agriculture; corn and roots, hides, pigs to pork butchers, milk to dairy factories, and fish to fish-curing and conserving establishments. C = consumers' goods: internal supply - (A + AD + I). C does not merely include the consumption of agricultural products produced in the country or imported, but also certain exports, e. g. of meat. Owing to the nature of the statistical material, these exports had to be included in the exports of non-specified animal agricultural produce (see Part II, p. 250).

into the country.¹ From Table 10 it will be seen that this portion, which at the beginning of the period was about one third of the total, has gradually diminished, and was only 28 % in the last decade. It has already been pointed out that this does not include the value of hay and straw. If this had been included in the gross income and in the value of the products used in agriculture, the share of these would be considerably greater. The value of the hay and straw harvest given in the official statistics for the period 1926/30, 472 mill. *kyonor* (annual average), will give some idea of the magnitude of this item. If supplemented by this, the percentage for that period would be 44 %. There is some reason to assume that the value of the straw and hay are too high, however, as only a small portion of the total production is sold, while part of what is used on the farms is often wasted or used in a way indicating that little or no value is attached to it. This will also be apparent if the value of the production of straw and hay is compared with the net value of the animal production computed in Table 2, Col. 2.

Table 10. Distribution of Agricultural Products to Different Uses, in per cent of Internal Supply, 1861/65—1926/30.

Year	A	AD	I	C
1861/65	34	—	25	41
1866/70	33	—	26	41
1871/75	33	1	26	40
1876/80	32	—	25	43
1881/85	33	1	26	40
1886/90	33	—	28	39
1891/95	32	—	31	37
1896/00	30	—	31	39
1901/05	30	—	31	39
1906/10	30	—	28	42
1911/15	30	— 1	28	43
1916/20	27	— 1	21	53
1921/25	28	—	27	45
1926/30	28	1	30	41

Compared to other uses, investments in live-stock plays a very insignificant part. The negative figures in the periods 1911/15 and 1916/20 illustrate the extensive killing and

¹ Maize, although not produced in the country, is included in this group.

the big export of live-stock during the War. In interpreting the figures it must be remembered that the boundary line between industrial raw materials and consumers' goods has been drawn on conventional lines, being, for instance, determined partly by the scope of the Industrial Statistics. All meat, whether from animals killed in slaughter-houses or not, and all pork from pigs not killed at the export abattoirs, have thus been considered consumers' goods derived from agriculture.

	Industrial raw materials	Consumers' goods
	%	%
Corn	48	1
Roots	10	7
Meat animals	—	12
Pigs	9	11
Hides	7	—
Eggs	—	7
Milk	25	42
Horticultural produce	—	16
Fish	1	4
	Total 100	100

The average proportion of different products allotted to industrial raw materials and consumers' goods respectively in the period 1921/30 are given in the table above.

FORESTRY (Appendix C).

5. *Methods.*

As no information on the extent of the logging operations are available, the indirect method of basing the calculation on the internal supply of forest products has had to be used for estimating the gross income from the forests. For lack of material, the calculations have had to be restricted to four different modes of utilizing the forest products, viz. as raw material for sawmills, pulp mills, and charcoal production, and as fuel for consumption. In addition, the value of unworked wood, exported from or imported into the country, has been computed. This provides no absolute measure of the quantities and values of timber logged from the forests, as several important

uses are not included, e. g. logs used in building and constructional work, or worked in small sawmills not included in the Industrial Statistics, and wood fuel used in industry, transport work, etc.

The consumption of the sawmill and pulp industries has been computed from the annual output figures and the estimated consumption of timber per unit of product. Owing to lack of information it has been necessary to use fixed ratios of timber to output. This assumption is hardly in accordance with actual facts. Since the different factors, which are relevant in this respect, have opposite effects, it is, however, impossible to give an opinion on how they have influenced the trend. Owing to the nature of the material the results are less reliable for the early part of the period — up to 1896 for the sawmills and 1898 for the pulp mills.

Log values have been calculated from the producers' prices, available from 1904 onwards. For the earlier years prices have been constructed with the aid of a price index of average export prices, a method which will give a fairly satisfactory result. The value of the pulp-wood has been estimated as a certain percentage of the manufacturing costs of the pulp, but as the information received on the ratios of wood costs to product value varies considerably, the constructed values must be considered approximate.

The quantities of timber used for manufacturing charcoal have also been calculated from the estimated production of charcoal for the iron industry. In particular, the figures referring to the early years of the period, when considerable quantities of charcoal were also used for other purposes, are much too low. The timber costs have been assumed to bear a certain proportion to the value of the produced charcoal.

The value of the wood fuel used for consumption has been computed on the basis of certain data regarding consumption per capita and prices obtained from the cost-of-living inquiries of the Institute and the Social Board, due allowance being made for the varying conditions in different districts. As in the previous cases the result of

these calculations is merely in the nature of an estimate of the magnitude. Wood is also used as fuel by industry, on steamers and railways, etc., but no material for estimating the quantities throughout the period under review is available. This item has therefore been excluded from the calculated gross income from forestry. In Appendix C, however, figures available for certain odd years are given, and according to them the annual value of the wood fuel consumed by the manufacturing and transport industries averaged about 15 mill. *kronor* from 1925 to 1927 inclusive.

The above computations only apply to the internal supply of softwood, and hardwood used as fuel. In order to arrive at an estimate of the total product value, it is necessary respectively to add to or deduct from this the value of exported and imported round or hewn softwood logs, which figures — supplemented by certain calculations in respect of the years from 1861 to 1870 — were obtained from the Trade Statistics. The exports of native forest products, not included above, are considered to be a measure of the home production of such products. As to the calculations of the total internal supply of forest products, the Reader is referred to Appendix C.

6. *The Gross Income and its Allotment to Different Uses.*

The total product value of the above home production represents the gross income of forestry (Table 1). On the whole, this may be said to correspond to the root value of the timber produced, plus the costs of logging and transport to the place where it is to be used. The gross income will thus include the costs of transport from the producer to the consumer, which is justified in this instance, as they are largely composed of costs for horse transport and floating that are not included elsewhere. The only duplication is in respect of railway and shipping freights.

The necessary exclusions make the estimated gross value too low. The excluded products are used in the production processes of other industries, and their values ought con-

sequently to have been included as debit items in the computation of the net incomes of these industries. As this has not been done, the net income of the latter will be correspondingly too high. This circumstance does not affect the total national income, however, as the positive and negative items will cancel out. This is true also of the greater part of the gross product value computed here, since all other products than wood fuel and exported timber are used as raw materials in other industries. The total national income figures will therefore be affected only by errors in the value of wood fuel and exports.

As the product value of forestry has as a rule been computed from the value of the finished goods, and as there is generally a period of one or two years between the times when the timber is taken out of the forests and when it is used, the product values will only be accounted for after a certain time-lag. Allowance must be made, however, for changes in the stocks of timber, pulp wood, and other forest products. When stocks are reduced because of an increase in the output of sawn goods or pulp or when stocks are rising because of a reduction in output, this will as a rule react quickly on logging operations in the following winter. The product values computed here will thus register certain fluctuations in the logging operations earlier than they actually occur. What may be called primary fluctuations, i. e. labour disputes in the lumbering trade, unfavourable weather conditions, etc., will on the other hand usually not be registered, as they are equalized by changes in stocks.

As was said above, the home utilization of the forest products has only been computed in four branches: timber for sawmills, for pulp mills, for charcoal production, and for fuel. The figures in Table II (Col. 6), giving the consumption of logs in building and constructions, refer only to imports.

Wood fuel was the most important forestry product at the beginning of the period, but the sawmill industry was then expanding, and its need of raw materials grew rapidly.

The timber consumption at the sawmills reached its maximum already in the 'nineties, and barring occasional fluctuations — for instance during the general strike in 1909, and in the war years — it has since kept at the 11—12 million m³ per annum level. The increasing values are thus due to an increase of log prices. Beside the abnormally high prices of the war period, a very marked rise is noticed in 1872—1874, followed by a fall.

At the time when the sawmill industry began to stagnate, the pulp industry began to compete with it for the raw material. The strong upward trend of the raw material consumption was interrupted by the War, but continued after the crisis of 1921—1922, and in the last years of the 'twenties the raw material consumption of the pulp mills has exceeded that of the sawmills in quantity and probably also in value.

The timber consumption for charcoal burning, slowly dwindling already before the War, dropped to insignificance in the 'twenties. This was due to technical changes in the iron industry, and to the heavy fall in the output of charcoal pig iron.

Wood fuel for consumption is still an important forestry product. Although it has steadily diminished in quantity since the 'seventies, its pre-war value remained constant — thanks to the upward tendency of prices since the beginning of the 'nineties — at an average of 50 to 70 mill. *kronor* per annum. Since the War the value, too, has tended to fall.

As the calculated gross income has ever since the 'eighties been largely dominated by the industrial raw materials, it will vary with the cyclical fluctuations of industry. Owing to the time lag between the purchase and the processing of the raw materials, and to the equalizing influence of stocks, the cyclical variations in forestry, on the other hand, will not be wholly reflected. It will only be possible to observe the general trend.

The importance to production of the exports will be seen from the figures relating to the final products, i. e. wood goods, pulp, and paper. The exports of unprocessed forest products are relatively insignificant, and have decreased in

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Table II. Gross Income of Forestry, and Allotment of

Year	1	2	3	4	5	6	7
	Gross income	Imports	Exports	Internal supply	Of which to		
					I	B + R	C
1861	87.7	0.5	7.6	80.6	21.6	—	59.0
62	82.7	0.3	6.8	76.2	22.2	—	54.0
63	82.9	0.4	6.2	77.1	24.1	—	53.0
64	82.7	0.5	5.9	77.3	26.3	—	51.0
65	88.9	0.6	7.4	82.1	31.1	—	51.0
66	92.4	0.7	6.5	86.6	29.6	—	57.0
67	94.6	0.7	6.6	88.7	31.7	—	57.0
68	93.2	0.6	9.2	84.6	33.6	—	51.0
69	88.1	0.6	8.5	80.2	35.2	—	45.0
70	97.1	0.6	10.1	87.6	38.6	—	49.0
1871	112.4	0.7	11.0	102.1	41.1	—	61.0
72	139.6	0.9	16.1	124.4	59.4	—	65.0
73	169.8	1.3	19.4	151.7	73.6	0.1	78.0
74	183.1	1.8	21.4	163.5	74.1	0.4	89.0
75	159.2	1.3	14.5	146.0	66.8	0.2	79.0
76	182.1	1.5	22.3	161.3	75.3	—	86.0
77	181.0	1.5	20.3	162.2	82.2	—	80.0
78	140.5	1.3	10.7	131.1	55.0	0.1	76.0
79	125.7	1.1	9.9	116.9	51.9	—	65.0
80	154.9	1.6	14.4	142.1	73.1	—	69.0
1881	167.4	2.1	17.6	151.9	75.9	—	76.0
82	173.9	2.5	14.6	161.8	88.8	—	73.0
83	162.1	2.4	17.3	147.2	79.2	—	68.0
84	152.0	2.6	14.3	140.3	76.2	0.1	64.0
85	152.3	2.5	14.8	140.0	78.0	—	62.0
86	133.1	2.2	12.6	122.7	64.5	0.2	58.0
87	135.5	2.1	11.3	126.3	70.3	—	56.0
88	154.4	2.5	17.5	139.4	84.4	—	55.0
89	162.8	2.4	17.5	147.7	89.7	—	58.0
90	159.9	3.2	16.8	146.3	88.2	0.1	58.0
1891	159.7	2.8	16.3	146.2	90.2	—	56.0
92	152.5	2.8	19.4	135.9	82.9	—	53.0
93	151.8	3.0	16.9	137.9	84.9	—	53.0
94	158.8	3.4	16.2	146.0	93.0	—	53.0
95	159.3	4.3	16.5	147.1	97.1	—	50.0

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Internal Supply to Different Uses 1861—1930. Mill. *kronor*.

Year	1	2	3	4	5	6	7
	Gross income	Imports	Exports	Inter- nal supply	Of which to ¹		
					I	B + R	C
1896	153.5	4.6	15.9	142.2	93.1	0.1	49.0
97	177.5	6.0	17.1	166.4	115.2	0.2	51.0
98	178.5	5.0	17.6	165.9	113.6	0.3	52.0
99	186.4	4.0	20.3	170.1	110.9	0.2	59.0
1900	211.8	5.5	21.6	195.7	135.4	0.3	60.0
1901	186.4	3.4	16.9	172.9	117.7	0.2	55.0
02	182.8	3.6	21.3	165.1	116.9	0.2	48.0
03	207.8	4.2	24.0	188.0	136.6	0.4	51.0
04	195.3	4.3	20.9	178.7	127.5	0.2	51.0
05	179.4	5.1	16.0	168.5	117.2	0.3	51.0
06	194.3	4.3	22.6	176.0	125.7	0.3	50.0
07	196.7	7.6	22.5	181.8	127.2	0.6	54.0
08	195.4	8.9	20.2	184.1	121.1	1.0	62.0
09	183.1	8.9	19.0	173.0	113.7	0.3	59.0
10	221.1	13.5	18.2	216.4	160.3	0.1	56.0
1911	213.1	12.7	18.8	207.0	153.8	1.2	52.0
12	235.1	15.2	17.1	233.2	180.1	0.1	53.0
13	253.5	17.9	21.1	250.3	195.2	0.1	55.0
14	259.5	9.4	21.6	247.3	187.3	—	60.0
15	281.3	8.9	26.3	263.9	196.7	0.2	67.0
16	410.4	9.7	30.0	390.1	301.1	—	89.0
17	505.4	4.5	16.9	493.0	351.9	0.1	141.0
18	597.2	4.4	28.6	573.0	392.0	—	181.0
19	664.3	14.8	52.7	626.4	444.3	0.1	182.0
20	938.5	23.5	49.9	912.1	675.2	0.8	236.0
1921	399.2	8.3	19.4	388.1	265.3	0.5	122.0
22	378.4	7.8	19.6	366.6	260.6	0.7	105.0
23	427.8	16.2	33.2	410.8	303.5	1.2	106.0
24	434.1	13.2	23.9	423.4	316.0	1.4	106.0
25	417.7	15.0	19.9	412.8	313.1	1.7	98.0
26	422.1	16.1	15.2	423.0	328.5	1.5	93.0
27	441.2	17.2	20.9	437.5	340.8	1.7	95.0
28	439.8	14.5	28.1	426.2	335.0	1.2	90.0
29	470.0	11.5	28.2	453.3	366.4	0.9	86.0
30	421.6	16.4	22.4	415.6	330.4	1.2	84.0

¹ Also to A, 1920: 0.1, 1921: 0.3, 1922: 0.3 and 1923: 0.1 mill. *kronor*.

importance since the end of last century. Table 12 gives the average exports, in per cent of average manufactured products, from 1896/00 to 1926/30, a period when the statistics may be considered reliable.

Table 12. Forestry Products: Exports in per cent of Production 1896/00—1926/30.

Year	Un-processed wood ¹	Sawn and planed wood	Pulp	Paper
1896/00	10	81	65	50
1901/05	10	81	68	61
1906/10	10	77	68	64
1911/15	8	77	72	63
1916/20	6	68	69	61
1921/25	6	77	70	72
1926/30	5	75	69	67

The table indicates a relative regression in the wood exports, which also means an actual, though slight, reduction of the absolute figures. This tendency towards diminishing exports is partly due to an increase in the home demand for wood goods, and partly to the fact that with the price relations which have been ruling in the last decades the competition from the pulp industry has restricted the supply of raw materials for sawing to the limit set by the actual logging possibilities. The exports of pulp and paper have increased considerably, both absolutely and in proportion to the production. The relative increase is most marked in respect of paper. These differences in the trends of the four products illustrate the long-run tendency towards a relative increase in exports of more highly finished goods.

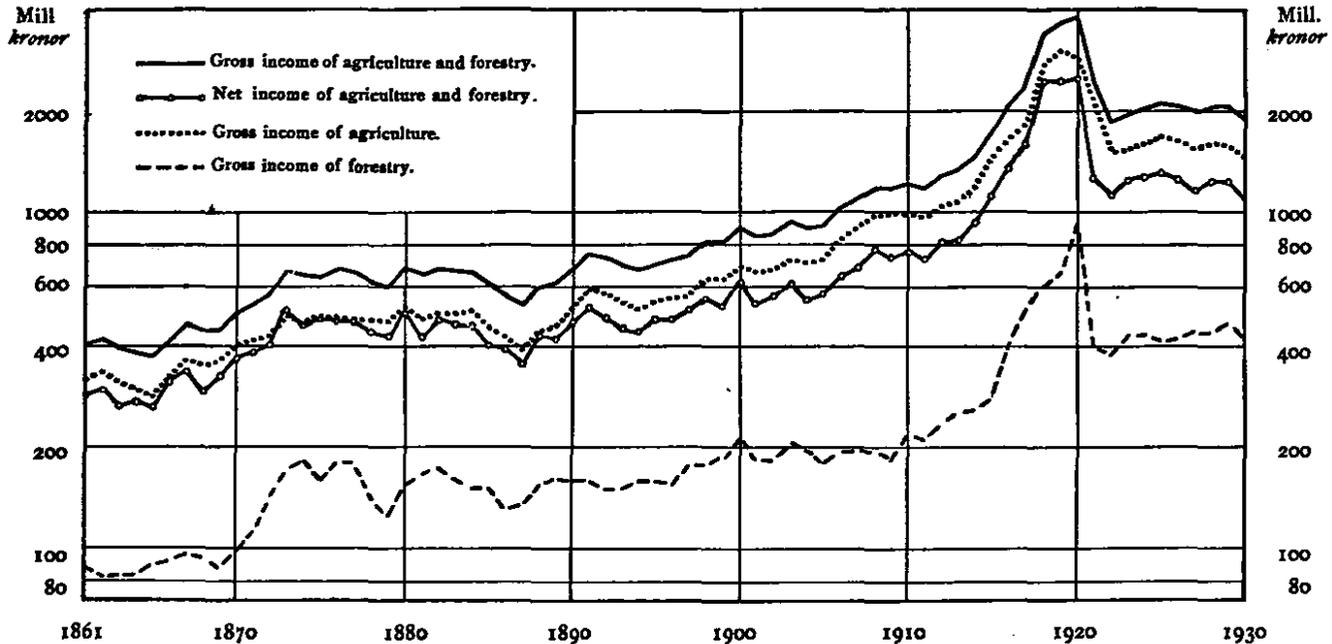
AGRICULTURE (INCLUDING HORTICULTURE AND FISHING) AND FORESTRY.

7. *Net Income.*

The net income of agriculture given in Table 1 also includes the net income of horticulture, fishing, and forestry. Agriculture dominates this group of incomes.

¹ In per cent of the production included in the gross income of forestry. These percentages do not give the actual ratio of exports to total production, and refer — contrary to what is the case in the other columns — to values and not to quantities.

Chart 7. Gross and Net Income of Agriculture and Forestry 1861—1930.



Note. The income of horticulture and fishing is included in the income of agriculture.

It will be observed from Tables 13 and 78 that the debit items largely consist of agricultural products. The composition of these is discussed in Part II on p. 139, and it will only be necessary to bear in mind that hay and straw are not included. The table shows, however, that the item "Raw materials from agriculture" has suffered a relatively heavy reduction, from over 90 % of the total at the beginning of the period to 66 % at its end. This is connected with the increased use of industrially produced cattle food. Imports of raw materials for agriculture, most of which are industrial products, show the same tendency.¹ The transport services consist only of shipping and railway freights for goods used in agriculture. The figures from the 'twenties, when motor transports were steadily increasing, are therefore probably too low and the net income too high. As no merchanting charges are included in the value of the raw materials, there is an additional factor making the net income too high. But such a great part of the raw materials deriving from agriculture itself and never being handled by middlemen this error is probably not very important.

Since raw materials and services derived from other industries and used in forestry are insignificant in comparison with the gross value of forest products, this gross value can be regarded as an approximate measure of the net income of forestry, with due regard to all reservations made above as to deficiencies in material and calculations.

The Reader is referred to Chapter IV for a more detailed analysis of the net income in relation to prices and population. Suffice it to say here that the calculated net income probably gives a reliable picture of the trend during the period, and of the cyclical fluctuations. No importance should on the other hand be ascribed to the occasional short variations of income indicated by the figures. Since a great part of the product value, the animal production, is estimated on the basis of statistics which do not, as far as quantities are concerned, register short cyclical variations, the price

¹ Observe that the imported corn and roots used for seed or cattle food are included in "Raw materials from agriculture".

Table 13. Debit Items of Agriculture, etc., and Forestry (exclusive of Depreciation Allowances): Percentage Distribution 1861/65—1926/30.

Year	Raw materials from agriculture	Raw materials from industry	Imported raw materials	Transport services
1861/65	91	8	1	—
1866/70	89	8	2	1
1871/75	86	8	5	1
1876/80	85	8	6	1
1881/85	84	10	5	1
1886/90	82	10	7	1
1891/95	83	10	6	1
1896/00	78	12	9	1
1901/05	73	14	11	2
1906/10	73	14	11	2
1911/15	72	15	11	2
1916/20	72	17	8	3
1921/25	71	19	8	2
1926/30	66	21	11	2

changes will be the dominating factor in the short movements of the product value. As to the large amount debited the agricultural production in 1921, and the correspondingly heavy reduction of the net income in that year, the Reader is referred to what has been said above (p. 54) of the methods of computing the debit items. The figures relating to the first decennial period must be used with discretion, as the material was then very deficient.

MANUFACTURING, MINING, AND HANDICRAFTS. (Appendix D)

8. *The Trend of Production.*

The determination of the gross product value. The items necessary for the computation of the total gross product value of Manufacturing, Mining, and Handicrafts are:

- I. The product values given in the Industrial Statistics;
- II. The estimated values of products not accounted for in the Industrial Statistics before certain years, or in certain periods ("Other Industries"); and
- III. The estimated product values of Handicrafts.

The basic material consists of the product values of the individual commodities accounted for in the annual Industrial Statistics. In the course of the period investigated the statistics have been considerably improved, and extended to comprise an ever wider range of industrial production. In the earlier part of the period, for instance, returns were not required from concerns considered to be intimately associated with the extractive branches of production — agriculture, forestry, mining — which at that time were not considered to be industries in the proper sense of the word. A great many of them, including establishments as important as flour mills, sawmills, planing-mills, as well as mines and ironworks, were not included in the statistics until 1896; for the Mining Statistics, however, data as to quantities had long been returned by the industries allied to mining. In 1913, the statistics were again supplemented by the inclusion of a number of industries that had not previously had to render returns. A factor of still greater importance was, however, that certain rules for the inclusion of enterprises in the statistics were introduced in that year, whereby for the first time a line of demarcation was drawn up between industry proper and the minor industries and handicrafts. In the earlier years, too, the statistics had mainly included the production of large enterprises, but the fact that a comparatively large number of small firms was struck out in 1913 indicates that the method of accounting was rather arbitrary.

The years 1896 and 1913 may be said to be the limit years of periods during which the scope of the statistics was on the whole similar, even though it must not be forgotten that certain extensions were effected in these periods, too. The changes in the statistics from one period to another, on the other hand, are considerable, and have greatly affected the comparability of the data. In order to make the estimated gross product values of industry more comparable, supplementary calculations of the product values have, therefore, been made in respect of such more important industries as have periodically not been

included in the statistics. The value of handicraft production, throughout the period, has also been calculated.

The product values of in all fourteen industrial groups, of which the most important are the mining industry, sawmills and planing-mills, flour mills, dairy factories, spirit distilleries, and charcoal manufacturing, have been separately estimated. In respect of certain industries the calculations are based on material which is admittedly very deficient, and are consequently of no independent value. The information from other industries, again, among them one or two of the largest, provides a relatively satisfactory basis.

The estimate of the product value of mining (from 1861 to 1895) is based on the quantitative output of each product as returned in the Mining Statistics, and on index-series of the average prices of the corresponding products as given in the Trade Statistics from 1871; for the earlier years other sources, comprising both internal and foreign prices, have been used. As to the price material, it should be remembered that the price-trends at the place of production and at the place where the product leaves the country might differ, and also that the average quality of the goods produced and exported may have varied. For these and similar reasons, any estimate of the product value will be rather uncertain.

The product value of the sawmill industry (from 1861 to 1895) are computed on the basis of the actual exports of sawmill products, and on certain assumptions regarding the internal consumption of such products by the joinery, handicraft, and house-building industries. The export value constitutes a considerable part of the calculated gross value: for the periods 1861/65, 1876/80, 1891/95, it averaged 75.7 %, 80.4 %, and 81.9 % respectively. All export values have been reduced by about 10 %, on the assumption that this corresponds to the ratio of merchanting charges and freights from the place of production to the place of export. Up to 1871, only the quantities actually shipped were given, and their values were

estimated on the basis of available prices. The estimated value of the home consumption is only approximate.

The production of the flour mills has been estimated for the whole period. The calculation has been based on the quantities of corn available each year for human food, which has been obtained as the difference between the total supply and the quantity consumed for other purposes (cattle food, seed, and the manufacture of spirits and starch). The production of the large flour mills having from 1896 been given in the Industrial Statistics, their consumption of grain has been computed and deducted from the first-named quantity. The value of the flour mill production has been determined with the aid of the available grain prices. The reliability of these calculations mainly depends on the extent to which it has been possible to determine the quantity of raw material; as this has been computed as a residual item, it is necessarily uncertain.

The calculation of the gross value of the dairy factory products (1861—1912) is based on the information given in the dairy statistics from 1890 to 1912, while for the earlier years they were calculated as the value of the exported dairy factory products. Seeing that at that time the dairy factories were mainly producing for export, the greater part of their production is thus probably included.

For the period when the product values of the spirit distilleries were not given in the Industrial Statistics (1861—1891), information is available from other sources on the quantities of proof spirit produced. As regards Stockholm, prices are on record since 1862, and the Stockholm prices are probably representative of the whole production. Beside proof spirit, the distilleries also manufactured certain other products. From 1896 to 1912 their values averaged 15 % of the value of the proof spirit. That ratio has been applied also to earlier years.

The estimated value of charcoal manufacturing (1861—1930) is certainly far too low before 1899. In the succeeding years the part of this production which is not accounted for in the Industrial Statistics (charcoal manufactured else-

where than at the sawmills) has been computed from information supplied in the Mining Statistics on charcoal consumption in the ironworks; the total production is, therefore, mainly estimated.

The product value of the remaining eight industries that have been subjected to special calculations is of quite subordinate importance. An account of these calculations is given in Appendix D.

The statistical material available for computing the handicraft product value is extremely deficient, and the calculation, which is based on employees and their earnings, can only be taken as a rough approximation. The number of craftsmen and labourers has been based on the data given in the Industrial Statistics from 1864 to 1910, and in 1915, regarding the number of persons engaged in handicrafts, and on the corresponding figures of the 1920 Population Census. For lack of other material, the annual earnings of craftsmen and their labourers have been assumed to be the same as those of industrial workers in corresponding trades; the statistical wage-material of the Institute and of the Social Board has been used for this purpose. The product value was finally determined on the assumption that it equalled double the amount of the wages. It may be noted that a computation of the gross handicraft value in 1930, based on recently published comprehensive statistics on private enterprises, which it has not been possible to take into account in this investigation, gave as a result a value of close on 900 mill. *kronor*, while the above calculation came to 855 mill. *kronor*. The relatively insignificant difference between the two results is obviously fortuitous. It is probable, however, that the gross handicraft value has been of approximately that order of magnitude in the last decade.

The above estimates affect the determination of the contributions made by the different industries to the national income, and the relative sizes of these, and any errors made will of course affect the result; in so far as the calculations refer to goods that undergo further processing

NATIONAL INCOME

Table 14. Manufacturing, Mining, and Handicrafts:

Year	1	2	3	4	5	6	7
	Production (in mill. kronor)				In per cent of total		
	Incl. in the Industrial Statistics	Other industries	Handicrafts	Total	Incl. in the Industrial Statistics	Other industries	Handicrafts
1861	73.6	180.0	53.0	306.6	24.0	58.7	17.3
62	69.3	175.0	56.0	300.3	23.1	58.3	18.6
63	65.1	192.2	56.0	313.3	20.8	61.3	17.9
64	69.8	189.9	56.0	315.7	22.1	60.2	17.7
65	74.4	193.3	57.0	324.7	22.9	59.5	17.6
66	83.7	185.0	57.0	325.7	25.7	56.8	17.5
67	79.2	202.5	56.0	337.7	23.4	60.0	16.6
68	77.3	216.0	55.0	348.3	22.2	62.0	15.8
69	82.3	237.9	53.0	373.2	22.1	63.7	14.2
70	92.3	230.8	54.0	377.1	24.5	61.2	14.3
1871	105.1	245.4	57.0	407.5	25.8	60.2	14.0
72	126.2	316.7	66.0	508.9	24.8	62.2	13.0
73	146.8	364.1	74.0	584.9	25.1	62.2	12.7
74	168.4	365.6	84.0	618.0	27.2	59.2	13.6
75	172.7	336.3	91.0	600.0	28.8	56.0	15.2
76	173.1	335.2	94.0	602.3	28.7	55.7	15.6
77	167.4	343.6	99.0	610.0	27.5	56.3	16.2
78	145.1	270.9	91.0	507.0	28.6	53.4	18.0
79	134.1	272.1	82.0	488.2	27.5	55.7	16.8
80	152.8	315.5	88.0	556.3	27.5	56.7	15.8
1881	168.0	360.4	98.0	626.4	26.8	57.5	15.7
82	186.3	373.2	103.0	662.5	28.1	56.3	15.6
83	191.0	356.5	103.0	650.5	29.4	54.8	15.8
84	191.4	341.9	105.0	638.3	30.0	53.6	16.4
85	191.4	364.1	108.0	663.5	28.8	54.9	16.3
86	189.7	304.2	108.0	601.9	31.5	50.5	18.0
87	191.5	316.3	109.0	616.8	31.0	51.3	17.7
88	209.0	355.6	112.0	676.6	30.9	52.6	16.5
89	239.5	394.5	122.0	756.0	31.7	52.2	16.1
90	269.9	406.4	123.0	799.3	33.8	50.8	15.4
1891	287.8	428.3	128.0	844.1	34.1	50.7	15.2
92	331.6	415.3	130.0	876.9	37.8	47.4	14.8
93	350.4	392.8	133.0	876.2	40.0	44.8	15.2
94	380.0	400.9	142.0	922.9	41.2	43.4	15.4
95	418.7	384.5	147.0	950.2	44.0	40.5	15.5

GROSS AND NET INCOME

Gross Value of Production 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7
	Production (in mill. kronor)				In per cent of total		
	Incl. in the Industrial Statistics	Other industries	Handicrafts	Total	Incl. in the Industrial Statistics	Other industries	Handicrafts
1896	831.4	120.7	157.0	1109.1	75.0	10.9	14.1
97	932.1	132.3	162.0	1226.4	76.0	10.8	13.2
98	1028.8	140.3	175.0	1344.1	76.6	10.4	13.0
99	1120.9	127.3	187.0	1435.2	78.1	8.9	13.0
1900	1243.4	132.9	191.0	1567.3	79.3	8.5	12.2
1901	1183.4	142.0	199.0	1524.4	77.6	9.3	13.1
02	1223.3	136.5	211.0	1570.8	77.9	8.7	13.4
03	1279.1	129.1	221.0	1629.2	78.5	7.9	13.6
04	1352.7	136.2	234.0	1722.9	78.5	7.9	13.6
05	1396.1	125.7	243.0	1764.8	79.1	7.1	13.8
06	1585.3	161.6	263.0	2009.9	78.9	8.0	13.1
07	1726.6	153.3	281.0	2160.9	79.9	7.1	13.0
08	1649.6	146.7	288.0	2084.3	79.2	7.0	13.8
09	1559.3	171.3	272.0	2002.6	77.9	8.5	13.6
10	1836.1	173.0	325.0	2334.2	78.7	7.4	13.9
1911	1896.5	162.1	336.0	2394.6	79.2	6.8	14.0
12	2051.4	178.9	355.0	2585.3	79.4	6.9	13.7
13	2139.7	93.2	365.0	2597.9	82.4	3.6	14.0
14	2156.8	73.5	357.0	2587.3	83.4	2.8	13.8
15	2700.5	149.2	381.0	3230.7	83.6	4.6	11.8
16	3755.9	147.4	434.0	4337.3	86.6	3.4	10.0
17	4412.4	165.4	521.0	5098.8	86.5	3.3	10.2
18	5072.6	151.0	718.0	5941.6	85.4	2.5	12.1
19	5618.8	147.6	944.0	6710.4	83.7	2.2	14.1
20	6964.1	232.4	1135.0	8331.5	83.6	2.8	13.6
1921	4131.3	171.9	980.0	5283.2	78.2	3.3	18.5
22	3715.6	120.3	759.0	4594.9	80.9	2.6	16.5
23	3808.1	83.1	740.0	4631.2	82.2	1.8	16.0
24	4073.5	102.5	783.0	4959.0	82.1	2.1	15.8
25	4177.9	31.6	790.0	4999.5	83.6	0.6	15.8
26	4388.6	108.5	820.0	5317.1	82.5	2.1	15.4
27	4474.5	124.9	830.0	5429.4	82.4	2.3	15.3
28	4688.8	88.5	805.0	5582.3	84.0	1.6	14.4
29	5112.4	104.4	859.0	6075.8	84.2	1.7	14.1
30	4907.4	90.3	855.0	5852.7	83.9	1.5	14.6

in the manufacturing industries only the ratio of the gross to the net value of that industry will be affected. The total national income, on the other hand, will only be affected by any errors in respect of the value of goods produced for export, and of durable and non-durable consumers' goods manufactured for the home market. The reliability of the calculations should therefore be considered primarily from the latter point of view. The value of the production for export may on the whole be said to be satisfactorily estimated, as the calculations are mainly based on information obtained from the Trade Statistics. The same also applies to the value of the durable goods used in the country, though with due reservation for the value of durable consumers' goods produced by handicrafts, which in view of the nature of the calculations must be regarded as uncertain. The value of non-durable consumers' goods may, on the other hand, be subject to considerable errors of estimation, but no conclusion can be drawn as to the magnitude and direction of the errors. The estimated production, for instance of flour mills and the greater part of the handicrafts, does not permit any definite conclusions in this respect. To have any appreciable influence on the national income, however, any error must be considerable, practically equal to the estimated value, and this is anyway out of the question.

The trend of the gross product value. The gross value, calculated as above, is given in Table 14. The product value of each commodity may throughout the period be said to have been estimated at the place of production.¹ The methods of accounting for the aggregate value of the production included in the Industrial Statistics (Table 14, Col. 1), on the other hand, has been different in the different periods. Up to the end of 1895, the intermediate products were as a rule only included when produced for sale, i. e.

¹ To this value have been added any amounts paid in dues or taxes by industries subject to excise duties.

when they were not intended for further processing in the same factory. Some relatively important factories, however, such as raw-sugar mills and refineries, weaving and spinning mills, had to state the value of all the intermediate products. From 1896 to 1912 the full sale value of all the intermediate products were included in the statistics. That principle is still applied, but from 1913 onwards the sale values of the various products — which do not include the value of such products as are further processed at the same factory — are also given. For the purposes of the present calculations, the sale values have been used from 1913 to 1930 (they, too, are given in Table 14), which means that a relatively large number of items are no longer counted twice. The total annual gross values are consequently not comparable, except within the respective periods.

The estimated values of the products of "Other Industries" and handicrafts are considerable throughout the period. As will be seen in Table 14, the relative share of handicrafts in the total gross value is remarkably consistent, 14—15 %, while the importance of the product value of "Other Industries" is decreasing strongly; from 1861 to 1895, however, it is generally not less than 50 % or 60 % of the gross value. How far the production, actually included in the statistics, is incomplete for the years immediately before 1896, can to some extent be judged from the increase in the product value from 1895 to 1896 — 413 mill. *kronor*, or approximately the same amount as the value of the total industrial production in 1895, as recorded in the Industrial Statistics. This strong increase was, as mentioned above, mainly due to the products of many important industries being for the first time included in the statistics in 1896.

In the next period, 1896—1912, the value of the estimated production played a much less important part than earlier; in the first year alone it amounted to as much as 25 % of the total gross value. From 1913 onwards the estimates became of still less importance, usually amounting to only 16—18 % of the total gross value, although

NATIONAL INCOME

Table 15. Value of Production, Included in the Industrial Statistics,

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Power stations, gas, and water works
1861	9	78	—	64	15	76	17	34	—
62	9	78	—	62	16	74	16	31	—
63	10	74	—	63	16	65	18	41	—
64	12	75	—	64	17	68	19	39	—
65	11	76	1	64	18	71	18	41	—
66	12	77	1	67	19	78	16	42	—
67	12	74	1	70	16	76	15	40	—
68	11	74	1	71	16	75	16	41	—
69	12	71	1	73	15	78	17	41	—
70	14	71	2	74	18	79	18	45	—
1871	14	75	2	76	18	79	20	44	—
72	16	79	2	73	16	79	22	37	—
73	16	96	3	77	19	78	21	34	—
74	26	97	4	79	16	76	20	44	84
75	27	96	5	72	19	74	18	50	76
76	27	96	5	77	19	74	17	49	76
77	27	86	5	76	18	73	15	52	80
78	27	84	6	72	21	69	14	52	73
79	25	79	6	77	20	74	14	52	75
80	24	82	5	74	21	73	13	49	76
1881	27	82	5	76	18	73	13	53	73
82	26	76	5	78	22	73	13	53	73
83	30	77	6	73	21	73	13	53	68
84	29	79	7	74	21	72	13	53	67
85	27	76	7	74	20	72	12	52	70
86	30	73	9	74	23	71	14	56	71
87	26	74	9	77	25	71	13	55	71
88	27	71	8	80	26	71	13	57	65
89	28	73	9	78	25	72	14	59	69
90	30	74	10	83	27	75	15	55	68
1891	28	76	11	82	29	73	15	61	68
92	31	74	11	81	36	73	17	63	71
93	34	75	11	83	40	73	18	64	71
94	35	73	11	82	43	73	20	60	71
95	36	75	11	83	49	74	22	63	73

GROSS AND NET INCOME

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in per cent of Total Gross Value, by Industrial Classes 1861-1930.

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Power stations, gas, and water works
1896	91	81	83	90	69	78	23	61	77
97	92	83	84	91	70	79	27	59	79
98	91	83	83	91	71	79	30	66	78
99	92	82	82	91	72	80	32	84	80
1900	93	82	83	92	73	81	30	82	80
1901	91	80	80	91	72	80	33	86	80
02	90	78	79	92	73	80	34	87	83
03	89	79	81	92	74	80	37	89	83
04	89	79	79	92	74	81	40	88	83
05	88	79	77	93	76	81	42	89	83
06	89	78	78	93	73	81	45	88	84
07	89	78	77	94	75	82	46	89	85
08	88	78	73	94	75	82	43	89	85
09	87	77	73	93	73	81	48	91	86
10	87	76	75	94	72	82	50	90	86
1911	87	76	74	94	75	81	49	90	86
12	88	78	74	94	74	81	50	88	89
13	86	79	75	98	86	79	53	83	100
14	86	78	74	98	89	79	56	84	100
15	88	80	77	98	84	81	68	85	100
16	91	82	81	98	87	82	69	84	100
17	92	83	80	98	86	82	64	78	100
18	91	84	76	98	88	77	64	79	100
19	86	83	77	97	89	77	58	86	100
20	84	83	78	98	86	78	62	87	100
1921	77	73	59	97	87	68	47	87	100
22	77	76	70	97	89	74	53	94	100
23	78	80	75	98	90	75	56	95	100
24	80	80	73	98	89	76	54	93	100
25	81	80	71	98	95	75	54	93	100
26	82	79	71	98	89	76	52	94	100
27	82	80	72	98	87	76	53	95	100
28	84	81	75	98	91	77	56	95	100
29	85	81	73	98	90	77	53	95	100
30	85	82	72	98	90	77	53	95	100

the value of the industrial production had at the same time been corrected for a number of items that had earlier been accounted for twice. In the last period, these estimates have thus had no effect on the trend of the gross value.

In order further to illustrate the significance of the estimates, the statistically recorded product value of each of the nine main industrial classes in which the whole production is divided is given in Table 15 in per cent of the estimated total gross value; the calculations are based on data extracted from Table 106. In the first half of the period the extent of the estimates varied very greatly in respect of the different classes. The product values before 1874 of mining and metal industries, wood products industries, food products industries, leather, hair, and rubber industries, and power stations, gas, and water works, were thus mainly calculated. In the latter period the percentages increased all round, and the differences between them were noticeably equalized; with the exception of a very few years, at least 70 % of the product values are known statistically for all but the leather, hair, and rubber industries.

Relative changes in the composition of production.
The total gross value given in Table 14 has grown almost twenty-fold since the beginning of the period. The totals are of course affected, both with regard to the secular trend and the cyclical fluctuations, by changes in price. The increases in the gross value in 1872, 1873, 1880, 1888, and 1906, were for example due to sudden changes in the price level. There is, however, no price-index series suitable for converting the annual gross value throughout the period to a stable money value. Even though the growth in the volume of production thus cannot be measured, the conclusion might be drawn that it certainly was considerable. According to the index series given in Table 16, which are based on the Board of Trade calculations, the production volume of the enterprises included in the Industrial Statistics (excluding power stations, gas,

Table 16. The Volume of Industrial Production 1913—1930.
Index: 1913 = 100.

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Classes 1—8
1914	94	89	94	98	101	98	103	94	97
15	104	86	95	104	103	111	121	109	104
16	111	87	104	112	108	113	114	115	109
17	104	80	91	94	79	85	90	95	91
18	93	72	83	87	59	46	86	76	76
19	88	75	93	86	80	71	87	89	84
20	91	78	102	111	95	91	115	101	96
1921	63	54	62	73	101	68	79	75	75
22	68	67	83	110	104	93	95	87	87
23	75	85	101	120	104	106	119	106	96
24	97	87	105	140	113	109	120	118	109
25	104	94	101	147	115	102	113	133	112
26	114	95	108	162	129	114	113	144	123
27	119	103	116	172	126	122	122	145	127
28	131	109	124	163	134	128	124	153	134
29	156	118	126	204	150	129	119	166	151
30	154	123	120	198	151	136	126	167	150

and water works) grew as much as by 50 % from 1913 to 1930.¹

In view of the fact that during this period the production included in the Industrial Statistics bears a relatively constant proportion to the total gross value of manufacturing industries and handicrafts, the above increase will, broadly speaking, be representative of the branch as a whole.

The gross values of the different main industrial classes have also grown very rapidly, as indicated by Table 17.

¹ The method of estimating the volume of production involves a conversion of the annual product value to the 1913 prices, averages of which are given in the Industrial Statistics; as regards commodities in respect of which quantities are not given in the statistics, the effect of the change in the prices has been eliminated by means of other available material. The index numbers have been obtained by expressing the new total value for each year in per cent of the 1913 value.

Table 47. Manufacturing, Mining, and Handicrafts: Gross Value

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Power stations, gas, and water works
1861	60.2	3.7	34.1	5.5	119.5	46.3	25.2	11.4	0.7
62	58.5	3.8	36.1	5.3	115.8	41.9	26.1	12.1	0.8
63	61.3	3.9	40.1	5.4	129.2	31.6	26.9	14.0	0.9
64	68.2	4.0	40.1	5.5	120.2	34.4	27.1	15.2	1.0
65	73.1	4.2	47.3	5.6	112.6	38.4	28.0	14.6	1.1
66	72.5	4.4	45.6	6.1	106.9	45.1	28.7	15.2	1.2
67	70.2	4.2	47.6	6.7	123.8	42.1	27.1	14.8	1.2
68	71.5	4.3	50.7	6.9	131.8	39.4	27.3	15.4	1.2
69	76.9	4.3	52.7	7.4	146.6	40.0	27.8	16.1	1.3
70	79.7	4.4	57.0	7.8	137.5	43.1	29.3	17.0	1.4
1871	88.8	5.0	58.2	8.4	143.6	51.2	30.1	20.8	1.5
72	132.5	6.1	77.6	11.1	154.9	57.2	34.4	33.5	1.6
73	166.2	7.4	94.0	12.9	163.0	58.9	39.4	41.5	1.7
74	140.2	8.9	106.0	14.4	204.1	66.3	44.0	32.0	1.9
75	142.3	9.3	99.0	14.5	188.6	65.1	46.2	32.9	2.1
76	135.8	9.5	112.6	17.3	177.5	64.6	46.9	36.0	2.1
77	121.2	10.4	125.8	16.6	190.1	64.0	48.1	31.1	2.5
78	103.5	9.4	86.9	14.3	165.4	52.3	44.3	28.7	2.1
79	96.6	8.7	82.6	12.9	172.8	46.7	40.8	25.2	2.0
80	119.4	9.8	108.1	15.6	170.1	56.4	42.6	31.7	2.5
1881	123.8	10.5	115.5	17.0	218.0	59.8	46.0	33.1	2.5
82	153.5	12.7	133.0	18.1	194.0	62.3	48.5	37.7	2.6
83	137.9	13.5	121.3	18.8	206.9	63.2	47.3	39.2	2.4
84	139.4	15.3	116.8	18.9	192.3	63.8	48.4	40.8	2.4
85	137.8	16.4	121.4	19.1	212.4	64.6	47.9	41.0	3.0
86	122.0	14.9	106.2	19.0	188.4	62.5	47.4	38.3	3.1
87	125.6	15.2	114.8	21.3	188.6	64.6	48.5	35.0	3.1
88	144.3	17.3	136.1	24.5	200.2	65.8	50.7	34.6	3.0
89	178.5	19.3	146.6	27.3	214.1	75.3	54.5	37.0	3.5
90	184.0	23.8	143.2	28.9	234.8	83.8	55.1	42.5	3.5
1891	187.3	26.9	147.5	33.4	262.5	81.4	57.4	44.0	3.8
92	183.4	28.8	136.8	32.4	306.9	80.8	58.7	45.0	4.1
93	183.1	29.7	142.4	34.6	290.6	86.3	61.1	44.0	4.5
94	189.7	31.6	154.6	39.8	299.4	96.1	65.0	42.1	4.5
95	202.3	34.9	160.1	41.7	288.7	104.1	67.8	45.7	5.0

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of Production, by Industrial Classes, 1861—1930. *MILL. kronor.*

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Power stations, gas, and water works
1896	248.5	41.7	173.2	52.2	334.8	125.8	78.2	48.3	6.5
97	274.2	46.2	196.4	57.4	373.9	136.2	83.2	51.5	7.3
98	299.9	53.8	199.3	63.8	415.0	146.1	94.8	63.6	7.9
99	343.8	62.1	201.7	70.0	434.8	158.9	101.6	53.4	9.0
1900	391.2	64.9	229.1	84.0	454.3	165.7	100.7	67.7	9.7
1901	339.1	64.4	205.2	90.2	488.3	158.3	104.7	63.7	10.7
02	348.8	69.7	211.2	94.4	496.1	169.8	106.6	62.7	11.6
03	359.6	72.3	245.8	100.5	481.0	179.3	112.0	66.0	12.6
04	388.5	76.7	235.9	111.2	516.0	190.4	120.8	69.4	13.9
05	397.2	81.2	221.6	127.4	515.3	203.9	126.0	76.4	15.7
06	481.4	88.3	256.5	139.9	581.9	221.7	136.1	86.0	18.0
07	541.5	96.9	277.5	159.3	585.5	237.9	145.2	96.6	20.6
08	517.8	94.0	245.5	173.0	574.9	227.8	138.6	89.7	23.0
09	445.4	87.2	229.3	161.3	617.4	217.9	137.5	81.6	24.9
10	569.8	105.1	300.5	200.4	606.1	254.7	166.6	102.8	28.1
1911	599.7	105.8	298.3	207.7	627.7	254.3	166.0	104.0	31.0
12	675.7	111.4	303.4	237.3	653.0	273.8	177.8	112.9	40.0
13	656.5	119.8	322.8	228.5	663.2	258.8	189.6	117.7	41.0
14	645.4	110.8	304.7	232.4	681.0	257.8	195.5	115.5	44.2
15	804.1	119.6	349.0	264.5	878.9	307.7	284.6	170.9	51.4
16	1224.4	141.9	479.0	438.8	1005.9	393.9	324.7	263.9	64.8
17	1775.5	186.3	532.2	503.7	882.0	459.4	343.0	341.3	75.5
18	2126.1	260.1	619.0	614.6	895.3	439.1	469.7	412.2	105.5
19	1882.4	301.5	807.0	620.6	1379.8	704.0	503.7	378.7	132.8
20	2012.3	337.1	1018.1	1094.8	1715.1	951.4	653.9	393.6	155.3
1921	1211.0	187.5	472.7	520.5	1615.3	514.2	414.8	205.5	141.7
22	904.9	164.7	485.1	485.4	1344.7	552.4	348.6	170.7	138.4
23	928.1	191.5	564.3	528.3	1156.5	575.9	366.6	185.8	134.2
24	1091.4	197.4	565.1	571.2	1236.4	587.9	375.8	199.4	134.3
25	1174.3	205.4	538.4	613.4	1179.7	556.7	379.8	214.4	137.4
26	1260.5	207.1	556.9	678.9	1285.2	579.4	380.2	222.3	146.5
27	1305.5	215.5	590.4	685.5	1266.5	600.9	389.8	223.3	151.9
28	1406.2	219.1	615.6	633.0	1303.4	625.1	402.2	218.8	158.9
29	1636.4	235.8	622.6	767.6	1369.1	634.0	407.9	235.3	167.1
30	1593.0	244.2	590.5	711.0	1260.0	651.3	400.0	227.2	175.6

The division into classes adopted in this table is that which has been used in the Industrial Statistics since 1913; for the earlier years the corresponding figures have been obtained after a revision of the statistical material. As each class comprises a number of different production processes, the series of product values will only give a summary and relatively incomplete account of the characteristic changes in the trend and composition of the production during this period.

The difference between the product values of the two largest groups, the food products industries and the mining and metal industries, has diminished strongly, especially in the last 30 or 35 years; since 1927 the latter class has taken the first place. The comparatively important relative changes in these industries are primarily due to the great expansion of the engineering and electrical industries. The wood products industries, and paper and printing industries, include all the important export industries based on the Swedish forests. Owing to the recent exceptionally rapid increase in the pulp and paper production, the paper and printing industries have gained in importance, and now take the third place. The power stations, gas, and water works class is still small, but its rate of progress has since the turn of the century been by far the most rapid.

In Table 18, the total product value has been divided in accordance with two principles of fundamental importance to this investigation. On the one hand, the table gives the production of non-durable and durable goods and, on the other, it shows how far each product has been used for industrial (I, ID), other productive (Others), and consumption (C, CD) purposes. The classification of the goods on these lines is of course necessarily rather arbitrary, and no claim can consequently be made that the resulting values are exact.

The group durable goods comprises products assumed to be in use for more than one year (e. g. machinery, implements, domestic utensils, and furniture), while all other

commodities are regarded as non-durable goods. Non-durable goods thus include not only raw materials, semi-finished, and other goods, that are consumed as and when used, but also such durable goods as normally last only a certain, relatively brief time. A number of important consumers' goods, the normal individual durability of which may vary widely around the selected one-year limit, has for instance been included in the latter category (clothing, footwear, and the like).

Of the multiplicity of commodities composing the production of manufacturing industries and handicrafts, several can obviously only be utilized in one single branch of production, or for consumption alone. Many intermediate industrial products, for instance, must undergo further processing in the same branch of industry, and may therefore without hesitation be classified as industrial raw materials; certain special manufacturing machines also clearly belong to the group durable industrial goods. The greater part of the production, however, is made up of commodities that are used partly in special groups of production, and partly for consumption. In classifying the goods according to their uses, it has often been difficult to determine satisfactorily to what extent each commodity is used for one purpose or another. Occasionally, it has been possible to base the calculations on relatively reliable material, but the classification has mainly had to be based on fairly loose assumptions. In order to give some indication of how far the results are estimated, three series of percentages are given below for each of the groups of industrial raw materials (I), consumers' non-durable goods (C), industrial durable goods (ID), and consumers' durable goods (CD); the calculations are based on data extracted from the 1930 Industrial Statistics.

Series:	I	C	ID	CD
I	70	50	45	40
II	10	15	10	15
III	20	35	45	45

The first series (I) gives, in per cent of the commodities allotted to each group (I, C, etc.), the ratio of goods

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Table 18. Production of Durable and Non-

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861	306.6	76.6	171.0	32.8	280.4	2.6	16.0	7.6	26.2
62	300.3	72.1	167.9	33.0	273.0	2.6	17.2	7.5	27.3
63	313.3	72.0	175.4	37.4	284.8	3.1	17.6	7.8	28.5
64	315.7	80.5	167.9	37.6	286.0	3.8	17.6	8.3	29.7
65	324.7	84.5	167.5	42.3	294.3	4.1	17.8	8.5	30.4
66	325.7	90.4	162.9	40.8	294.1	4.1	18.0	9.5	31.6
67	337.7	87.1	175.3	44.2	306.6	3.8	17.8	9.5	31.1
68	348.3	89.4	181.2	48.3	318.9	3.6	16.6	9.2	29.4
69	373.2	97.6	194.9	51.7	344.2	4.1	15.4	9.5	29.0
70	377.1	100.7	191.4	53.9	346.0	4.9	16.5	9.7	31.1
1871	407.5	111.5	205.1	56.6	373.2	5.9	17.6	10.8	34.3
72	508.9	162.9	226.4	74.5	463.8	8.6	21.6	14.9	45.1
73	584.9	200.2	242.3	87.8	530.3	10.8	26.0	17.8	54.6
74	618.0	161.2	291.0	98.7	550.9	16.2	30.7	20.2	67.1
75	600.0	155.8	281.1	91.8	528.7	17.0	32.8	21.5	71.3
76	602.3	161.8	275.3	100.9	538.0	15.7	33.7	14.9	64.3
77	610.0	145.9	289.2	112.3	547.4	13.9	34.0	14.7	62.6
78	507.0	121.0	251.5	80.5	453.0	11.7	30.3	12.0	54.0
79	488.2	115.4	248.8	75.0	439.2	9.8	27.7	11.5	49.0
80	556.3	146.4	258.9	98.4	503.7	11.7	28.6	12.3	52.6
1881	626.4	144.7	310.3	108.2	563.2	14.8	33.8	14.6	63.2
82	662.5	175.1	293.4	123.7	592.2	17.9	35.7	16.7	70.3
83	680.5	159.1	305.4	113.1	577.6	19.3	37.7	15.9	72.9
84	638.3	159.5	296.0	110.2	565.7	18.2	37.3	17.1	72.6
85	663.5	161.4	315.2	114.9	591.5	16.4	39.2	16.4	72.0
86	601.9	142.2	291.9	96.5	530.6	14.5	40.0	16.8	71.3
87	616.8	155.9	291.5	102.4	549.8	13.0	39.3	14.7	67.0
88	676.6	178.5	303.0	123.0	604.5	14.6	41.1	16.4	72.1
89	736.0	208.2	328.7	132.2	669.1	19.4	47.0	20.5	86.9
90	799.3	219.4	351.9	136.0	707.3	21.0	48.8	22.2	92.0
1891	844.1	236.5	377.1	141.4	755.0	18.2	50.0	20.9	89.1
92	876.9	236.4	412.7	137.2	786.3	14.2	53.4	23.0	90.6
93	876.2	240.1	402.5	137.2	779.8	15.6	56.0	24.8	96.4
94	922.9	255.7	414.7	149.5	819.9	17.3	59.0	26.7	103.0
95	930.2	269.9	414.6	156.5	841.0	19.0	63.1	27.1	109.2

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Durable Goods 1861—1930. Mill. kronor.

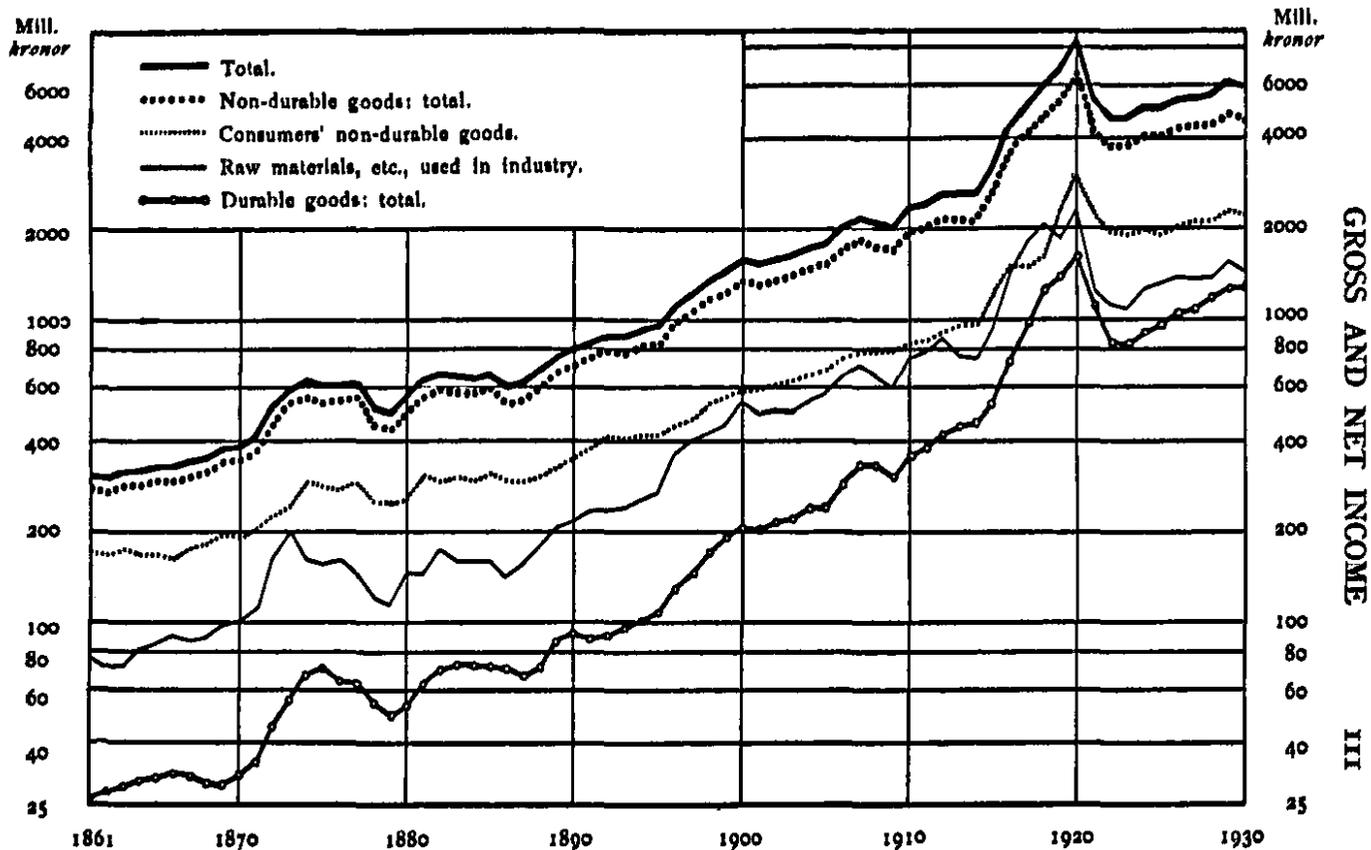
Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1896	1109.1	361.5	436.7	181.5	979.7	21.2	72.8	35.4	129.4
97	1226.4	399.4	473.4	208.3	1081.1	23.6	79.6	42.1	145.3
98	1344.1	425.3	526.5	221.5	1173.3	30.5	88.6	51.7	170.8
99	1435.2	450.7	562.8	230.9	1244.4	34.2	98.4	58.2	190.8
1900	1567.3	529.1	577.0	257.0	1363.1	36.2	102.8	65.2	204.2
1901	1524.4	492.6	593.1	237.0	1322.7	33.9	103.5	64.3	201.7
02	1570.8	503.7	606.2	248.3	1358.2	34.3	110.2	68.1	212.6
03	1629.2	498.1	630.4	280.5	1409.0	35.7	117.7	66.8	220.2
04	1722.9	541.9	658.7	283.0	1483.6	39.0	125.6	74.7	239.3
05	1764.8	571.3	676.2	279.7	1527.2	34.8	132.5	70.3	237.6
06	2009.9	649.8	749.2	322.3	1721.3	51.3	149.9	87.4	288.6
07	2160.9	705.4	775.3	346.3	1827.0	61.6	170.0	102.3	333.9
08	2084.3	662.8	775.0	314.9	1752.7	56.8	172.4	102.4	331.6
09	2002.6	604.7	792.9	298.8	1696.4	52.6	162.3	91.3	306.2
10	2334.2	754.0	844.5	375.2	1973.7	60.9	191.0	108.6	360.5
1911	2394.6	789.8	849.1	376.0	2014.9	66.0	201.3	112.4	379.7
12	2585.3	866.7	907.2	390.6	2164.5	77.3	217.1	126.4	420.8
13	2897.9	763.8	945.5	440.3	2149.6	99.5	208.0	140.8	448.3
14	2587.3	747.6	957.0	424.8	2129.4	100.0	206.9	151.0	457.9
15	3230.7	936.4	1263.1	502.1	2701.6	123.4	232.1	173.6	529.1
16	4337.3	1421.1	1496.1	688.7	3605.9	205.4	286.9	239.1	731.4
17	5098.8	1827.1	1507.7	783.9	4118.7	293.8	374.4	311.9	980.1
18	5941.6	2075.6	1604.0	1016.8	4696.4	326.8	544.1	374.3	1245.2
19	6710.4	1857.7	2313.4	1162.8	5333.9	315.1	637.5	423.9	1376.5
20	8331.5	2322.3	2975.5	1429.2	6727.0	368.7	772.8	463.0	1604.5
1921	5283.2	1239.1	2212.3	718.6	4170.0	203.0	481.0	429.2	1113.2
22	4594.9	1118.5	1930.5	708.6	3757.6	119.8	393.7	323.8	837.3
23	4631.2	1094.2	1904.4	801.2	3799.8	133.8	407.0	290.6	831.4
24	4959.0	1263.9	1963.5	830.9	4053.3	158.1	429.1	313.5	900.7
25	4999.5	1319.3	1902.2	822.1	4043.6	189.5	453.2	313.2	955.9
26	5317.1	1381.2	2027.9	860.5	4269.6	212.2	491.6	343.7	1047.5
27	5429.4	1357.9	2101.1	894.6	4333.6	213.7	503.8	358.3	1075.8
28	5582.3	1367.7	2106.4	926.2	4400.3	237.8	538.5	405.7	1182.0
29	6075.8	1550.4	2269.8	995.8	4816.0	248.5	544.6	466.7	1259.8
30	5852.7	1416.1	2211.6	952.0	4579.7	253.1	552.6	467.3	1273.0

which can be used only in one way, and therefore can with certainty be referred to a definite group. The second series (II) includes a great variety of goods of very low product value, which can be used in different ways, but which because of their insignificance have been wholly referred only to one group. The choice has been made on assumptions as to the principal mode of utilization of the commodity in question. The third series (III) shows the proportion of commodities which, as in the previous case, can be used for different purposes, but which owing to the great value they represent have had to be divided — by more or less accurate estimates — between the different groups. It will be seen that the calculations are largely based on estimates, more so perhaps in the earlier years, when the statistics did not specify the goods in as great detail as they do now. The reliability of the calculations can of course not be determined from these percentages, but it must obviously be higher than indicated by the

Table 19. Production of Non-Durable Goods in per cent of Total Production 1861—1930.

Year	Per cent	Year	Per cent	Year	Per cent	Year	Per cent
1861	91.5	1879	90.0	1896	88.3	1913	82.7
62	90.9	80	90.5	97	88.2	14	82.3
63	90.9			98	87.3	15	83.6
64	90.6	1881	89.9	99	86.7	16	83.1
65	90.6	82	89.4	1900	87.0	17	80.8
66	90.3	83	88.8			18	79.0
67	90.8	84	88.6	1901	86.8	19	79.5
68	91.6	85	89.1	02	86.5	20	80.7
69	92.2	86	88.2	03	86.5		
70	91.8	87	89.1	04	86.1	1921	78.9
		88	89.3	05	86.5	22	81.8
1871	91.6	89	88.5	06	85.6	23	82.0
72	91.1	90	88.5	07	84.5	24	81.8
73	90.7			08	84.1	25	80.9
74	89.1	1891	89.4	09	84.7	26	80.3
75	88.1	92	89.7	10	84.6	27	80.2
76	89.3	93	89.0			28	78.8
77	89.7	94	88.8	1911	84.1	29	79.3
78	89.3	95	88.5	12	83.7	30	78.2

Chart 8. Production of Durable and Non-Durable Goods 1861—1930.



percentages of the first series, provided that the values corresponding to those of the third series have not been estimated much too low.

The percentage ratio of non-durable goods to total production, which is calculated in Table 19, has remained remarkably constant throughout the period 1861—1895. From 1896 up to the end of 1912 there was a weak though distinct tendency to a reduction of the percentage, which is connected with the rapid advance of the production of durable goods in the engineering and electrical industries. The same tendency also appears from 1913 onwards. The fact that all the percentages are lower in the last period than earlier is explained by the above-mentioned removal from the value of non-durable goods of certain duplications.

The trend of production from the points of view discussed above is shown in Chart 8. Curves are also plotted in the chart to illustrate the production of industrial raw materials and of consumers' non-durable goods. If these curves are compared, it will be seen that the production of consumers' goods has, as expected, progressed much more steadily than the others. The production of industrial raw materials, on the other hand, shows very violent cyclical fluctuations, the range of which closely correspond to those of the production of durable goods.

9. *Foreign Trade and Internal Supply.*

The annual value of the foreign trade in industrial and handicraft products has been specially calculated on the basis of the import and export values of the Trade Statistics. Such imported industrial products as are not manufactured in the country are also included under this heading.

Owing to certain periodical deficiencies of the data given in the Trade Statistics, these have had to be corrected in several respects. The most important corrections refer to: 1) the obviously too high import and export values before 1894; 2) the overland exports to Norway, the information regarding which was very incom-

plete in the Swedish Trade Statistics before 1902; and 3) the import values in 1914—1918, which — judging by figures obtained from some large import firms — are too low in respect of certain commodities. Most of these corrections, which in the aggregate partly counteract one another, are of subordinate importance, however, in relation to the total import or export values; only from 1916 to 1918 were they of any appreciable size.¹

In the following tables, as in Appendix D, the import values are given inclusive of duties, unless specially stated otherwise. From the export values, on the other hand, which in the Trade Statistics are based on the f. o. b. prices, any transport charges from the place of production to the place of export, as well as other costs in the country (middlemen's profits, etc.), are deducted. These deductions average 10 %, except in the case of a few commodities (e. g. ships, paving stone, cement, bacon, and butter), the export values of which have been retained unchanged, as their inland transport costs presumably are quite insignificant. The above percentage was obtained by recalculating the values of the most important of the exported commodities at the corresponding average prices of the Industrial Statistics, and then comparing that total with the total value of the same commodities as given in the Trade Statistics.

The data regarding the foreign trade in industrial products have finally been grouped according to their character of producers' or consumers' goods, and of non-durable or durable goods. The same principles have been used as in the classification of goods produced in the country.

The trend of exports. The following table summarizes the total exports and the exports of industrial products; the corresponding yearly figures will be found in Table 105.

The exports were small in the first two quinquennial periods. In each subsequent period the increase has gen-

¹ A detailed account of the statistical material, of the scope of the corrections made, and of the methods used, is given in Appendix D.

NATIONAL INCOME

Year	Total exports	Exports of industrial products	Col. 2 in per cent of Col. 1	Year	Total exports	Exports of industrial products	Col. 2 in per cent of Col. 1
	Mill. kronor				Mill. kronor		
1861/65 . . .	81.5	58.5	71.8	1896/00 . . .	343.0	312.9	91.2
1866/70 . . .	109.5	74.7	68.2	1901/05 . . .	377.5	347.1	91.9
1871/75 . . .	189.3	133.4	70.5	1906/10 . . .	468.8	429.5	91.6
1876/80 . . .	197.4	137.9	69.9	1911/15 . . .	787.3	699.9	88.9
1881/85 . . .	229.1	175.3	76.5	1916/20 . . .	1478.6	1395.7	94.4
1886/90 . . .	246.5	200.5	81.3	1921/25 . . .	1095.1	1037.1	94.7
1891/95 . . .	291.5	248.0	85.1	1926/30 . . .	1461.7	1397.1	95.6

erally been considerable, particularly so after the War, when the exports rose to very high values. It will be noted that from the eighteen-eighties the swelling of the exports is mainly conditioned by the strong increase in the exports of industrial products. Relatively speaking, the exports of other products — agricultural and forest products — have decreased to insignificance. They now amount to only about 5 % of the total export value, as compared with about 30 % in the beginning of the period.

How far the increase in the export values is due to an actual increase of volume or to a change in prices, cannot be ascertained for the whole period. An estimate for the period 1893—1913 gave as a result that in these years the volume had approximately doubled, while the change in prices were estimated to have increased the value by about 35 %. Since 1913 index-series of the variations of the exports in volume and price have been constructed on the basis of the information given in the Trade Statistics regarding the export values, expressed in the prices of both the current and the immediately preceding year. They are given below.

Year	Volume index	Price index	Year	Volume index	Price index
	1913 = 100			1913 = 100	
1913	100	100	1922	98	144
1914	96	98	1923	97	144
1915	140	115	1924	115	134
1916	125	152	1925	125	133
1917	81	205	1926	132	131
1918	68	243	1927	155	128
1919	83	233	1928	153	126
1920	101	277	1929	179	124
1921	67	199	1930	165	115

These index series apply to the total exports, but are on the whole representative also of the exports of industrial products, the influence of which is dominant.

During the war and post-war years, both the volume and the price series fluctuated violently. Since 1922—1923 the price index has been steadily falling, while the volume index has increased strongly except in 1928 and 1930; the decrease in 1928 was due to extensive stoppages of work in the export industries. The growth of the export volume more than compensates the price fall, as indicated by the figures in the table on p. 114.

Table 20 shows the total exports of industrial products, as well as the exports of non-durable and durable goods. The corresponding information on the value of production less exports will be found in Table 21. Changes in the relation of exports to production in each group are illustrated by the percentages given in Table 22.

The percentages (in Table 22) are not quite comparable all through the period, as the statistically recorded production of non-durable goods was subject to double accounting to a varying degree in the different periods 1861—1895, 1896—1912, and 1913—1930; for this reason the 1913—1930 percentages are slightly too high in comparison with the earlier years. Certain tendencies can, however, be observed. The percentages of exported durable goods thus increased strongly from the end of the 'seventies to the middle of the 'nineties. In the latter half of the period the tendency was fluctuating; during the first war years, and towards the end of the nineteen-twenties, the percentages rose relatively much. The relation of exported to produced non-durable goods may on the whole be said to have risen up to the end of the eighteen-eighties, and then to have fallen until the beginning of this century; another increase can finally be observed in the nineteen-twenties. These changes in the relation of exports to production must, however, also be considered in connection with the trend of the imports.

Table 20. Exports of Durable and Non-

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861	46.2	28.1	0.4	17.1	45.6	0.1	0.4	0.1	0.6
62	55.7	35.2	0.5	19.3	55.0	—	0.5	0.2	0.7
63	59.9	37.4	1.1	20.6	59.1	0.1	0.6	0.1	0.8
64	62.3	40.3	1.0	20.2	61.5	0.1	0.5	0.2	0.8
65	68.4	40.6	1.9	25.0	67.5	—	0.6	0.3	0.9
66	65.7	40.0	1.9	23.2	65.1	0.1	0.4	0.1	0.6
67	75.7	47.4	1.8	25.9	75.1	—	0.4	0.2	0.6
68	72.8	41.4	3.9	26.6	71.9	0.1	0.6	0.2	0.9
69	75.3	43.5	3.6	27.1	74.2	0.3	0.6	0.2	1.1
70	83.7	44.6	6.4	31.0	82.0	0.7	0.8	0.2	1.7
1871	96.6	50.5	9.9	34.4	94.8	0.4	1.1	0.3	1.8
72	136.2	71.7	13.7	47.8	133.2	0.9	1.8	0.3	3.0
73	147.7	72.8	14.2	58.0	145.0	1.0	1.5	0.2	2.7
74	146.7	65.5	15.8	61.6	142.9	1.6	1.8	0.4	3.8
75	139.8	66.1	16.7	53.3	136.1	1.2	2.1	0.4	3.7
76	142.9	59.3	17.9	61.8	139.0	1.1	2.3	0.5	3.9
77	150.0	57.8	18.7	69.7	146.2	1.0	2.4	0.4	3.8
78	117.1	49.6	17.7	45.2	112.5	1.0	3.3	0.3	4.6
79	118.6	53.7	18.1	43.2	115.0	1.2	2.0	0.4	3.6
80	161.4	71.4	25.8	58.6	155.8	2.2	2.8	0.6	5.6
1881	160.7	67.3	27.4	59.9	154.6	2.7	3.1	0.3	6.1
82	181.9	73.2	28.8	70.6	172.6	3.6	4.4	1.3	9.3
83	180.1	70.2	33.3	66.1	169.6	3.9	5.0	1.6	10.5
84	174.6	71.4	34.3	61.3	167.0	2.8	4.1	0.7	7.6
85	179.0	63.6	42.7	64.9	171.2	1.8	4.8	1.2	7.8
86	161.3	58.8	40.7	53.2	152.7	2.7	4.2	1.7	8.6
87	179.7	63.3	46.3	60.7	170.3	2.9	4.8	1.7	9.4
88	207.8	69.9	51.3	76.4	197.6	3.2	5.4	1.6	10.2
89	228.1	81.2	54.2	81.2	216.6	3.5	6.3	1.7	11.5
90	226.3	80.8	53.5	78.6	212.9	3.7	6.1	3.6	13.4
1891	235.4	77.0	60.4	85.2	222.6	3.9	6.6	2.3	12.8
92	236.6	79.0	63.5	81.4	223.9	4.3	6.6	1.8	12.7
93	245.8	80.0	65.7	85.4	231.1	4.4	8.3	2.0	14.7
94	251.7	78.6	65.7	88.6	232.9	5.6	9.8	3.4	18.8
95	270.0	88.8	72.9	88.3	250.0	6.8	10.7	2.5	20.0

GROSS AND NET INCOME

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Durable Goods 1861—1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1896	290.4	100.6	70.2	96.8	267.6	7.9	12.0	2.9	22.8
97	316.6	110.5	65.7	115.4	291.6	8.5	12.0	4.5	25.0
98	294.4	105.9	56.5	107.7	270.1	9.4	9.7	5.2	24.3
99	315.6	121.5	55.3	111.5	288.3	11.0	10.5	5.8	27.3
1900	347.2	139.1	52.2	124.8	316.1	12.9	12.6	5.6	31.1
1901	309.0	120.7	52.0	107.0	279.7	13.4	11.0	4.9	29.3
02	335.6	127.4	55.2	121.1	303.7	14.1	11.8	6.0	31.9
03	363.8	140.2	56.4	131.5	328.1	15.8	12.8	7.1	35.7
04	346.1	143.5	52.9	112.5	308.9	16.2	13.1	7.9	37.2
05	380.4	163.8	56.1	121.3	341.2	16.8	14.0	8.4	39.2
06	418.7	183.1	51.0	136.4	370.5	21.9	16.5	9.8	48.2
07	429.8	203.5	55.1	130.8	389.4	20.2	12.4	7.8	40.4
08	403.7	190.7	59.2	115.6	365.5	18.7	10.4	9.1	38.2
09	395.4	184.6	60.8	107.6	353.0	22.0	11.8	8.6	42.4
10	500.0	238.6	70.6	139.4	448.6	26.9	12.9	11.6	51.4
1911	554.8	265.4	83.4	143.3	492.1	33.2	14.8	14.7	62.7
12	629.5	305.5	94.3	156.1	555.9	35.8	19.1	18.7	73.6
13	668.2	324.4	92.9	173.8	591.1	39.4	19.6	18.1	77.1
14	631.4	307.5	108.9	145.0	561.4	35.8	14.5	19.7	70.0
15	1016.0	461.8	255.5	189.2	906.5	53.3	25.5	30.7	109.5
16	1315.8	650.9	211.0	277.0	1138.9	93.8	37.2	45.9	176.9
17	1178.2	677.8	87.0	229.5	994.3	117.3	36.0	30.6	183.9
18	1163.0	678.0	57.5	273.2	1008.7	92.9	27.6	33.8	154.3
19	1361.5	689.2	124.0	353.0	1166.2	109.8	38.0	47.5	195.3
20	1959.7	1070.3	140.9	527.3	1738.5	122.1	48.2	50.9	221.2
1921	908.6	441.6	131.8	165.8	739.2	76.8	16.1	76.5	169.4
22	1002.3	483.0	120.6	259.1	862.7	41.2	15.8	82.6	139.6
23	972.7	486.9	108.2	262.4	857.5	49.8	21.3	44.1	115.2
24	1105.4	580.4	116.8	261.2	958.4	66.3	24.0	56.7	147.0
25	1196.9	646.2	130.2	280.4	1056.8	79.2	33.3	27.6	140.1
26	1249.9	655.4	153.5	264.0	1072.9	86.0	43.3	47.7	177.0
27	1409.9	736.9	184.6	293.9	1215.4	88.9	47.5	58.1	194.5
28	1373.9	649.6	183.2	288.3	1121.1	104.1	63.3	85.4	252.8
29	1579.7	820.6	208.0	315.9	1344.5	100.6	54.5	80.1	235.2
30	1372.1	694.9	196.2	262.7	1153.8	95.7	48.8	73.8	218.3

Table 21. Production less Exports of Durable

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861	260.4	48.5	170.6	15.7	234.8	2.5	15.6	7.5	25.6
62	244.6	36.9	167.4	13.7	218.0	2.6	16.7	7.3	26.6
63	253.4	34.6	174.3	16.8	225.7	3.0	17.0	7.7	27.7
64	253.4	40.2	166.9	17.4	224.5	3.7	17.1	8.1	28.9
65	256.3	43.9	165.6	17.3	226.8	4.1	17.2	8.2	29.5
66	260.0	50.4	161.0	17.6	229.0	4.0	17.6	9.4	31.0
67	262.0	39.7	173.5	18.3	231.5	3.8	17.4	9.3	30.5
68	275.5	48.0	177.3	21.7	247.0	3.5	16.0	9.0	28.5
69	297.9	54.1	191.3	24.6	270.0	3.8	14.8	9.3	27.9
70	293.4	56.1	185.0	22.9	264.0	4.2	15.7	9.5	29.4
1871	310.9	61.0	195.2	22.2	278.4	5.5	16.5	10.5	32.5
72	372.7	91.2	212.7	26.7	330.6	7.7	19.8	14.6	42.1
73	437.2	127.4	228.1	29.8	385.3	9.8	24.5	17.6	51.9
74	471.3	95.7	275.2	37.1	408.0	14.6	28.9	19.8	63.3
75	460.2	89.7	264.4	38.5	392.6	15.8	30.7	21.1	67.6
76	459.4	102.5	257.4	39.1	399.0	14.6	31.4	14.4	60.4
77	460.0	88.1	270.5	42.6	401.2	12.9	31.6	14.3	58.8
78	389.9	71.4	233.8	35.3	340.5	10.7	27.0	11.7	49.4
79	369.6	61.7	230.7	31.8	324.2	8.6	25.7	11.1	45.4
80	394.9	75.0	233.1	39.8	347.9	9.5	25.8	11.7	47.0
1881	465.7	77.4	282.9	48.3	408.6	12.1	30.7	14.3	57.1
82	480.6	101.9	264.6	53.1	419.6	14.3	31.3	15.4	61.0
83	470.4	88.9	272.1	47.0	408.0	15.4	32.7	14.3	62.4
84	463.7	88.1	261.7	48.9	398.7	15.4	33.2	16.4	65.0
85	484.5	97.8	272.5	50.0	420.3	14.6	34.4	15.2	64.2
86	440.6	83.4	251.2	43.3	377.9	11.8	35.8	15.1	62.7
87	437.1	92.6	245.2	41.7	379.5	10.1	34.5	13.0	57.6
88	468.8	108.6	251.7	46.6	406.9	11.4	35.7	14.8	61.9
89	527.9	127.0	274.5	51.0	452.5	15.9	40.7	18.8	75.4
90	573.0	138.6	298.4	57.4	494.4	17.3	42.7	18.6	78.6
1891	608.7	159.5	316.7	56.2	532.4	14.3	43.4	18.6	76.3
92	640.3	157.4	349.2	55.8	562.4	9.9	46.8	21.2	77.9
93	630.4	160.1	336.8	51.8	548.7	11.2	47.7	22.8	81.7
94	671.2	177.1	349.0	60.9	587.0	11.7	49.2	23.3	84.2
95	680.2	181.1	341.7	68.2	591.0	12.2	52.4	24.6	89.2

GROSS AND NET INCOME

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and Non-Durable Goods 1861—1930. Mill. kronor.

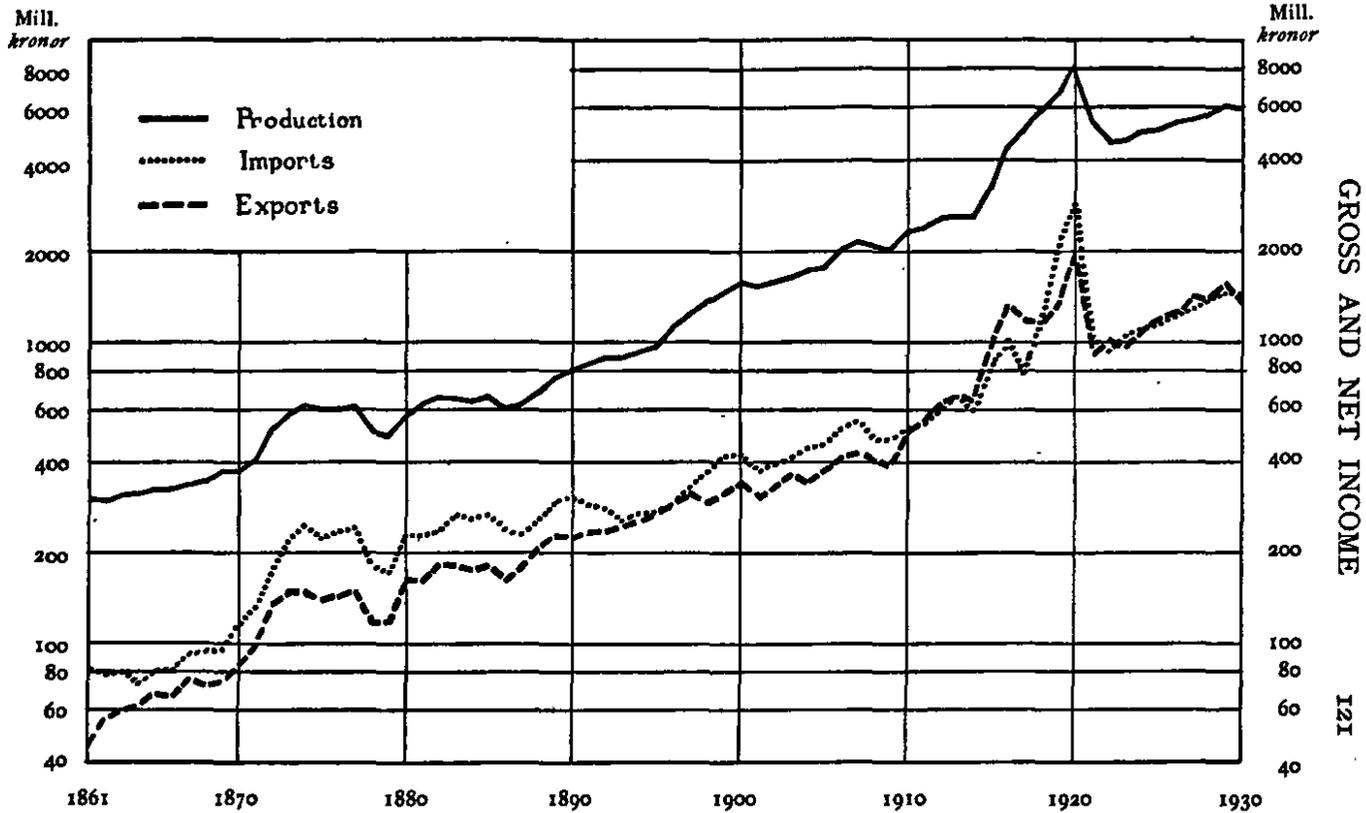
Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1896	818.7	260.9	366.5	84.7	712.1	13.3	60.8	32.5	106.6
97	909.8	288.9	407.7	92.9	789.5	15.1	67.6	37.6	120.3
98	1049.7	319.4	470.0	113.8	903.2	21.1	78.9	46.5	146.5
99	1119.6	329.2	507.5	119.4	956.1	23.2	87.9	52.4	163.5
1900	1220.1	390.0	524.8	132.2	1047.0	23.3	90.2	59.6	173.1
1901	1215.4	371.9	541.1	130.0	1043.0	20.5	92.5	59.4	172.4
02	1235.2	376.3	551.0	127.2	1054.5	20.2	98.4	62.1	180.7
03	1265.4	357.9	574.0	149.0	1080.9	19.9	104.9	59.7	184.5
04	1376.8	398.4	605.8	170.5	1174.7	22.8	112.5	66.8	202.1
05	1384.4	407.5	620.1	158.4	1186.0	18.0	118.5	61.9	198.4
06	1591.2	466.7	698.2	185.9	1350.8	29.4	133.4	77.6	240.4
07	1731.1	501.9	720.2	215.5	1437.6	41.4	157.6	94.5	293.5
08	1680.6	472.1	715.8	199.3	1387.2	38.1	162.0	93.3	293.4
09	1607.2	420.1	732.1	191.2	1343.4	30.6	150.5	82.7	263.8
10	1834.2	515.4	773.9	235.8	1523.7	34.0	178.1	97.0	309.1
1911	1839.8	524.4	765.7	232.7	1522.8	32.8	186.5	97.7	317.0
12	1955.8	561.2	812.9	234.5	1608.6	41.5	198.0	107.7	347.2
13	1929.7	439.4	852.6	266.5	1558.5	60.1	188.4	122.7	371.2
14	1955.9	440.1	848.1	279.8	1568.0	64.2	192.4	131.3	387.9
15	2214.7	474.6	1007.6	312.9	1795.1	70.1	206.6	142.9	419.6
16	3021.5	770.2	1285.1	411.7	2467.0	111.6	249.7	193.2	554.5
17	3920.6	1149.3	1420.7	554.4	3124.4	176.5	338.4	281.3	796.2
18	4778.6	1397.6	1546.5	743.6	3687.7	233.9	516.5	340.5	1090.9
19	5348.9	1168.5	2189.4	809.8	4167.7	205.3	599.5	376.4	1181.2
20	6371.8	1252.0	2834.6	901.9	4988.5	246.6	724.6	412.1	1383.3
1921	4374.6	797.5	2080.5	552.8	3430.8	126.2	464.9	352.7	943.8
22	3592.6	635.5	1809.9	449.5	2894.9	78.6	377.9	241.2	697.7
23	3658.5	607.3	1796.2	538.8	2942.3	84.0	385.7	246.5	716.2
24	3853.6	683.5	1846.7	569.7	3099.9	91.8	405.1	256.8	753.7
25	3802.6	673.1	1772.0	541.7	2986.8	110.3	419.9	285.6	815.8
26	4067.2	725.8	1874.4	596.5	3196.7	126.2	448.3	296.0	870.5
27	4019.5	621.0	1916.5	600.7	3138.2	124.8	456.3	300.2	881.3
28	4208.4	718.1	1923.2	637.9	3279.2	133.7	475.2	320.3	929.2
29	4496.1	729.8	2061.8	679.9	3471.5	147.9	490.1	386.6	1024.6
30	4480.6	721.2	2015.4	689.3	3425.9	157.4	503.8	393.5	1054.7

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Table 22. Exports of Industrial Products, in per cent of Production, 1861—1930.

Year	1	2	3	Year	1	2	3
	Exports, in per cent of production	Exported non-durable goods, in per cent of those produced	Exported durable goods, in per cent of those produced		Exports, in per cent of production	Exported non-durable goods, in per cent of those produced	Exported durable goods, in per cent of those produced
1861	15.1	16.3	2.3	1896	26.2	27.3	17.6
62	18.5	20.1	2.6	97	25.8	27.0	17.2
63	19.1	20.8	2.8	98	21.9	23.0	14.2
64	19.7	21.5	2.7	99	22.0	23.2	14.3
65	21.1	22.9	3.0	1900	22.2	23.2	15.2
66	20.2	22.1	1.9				
67	22.4	24.5	1.9	1901	20.3	21.1	14.5
68	20.9	22.5	3.1	02	21.4	22.4	15.0
69	20.2	21.6	3.8	03	22.3	23.3	16.2
70	22.2	23.7	5.5	04	20.1	20.8	15.5
				05	21.6	22.3	16.5
1871	23.7	25.4	5.2	06	20.8	21.5	16.7
72	26.8	28.7	6.7	07	19.9	21.3	12.1
73	25.3	27.3	4.9	08	19.4	20.9	11.5
74	23.7	25.9	5.7	09	19.7	20.8	13.8
75	23.3	25.7	5.2	10	21.4	22.7	14.3
76	23.7	25.8	6.1				
77	24.6	26.7	6.1	1911	23.2	24.4	16.5
78	23.1	24.8	8.5	12	24.3	25.7	17.5
79	24.3	26.2	7.3	13	25.7	27.5	17.2
80	29.0	30.9	10.6	14	24.4	26.4	15.3
				15	31.4	33.6	20.7
1881	25.7	27.5	9.7	16	30.3	31.6	24.2
82	27.5	29.1	13.2	17	23.1	24.1	18.8
83	27.7	29.4	14.4	18	19.6	21.5	12.4
84	27.4	29.5	10.5	19	20.3	21.9	14.2
85	27.0	28.9	10.8	20	23.5	25.8	13.8
86	26.8	28.8	12.1				
87	29.1	31.0	14.0	1921	17.2	17.7	15.2
88	30.7	32.7	14.1	22	21.8	23.0	16.7
89	30.2	32.4	13.2	23	21.0	22.6	13.9
90	28.3	30.1	14.6	24	22.3	23.6	16.3
				25	23.9	26.1	14.7
1891	27.9	29.5	14.4	26	23.5	25.1	16.9
92	27.0	28.5	14.0	27	26.0	27.9	18.1
93	28.1	29.6	15.2	28	24.6	25.5	21.4
94	27.3	28.4	18.3	29	26.0	27.9	18.7
95	28.4	29.7	18.3	30	23.4	25.2	17.1

Chart 9. Production, Imports, and Exports of Industrial Products 1861—1930.



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The trend of imports. The values of the total imports and the imports of industrial products, collated in the table below, are computed on the basis of Table 104.

Year	Total imports	Imports of industrial products	Col. 2 in per cent of Col. 1	Year	Total imports	Imports of industrial products	Col. 2 in per cent of Col. 1
Mill. kronor				Mill. kronor			
1861/65 . .	116.1	78.9	68.0	1896/00 . .	496.1	367.3	74.0
1866/70 . .	146.6	95.5	65.1	1901/05 . .	582.2	416.7	71.6
1871/75 . .	260.0	197.8	76.1	1906/10 . .	696.3	507.6	72.9
1876/80 . .	282.6	211.9	75.0	1911/15 . .	904.1	648.1	71.7
1881/85 . .	339.8	249.9	73.5	1916/20 . .	1937.4	1594.2	82.3
1886/90 . .	362.1	264.8	73.1	1921/25 . .	1433.5	1052.8	73.4
1891/95 . .	377.8	272.0	72.0	1926/30 . .	1797.4	1359.0	75.6

The trend of the imports is similar to that of the exports. The relation of the value of imported industrial products to that of the total imports was relatively constant during the greater part of the period, usually varying between 70 % and 75 %, while — as has already been indicated — the corresponding relation in respect of exports increased strongly.

A closer scrutiny, however, will reveal certain temporary differences. The annual import and export series plotted in Chart 9 thus indicate that through 1895 the import values were always the higher. The margin between the curves varies, but their general direction of movement was usually the same. From 1861 to 1864, however, the curves moved in opposite directions. From 1890 to 1893 the curves approached one another; the import and export values were in the latter year practically identical. This relative balance was maintained for the next few years. In 1897 the curves again began to separate, and up to the end of 1910 there was always a positive difference between the import and export values. Ever since 1911 the relative magnitude of the imports and exports has shown very short and rapid fluctuations. — It should be noted, however, that the curves do not illustrate the variations in the trade balance, as the duties are included in the import values, and the export values are reduced by the inland freights.

During the whole pre-war period, the very considerable increase in the value of the imports was largely due to an actual increase in their volume. This has been estimated to amount to, in round figures, 150 % from 1893 to 1913, while the simultaneous increase in prices was only about 10 %. It has already been said that in the same period the average price level of the exported goods rose by 35 %. Assuming that these estimated increases reflect actual conditions, Sweden thus obtained, in exchange for her exports, a not inconsiderably larger quantity of imported goods. The reliability of the calculations must of course be judged against the background of the relative changes in the quantitative composition of Sweden's foreign trade, and in the qualities of the imported and exported goods. Such changes, if considerable, will naturally affect the result. The following particulars of the more important export commodities may be given.

Exported commodities:	1893	1913	$\frac{1913 \text{ prices}}{1893 \text{ prices}}$
Bacon tons	6578	7909	
mill. kronor	5.8	8.5	1.22
Butter 1000 tons	20.0	19.7	
mill. kronor	40.1	41.7	1.06
Unplaned deals, etc. and box boards 1000 m ³	3883	4144	
mill. kronor	86.7	129.6	1.40
Planed boards and box boards 1000 m ³	254	755	
mill. kronor	5.9	28.0	1.59
Woodpulp 1000 tons	81.9	847.1	
mill. kronor	10.9	99.7	0.88
Matches 1000 tons	13.1	34.6	
mill. kronor	7.9	16.4	0.79
Iron ore 1000 tons	484.1	6439.8	
mill. kronor	4.8	69.2	1.08
Pig iron 1000 tons	59.8	195.2	
mill. kronor	3.5	17.6	1.55

Both these years the commodities included in this table represented between them 50 % of the total export values according to the Trade Statistics (50.5 % in 1893, and 50.2 % in 1913). The quantitative changes in the exports of the individual commodities have shown great differences. The exports of bacon and butter, and of unplaned deals,

etc., have thus changed but slightly, while those of, for instance, woodpulp, iron ore, and pig iron, have increased manifold. The relation of the 1913 prices to those of 1893, which is given in the last column, indicates that the changes in the individual prices have not been uniform. It must be noted, however, that the price-relations do not refer to any fixed quality of the goods concerned, but are computed from the average values per unit of quantity of the different commodities in each year, and consequently embody all the changes of quality. The effect of these changes cannot, of course, be determined, but in view of the considerable technical improvements in the production during this period they have undoubtedly had a certain influence.

A measure, though approximate, of the total price movements can be obtained by weighting the prices of both years by either the 1893 or the 1913 quantities. In the first case the price-increase will be 25 %, in the latter 12 %. This difference is, among other things, due to the fact that the prices of certain commodities, the weights of which were considerable in the first year, have risen relatively much (unplaned deals, etc.), and that other commodities, that had grown much more important in the latter year, had fallen in price (woodpulp) or risen but slightly (iron ore).

Similar calculations in respect of the imports must go into much more detail, as the imports are not, like the exports, dominated by a few commodities only. No such calculations have therefore been made for the period under discussion, but it is evident that many relative changes, both in the quantitative and qualitative composition of the imports, must have taken place. Coal, mineral oils, fat vegetable oils, rubber products, oil cakes, and fertilizers, may be mentioned as instances of industrial products, the imports of which have increased more markedly.

The following index series for the period 1913—1930 have been constructed to show the changes in volume and price of the total imports.

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Year	Volume index	Price index	Year	Volume index	Price index
	1913 = 100			1913 = 100	
1913	100	100	1922	114	116
1914	91	94	1923	141	108
1915	116	117	1924	154	109
1916	102	132	1925	148	115
1917	52	173	1926	162	108
1918	55	264	1927	178	105
1919	128	235	1928	193	105
1920	158	247	1929	203	104
1921	98	152	1930	208	94

The imports of agricultural and colonial produce, etc., being relatively large, these series are not quite representative of the imports of industrial products.

In comparison with the corresponding export series (p. 114), the volume-index numbers relating to the imports after 1918 are higher, and the price-index numbers after 1919 lower, all round. Towards the end of the period the difference between the price-index numbers amounted to at least 20 units, and was still larger in the immediately preceding years. The import and export series are computed by the same method, and should therefore give comparable results, provided that the quantitative changes have been similar in respect of both imports and exports. Whether this was actually so or not is to some extent indicated by the following indices, prepared by the Board of Trade. The average total value of all goods imported in 1913 and 1927 has been calculated on the basis of the actual average prices and by using, firstly, the quantities obtaining in 1913 and, secondly, those in 1927 as weights. The 1927 values have then been expressed in per cent of the 1913 values. The same calculations have been made with regard to exports. The 1927 index numbers are given below.

Index number for:	The 1913 weights	The 1927 weights
Imported goods	132	111
Exported goods	148	146

The price-index numbers for exported goods are practically the same irrespective of the weights used, presumably because the exports have on the whole remained ho-

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Table 23. Imports of Durable and Non-

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861	81.6	41.1	31.8	3.6	76.5	1.2	3.3	0.6	5.1
62	79.4	34.1	34.3	4.9	73.3	1.3	4.1	0.7	6.1
63	79.7	34.3	35.8	3.6	73.7	1.1	4.3	0.6	6.0
64	73.2	30.8	31.2	4.4	66.4	1.5	4.5	0.8	6.8
65	80.8	31.4	36.3	5.2	72.9	2.3	4.6	1.0	7.9
66	80.9	33.2	36.5	3.4	73.1	2.2	4.5	1.1	7.8
67	92.3	40.4	40.5	3.5	84.4	1.9	4.7	1.3	7.9
68	93.8	38.4	44.0	3.8	86.2	1.3	5.0	1.3	7.6
69	95.0	37.3	45.2	4.7	87.2	2.0	4.4	1.4	7.8
70	115.6	45.1	55.3	5.1	105.5	2.9	5.4	1.8	10.1
1871	132.1	44.9	66.3	7.5	118.7	3.6	7.5	2.3	13.4
72	172.0	58.0	81.6	12.7	152.3	6.4	10.0	3.3	19.7
73	216.3	67.8	101.8	17.8	187.4	11.8	12.1	5.0	28.9
74	246.8	65.8	125.8	20.1	211.7	16.2	14.0	4.9	35.1
75	222.0	65.4	104.4	20.4	190.2	16.0	11.5	4.3	31.8
76	235.6	65.7	118.8	21.1	205.6	12.4	14.8	2.8	30.0
77	242.0	64.7	129.5	20.6	214.8	9.0	15.6	2.6	27.2
78	183.2	55.1	95.6	13.9	164.6	5.3	11.6	1.7	18.6
79	171.3	54.5	88.8	12.9	156.2	3.7	10.0	1.4	15.1
80	227.1	67.0	121.9	17.3	206.2	5.0	13.8	2.1	20.9
1881	227.2	69.8	112.7	19.4	201.9	7.3	15.7	2.3	25.3
82	235.4	74.8	113.8	17.5	206.1	8.0	18.4	2.9	29.3
83	263.2	80.2	128.7	19.9	228.8	9.7	21.3	3.4	34.4
84	256.9	77.6	124.9	19.7	222.2	10.3	21.1	3.3	34.7
85	266.8	79.8	131.1	20.1	231.0	9.7	23.0	3.1	35.8
86	237.3	72.0	116.0	18.5	206.5	8.3	19.8	2.7	30.8
87	229.4	71.5	110.7	18.2	200.4	7.5	19.1	2.4	29.0
88	256.2	83.8	115.6	21.1	220.5	9.2	21.7	4.8	35.7
89	296.6	94.4	132.6	27.8	254.8	12.5	25.0	4.3	41.8
90	304.6	98.0	132.6	28.9	259.5	14.7	25.7	4.7	45.1
1891	288.3	92.1	126.6	26.1	244.8	13.8	25.6	4.1	43.5
92	277.7	90.6	116.0	29.8	236.4	11.9	23.6	5.8	41.3
93	253.6	91.6	101.4	28.5	221.5	7.1	21.7	3.3	32.1
94	269.0	95.9	104.1	30.9	230.9	10.2	24.3	3.6	38.1
95	271.5	99.1	101.9	30.5	231.5	9.8	25.3	4.9	40.0

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Durable Goods 1861—1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1896	289.4	103.0	102.9	35.6	241.5	15.6	26.1	6.2	47.9
97	330.3	119.7	110.6	43.6	273.9	17.8	29.8	8.8	56.4
98	373.1	135.6	114.8	51.1	301.5	21.0	37.1	13.5	71.6
99	419.2	156.5	127.9	60.4	344.8	24.5	32.8	17.1	74.4
1900	424.6	168.8	124.4	63.8	357.0	20.5	32.0	15.1	67.6
1901	373.7	145.8	114.0	57.1	316.9	16.5	30.0	10.3	56.8
02	393.1	156.4	113.7	66.9	337.0	16.1	27.9	12.1	56.1
03	414.2	166.9	119.2	67.8	353.9	19.1	29.6	11.6	60.3
04	445.2	185.2	114.3	75.2	374.7	23.0	33.1	14.4	70.5
05	457.1	190.3	115.6	75.2	381.6	22.9	35.0	17.6	75.5
06	515.8	212.7	134.7	84.4	431.8	26.1	41.3	16.6	84.0
07	552.5	225.9	147.0	93.6	466.5	28.1	40.0	17.9	86.0
08	471.2	196.6	132.6	75.9	405.1	22.0	30.8	13.3	66.1
09	475.2	196.0	134.5	79.1	409.6	18.5	30.7	16.4	65.6
10	524.0	233.0	141.4	81.5	455.9	20.8	36.0	11.3	68.1
1911	539.9	236.0	144.8	86.2	467.0	21.4	37.3	14.2	72.9
12	599.1	271.3	147.3	105.6	524.2	18.2	41.6	15.1	74.9
13	674.6	291.2	185.3	114.0	590.5	24.0	43.1	17.0	84.1
14	596.6	261.1	157.0	97.6	515.7	23.0	35.0	22.9	80.9
15	830.4	417.8	191.1	137.2	746.1	20.3	42.2	21.8	84.3
16	1023.0	518.9	230.2	178.0	927.1	24.1	54.6	17.2	95.9
17	777.7	331.6	216.2	136.3	684.1	23.0	54.4	16.2	93.6
18	1190.1	490.2	284.7	302.4	1077.3	26.8	65.0	21.0	112.8
19	2103.6	831.2	783.7	256.9	1871.8	47.3	130.8	53.7	231.8
20	2876.9	1134.2	903.7	379.5	2417.4	87.3	215.4	156.8	459.5
1921	1031.5	289.6	361.5	148.7	799.8	65.4	105.0	61.3	231.7
22	935.4	305.9	333.4	121.8	761.1	32.4	98.7	43.2	174.3
23	1046.5	386.1	326.4	140.4	852.9	33.9	114.7	45.0	193.6
24	1111.2	421.0	333.2	159.5	913.7	37.3	108.8	51.4	197.5
25	1139.6	432.9	340.3	148.7	921.9	38.3	111.7	67.7	217.7
26	1203.2	468.1	348.4	162.1	978.6	42.4	124.6	57.6	224.6
27	1283.0	504.1	370.3	162.7	1037.1	47.1	139.6	59.2	245.9
28	1378.8	529.3	393.5	170.2	1093.0	56.8	150.2	78.8	285.8
29	1473.2	594.5	398.9	180.1	1173.5	69.6	159.5	70.6	299.7
30	1456.4	551.2	418.7	174.2	1144.1	84.1	154.3	73.9	312.3

mogeneous. The relative composition of the imports, on the other hand, has — judging by the varying results of the index calculations — altered considerably since 1913. Whichever method of computation is selected, there always remains a distinct difference between the price levels of exported and imported goods.

The imports of manufactured non-durable and durable goods are shown in Table 23. When considering the relation of imports to production in each group of goods, which is given in Table 24, it is necessary to remember that the principles on which the production has been estimated have not been quite analogous throughout the period, and that the calculated import values include the duties.

The amount of the duties has on the whole decreased in relation to the total values of the imports. For the quinquennial periods 1861/65, 1881/85, 1901/05, and 1926/1930, the amounts paid in duty average, in the same order, 13.4 %, 9.9 %, 10.4 %, and 9.2 % of the corrected total import values; the percentages are calculated on the basis of Table 102, Cols. 3 and 5. The question of how far the above categories of industrial products have been subject to the same tendency must, however, be left open.

The relation of imports to production is characterized by very great fluctuations. As to durable goods, the percentages have been reduced to about half since the eighteen-seventies and 'eighties. As to non-durable goods, they also dropped suddenly at the beginning of the 'nineties, but subsequently remained on practically the same level until immediately before the War. In the nineteen-twenties both series showed a distinct upward tendency.

*Internal supply.*¹ On the basis of the data given in Tables 21 and 23, the value of the internal supply of

¹ In order to avoid misunderstanding the term "internal supply" has been used for the surplus of commodities and services available in the home market for production or consumption purposes. The term "consumption" has been used preferably with reference only to the ultimate consumers.

Table 24. Imports of Industrial Products, in per cent of Production, 1861—1930.

Year	1	2	Year	1	2
	Imported non-durable goods, in per cent of those produced	Imported durable goods, in per cent of those produced		Imported non-durable goods, in per cent of those produced	Imported durable goods, in per cent of those produced
1861	27.3	19.5	1896	24.7	37.0
62	26.8	22.3	97	25.3	38.8
63	25.9	21.1	98	25.7	41.9
64	23.2	22.9	99	27.7	39.0
65	24.8	26.0	1900	26.2	33.1
66	24.9	24.7			
67	27.5	25.4	1901	24.0	28.2
68	27.0	25.9	02	24.8	26.4
69	25.3	26.9	03	25.1	27.4
70	30.5	32.5	04	25.3	29.5
			05	25.0	31.8
1871	31.8	39.1	06	25.1	29.1
72	32.8	43.7	07	25.5	25.8
73	35.3	52.9	08	23.1	19.9
74	38.4	52.3	09	24.1	21.4
75	36.0	44.6	10	23.1	18.9
76	38.2	46.7			
77	39.2	43.5	1911	23.2	19.2
78	36.3	34.4	12	24.2	17.8
79	35.6	30.8	13	27.5	18.8
80	40.9	39.7	14	24.2	17.7
			15	27.6	15.9
1881	35.8	40.0	16	25.7	13.1
82	34.8	41.7	17	16.6	9.6
83	39.6	47.2	18	22.9	9.1
84	39.3	47.8	19	35.1	16.8
85	39.1	49.7	20	35.9	28.6
86	38.9	43.2			
87	36.4	43.3	1921	19.2	20.8
88	36.5	49.5	22	20.3	20.8
89	38.1	48.1	23	22.4	23.3
90	36.7	49.0	24	22.5	21.9
			25	22.8	22.8
1891	32.4	48.8	26	22.9	21.4
92	30.1	45.6	27	23.8	22.9
93	28.4	33.3	28	24.8	24.2
94	28.2	37.0	29	24.4	23.8
95	27.5	36.6	30	25.0	24.5

NATIONAL INCOME

Table 25. Internal Supply of Durable and

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861	342.0	89.6	202.4	19.3	311.3	3.7	18.9	8.1	30.7
62	324.0	71.0	201.7	18.6	291.3	3.9	20.8	8.0	32.7
63	333.1	68.9	210.1	20.4	299.4	4.1	21.3	8.3	33.7
64	326.6	71.0	198.1	21.8	290.9	5.2	21.6	8.9	35.7
65	337.1	75.3	201.9	22.5	299.7	6.4	21.8	9.2	37.4
66	340.9	83.6	197.5	21.0	302.1	6.2	22.1	10.5	38.8
67	354.3	80.1	214.0	21.8	315.9	5.7	22.1	10.6	38.4
68	369.3	86.4	221.3	25.5	333.2	4.8	21.0	10.3	36.1
69	392.9	91.4	236.5	29.3	357.2	5.8	19.2	10.7	35.7
70	409.0	101.2	240.3	28.0	369.5	7.1	21.1	11.3	39.5
1871	443.0	105.9	261.5	29.7	397.1	9.1	24.0	12.8	45.9
72	544.7	149.2	294.3	39.4	482.9	14.1	29.8	17.9	61.8
73	653.5	195.2	329.9	47.6	572.7	21.6	36.6	22.6	80.8
74	718.1	161.5	401.0	57.2	619.7	30.8	42.9	24.7	98.4
75	682.2	155.1	368.8	58.9	582.8	31.8	42.2	25.4	99.4
76	695.0	168.2	376.2	60.2	604.6	27.0	46.2	17.2	90.4
77	702.0	152.8	400.0	63.2	616.0	21.9	47.2	16.9	86.0
78	573.1	126.5	329.4	49.2	505.1	16.0	38.6	13.4	68.0
79	540.9	116.2	319.5	44.7	480.4	12.3	35.7	12.5	60.5
80	622.0	142.0	355.0	57.1	554.1	14.5	39.6	13.8	67.9
1881	692.9	147.2	395.6	67.7	610.5	19.4	46.4	16.6	82.4
82	716.0	176.7	378.4	70.6	625.7	22.3	49.7	18.3	90.3
83	733.6	169.1	400.8	66.9	636.8	25.1	54.0	17.7	96.8
84	720.6	165.7	386.6	68.6	620.9	25.7	54.3	19.7	99.7
85	751.3	177.6	403.6	70.1	651.3	24.3	57.4	18.3	100.0
86	677.9	155.4	367.2	61.8	584.4	20.1	55.6	17.8	93.5
87	666.5	164.1	355.9	59.9	579.9	17.6	53.6	15.4	86.6
88	725.0	192.4	367.3	67.7	627.4	20.6	57.4	19.6	97.6
89	824.5	221.4	407.1	78.8	707.3	28.4	65.7	23.1	117.2
90	877.6	236.6	431.0	86.3	753.9	32.0	68.4	23.3	123.7
1891	897.0	251.6	443.3	82.3	777.2	28.1	69.0	22.7	119.8
92	918.0	248.0	465.2	85.6	798.8	21.8	70.4	27.0	119.2
93	884.0	251.7	438.2	80.3	770.2	18.3	69.4	26.1	113.8
94	940.2	273.0	453.1	91.8	817.9	21.9	73.5	26.9	122.3
95	951.7	280.2	443.6	98.7	822.5	22.0	77.7	29.5	129.2

GROSS AND NET INCOME

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Non-Durable Goods 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1896	1108.1	363.9	469.4	120.3	953.6	28.9	86.9	38.7	154.5
97	1240.1	408.6	518.3	136.5	1063.4	32.9	97.4	46.4	176.7
98	1422.8	455.0	584.8	164.9	1204.7	42.1	116.0	60.0	218.1
99	1538.8	485.7	635.4	179.8	1300.9	47.7	120.7	69.5	237.9
1900	1644.7	538.8	649.2	196.0	1404.0	43.8	122.2	74.7	240.7
1901	1589.1	517.7	655.1	187.1	1359.9	37.0	122.5	69.7	229.2
02	1628.3	532.7	664.7	194.1	1391.5	36.3	126.3	74.2	236.8
03	1679.6	524.8	693.2	216.8	1434.8	39.0	134.5	71.3	244.8
04	1822.0	583.6	720.1	245.7	1549.4	45.8	145.6	81.2	272.6
05	1841.5	598.3	735.7	233.6	1567.6	40.9	153.5	79.5	273.9
06	2107.0	679.4	832.9	270.3	1782.6	55.5	174.7	94.2	324.4
07	2283.6	727.8	867.2	309.1	1904.1	69.5	197.6	112.4	379.5
08	2151.8	668.7	848.4	275.2	1792.3	60.1	192.8	106.6	359.5
09	2082.4	616.1	866.6	270.3	1753.0	49.1	181.2	99.1	329.4
10	2358.2	748.4	915.3	317.3	1981.0	54.8	214.1	108.3	377.2
1911	2379.7	760.4	910.5	318.9	1989.8	54.2	223.8	111.9	389.9
12	2554.9	832.5	960.2	340.1	2132.8	59.7	239.6	122.8	422.1
13	2604.3	730.6	1037.9	380.5	2149.0	84.1	231.5	139.7	455.3
14	2552.5	701.2	1005.1	377.4	2083.7	87.2	227.4	154.2	468.8
15	3045.1	892.4	1198.7	450.1	2541.2	90.4	248.8	164.7	503.9
16	4044.5	1289.1	1515.3	589.7	3394.1	135.7	304.3	210.4	650.4
17	4698.3	1480.9	1636.9	690.7	3808.5	199.5	392.8	297.5	889.8
18	5968.7	1887.8	1831.2	1046.0	4765.0	260.7	581.5	361.5	1203.7
19	7452.5	1999.7	2973.1	1066.7	6039.5	252.6	730.3	430.1	1413.0
20	9248.7	2386.2	3738.3	1281.4	7405.9	333.9	940.0	568.9	1842.8
1921	5406.1	1087.1	2442.0	701.5	4230.6	191.6	569.9	414.0	1175.5
22	4528.0	941.4	2143.3	571.3	3656.0	111.0	476.6	284.4	872.0
23	4705.0	993.4	2122.6	679.2	3795.2	117.9	500.4	291.5	909.8
24	4964.8	1104.5	2179.9	729.2	4013.6	129.1	513.9	308.2	951.2
25	4942.4	1106.0	2112.3	690.4	3908.7	148.6	531.6	353.3	1033.5
26	5370.4	1193.9	2222.8	758.6	4175.3	168.6	572.9	353.6	1095.1
27	5302.5	1125.1	2286.8	763.4	4175.3	171.9	595.9	359.4	1127.2
28	5587.2	1247.4	2316.7	808.1	4372.2	190.5	625.4	399.1	1215.0
29	5969.3	1324.3	2460.7	860.0	4645.0	217.5	649.6	457.2	1324.3
30	5937.0	1272.4	2434.1	863.5	4570.0	241.5	658.1	467.4	1367.0

industrial products has been computed as the sum of production and excess imports; in Table 25 it has been divided into non-durable and durable goods. Owing to this method of calculation, no account is consequently taken of any changes in the stocks held. Under certain trade conditions such changes may be considerable in proportion to the annual production or imports, at least in respect of certain non-durable goods. But even during longer periods they must play a not inconsiderable part. The steady increase since the eighteen-sixties in the volume of production, and the localization of industry over a more wide-spread area, undoubtedly tend to a successive increase of the aggregate quantity of raw materials in stock. The number of work-places given in the Industrial Statistics rose, for instance, from 9,266 in 1913 to 14,610 in 1930. To some extent this tendency is counteracted, by the considerably improved facilities for obtaining raw materials quickly, which is a result of better communications. There is, however, no material available from which to estimate the cyclical and secular variations in the stocks kept.

Certain variations in the value of the total internal supply of industrial products are obviously connected with the trade fluctuations. There was, however, a strong upward tendency during the whole of the period. If average values are computed for each quinquennial period, they will be found to be steadily increasing except from 1916 to 1920, when prices were exceptional, but there is not the same uniform tendency in respect of non-durable and durable goods, nor of the sectional groups of which these are composed (see Table 26). The greatest divergencies are found, as might be expected, in the group durable goods.

The relation of the supply of the different categories of industrial products to the total internal supply also appears in Table 26; for the statistical reasons given above, the period 1911/15 has been divided into two periods.

Table 26. Internal Supply of Industrial Products
1861/65—1926/30.

Year	1	2	3	4	5	6	7	8	9
	Non-durable goods				Durable goods				Total
	I	C	Other groups	Total	ID	CD	Other groups	Total	
Mill. kronor.									
1861/65	75.2	202.8	20.5	298.5	4.7	20.9	8.5	34.1	332.6
1866/70	88.6	221.9	25.1	335.6	5.9	21.1	10.7	37.7	373.3
1871/75	153.4	331.1	46.5	531.0	21.5	35.1	20.7	77.3	608.3
1876/80	141.1	356.0	54.9	552.0	18.3	41.5	14.8	74.6	626.6
1881/85	167.3	393.0	68.8	629.1	23.3	52.4	18.1	93.8	722.9
1886/90	194.0	385.7	70.9	650.6	23.8	60.1	19.8	103.7	754.3
1891/95	260.9	448.7	87.7	797.3	22.4	72.0	26.5	120.9	918.2
1896/00	454.4	571.4	159.5	1185.3	39.1	108.6	57.9	205.6	1390.9
1901/05	551.4	693.8	215.4	1460.6	39.8	136.5	75.2	251.5	1712.1
1906/10	688.1	866.1	288.4	1842.6	57.8	192.1	104.1	354.0	2196.6
1911/12	796.5	935.3	329.5	2061.3	57.0	231.7	117.3	406.0	2467.3
1913/15	774.7	1080.6	402.7	2258.0	87.2	235.9	152.9	476.0	2734.0
1916/20	1808.7	2339.0	934.9	5082.6	236.4	589.8	373.7	1199.9	6282.5
1921/25	1046.5	2200.0	674.3	3920.8	139.6	518.5	330.3	988.4	4909.2
1926/30	1232.6	2344.3	810.7	4387.6	198.0	620.4	407.3	1225.7	5613.3
Distribution, in per cent.									
1861/65	22.6	61.0	6.2	89.8	1.4	6.3	2.5	10.2	100.0
1866/70	23.7	59.5	6.7	89.9	1.6	5.6	2.9	10.1	100.0
1871/75	25.2	54.4	7.7	87.3	3.5	5.8	3.4	12.7	100.0
1876/80	22.5	56.8	8.8	88.1	2.9	6.6	2.4	11.9	100.0
1881/85	23.1	54.4	9.5	87.0	3.2	7.3	2.5	13.0	100.0
1886/90	25.7	51.1	9.4	86.2	3.2	8.0	2.6	13.8	100.0
1891/95	28.4	48.9	9.5	86.8	2.4	7.9	2.9	13.2	100.0
1896/00	32.7	41.1	11.4	85.2	2.8	7.8	4.2	14.8	100.0
1901/05	32.2	40.5	12.6	85.3	2.3	8.0	4.4	14.7	100.0
1906/10	31.3	39.5	13.1	83.9	2.6	8.8	4.7	16.1	100.0
1911/12	32.3	37.9	13.3	83.5	2.3	9.4	4.8	16.5	100.0
1913/15	28.4	39.5	14.7	82.6	3.2	8.6	5.6	17.4	100.0
1916/20	28.8	37.2	14.9	80.9	3.8	9.4	5.9	19.1	100.0
1921/25	21.3	44.8	13.8	79.9	2.8	10.6	6.7	20.1	100.0
1926/30	22.0	41.8	14.4	78.2	3.5	11.0	7.3	21.8	100.0

Relatively speaking, the supply of non-durable and of durable goods have developed in opposite ways. The chief reason for this is the very strong relative changes that

Table 27. Imports of Industrial Products, in per cent of Internal Supply, 1861/65—1926/30.

Year	1	2	3	4	5	6	7	8	9
	Total	Non-durable goods				Durable goods			
		I	C	Other groups	Total	ID	CD	Other groups	Total
1861/65	23.7	45.7	16.7	21.2	24.3	31.8	19.9	8.7	18.7
1866/70	25.6	43.9	20.0	16.3	26.0	34.8	22.7	12.9	21.9
1871/75	32.5	39.4	29.0	33.7	32.4	50.3	31.4	19.1	33.4
1876/80	33.8	43.5	31.2	31.3	34.3	38.6	31.7	14.4	30.0
1881/85	34.6	45.7	31.1	28.1	34.7	38.5	38.0	16.6	34.0
1886/90	35.1	43.3	31.5	32.3	35.1	44.0	37.0	19.1	35.2
1891/95	29.6	36.0	24.5	33.2	29.2	47.1	33.5	16.4	32.3
1896/00	26.4	30.1	20.3	31.9	25.6	50.9	29.1	21.0	30.9
1901/05	24.3	30.7	16.6	31.8	24.2	49.0	22.8	17.6	25.4
1906/10	23.1	30.9	15.9	28.7	23.5	40.0	18.6	14.5	20.9
1911/12	23.1	31.8	15.6	29.1	24.0	34.8	17.0	12.5	18.2
1913/15	25.6	41.7	16.5	28.9	27.3	25.7	17.0	13.5	17.5
1916/20	25.4	36.6	20.7	26.8	27.5	17.6	17.6	14.2	16.6
1921/25	21.4	35.1	15.4	21.3	21.7	29.7	20.8	16.3	20.5
1926/30	24.2	43.0	16.5	21.0	24.7	30.3	23.5	16.7	22.3

have occurred in the supply of non-durable consumers' goods (C). The increased supply of consumers' durable goods (CD) — from 6 % to 11 % of the total supply —, however, has only partly compensated for the relatively heavy decrease — from 60 % to 40 % — in the supply of non-durable consumers' goods (C). At the beginning of the period the supply of consumers' goods (C and CD) constituted about two thirds of the value of the total supply, while at the end of the period it was only just over half. The groups "other non-durable goods" and "other durable goods" have both increased noticeably in importance, which is mainly due to the development of communications, and to the secular expansion of building and constructions.

The part played by imports in covering the home demand for industrial products varies greatly. As indicated by Table 27, the imports amounted to 21 % (1921/25) at the lowest and 35 % (1886/90) at the highest of the

total value of the internal supply, or to 26 % and 54 %, respectively, of the production for the home market; in respect of certain commodity groups, such as industrial raw materials (I) and industrial durable goods (ID), the variations are still larger. From the beginning of the eighteen-sixties the percentage rose continuously up to the end of the 'eighties, after which it fell steadily up to the outbreak of War, increasing again in the nineteen-twenties. The changes in the relative importance of the imports reflect the main features of the growth of industrial production in relation to the general business expansion. In the first decades the capacity of the manufacturing industries was undoubtedly insufficient to meet the strongly increasing home demand. Up to the middle of the eighteen-nineties the rate of increase of the production apparatus was more uneven and relatively weaker than in the succeeding years. To some extent this can be seen from the data given in Table 25 regarding the annual increments in the value of industrial durable goods; in the eighteen-seventies in particular, however, these were affected by strong price fluctuations. The considerable expansion of investments since 1896 has resulted in a large increase in the productivity of all manufacturing industries, which on the whole has continued steadily during the remainder of the period.

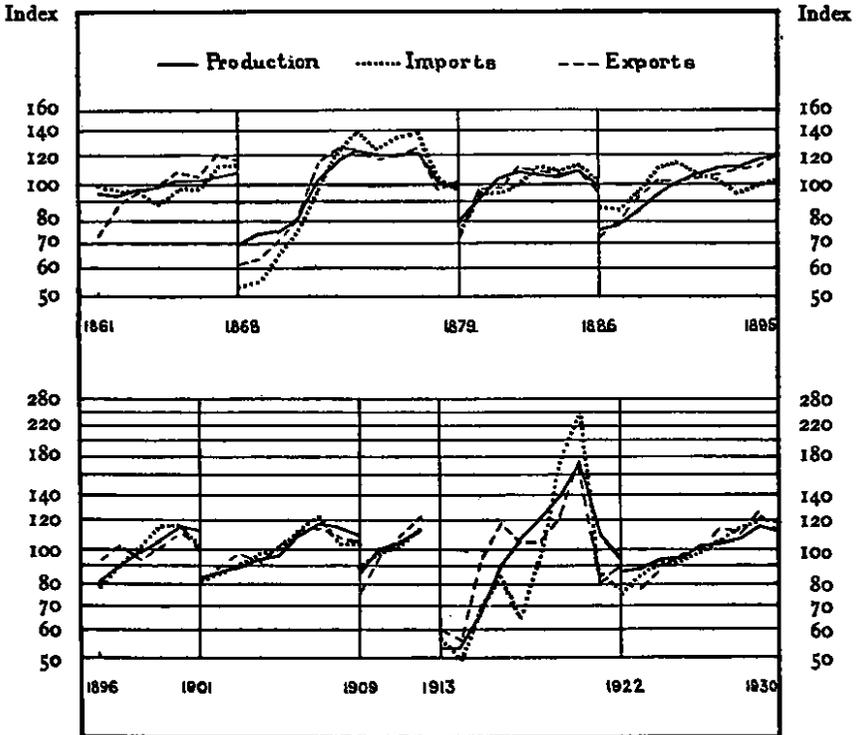
Short-term variations of production and foreign trade. The series of production, exports and imports, and internal supply, of industrial products, given in Tables 14, 20, 23, and 25, primarily illustrate the trend, while the strong factor of increase usually apparent in every individual series makes the cyclical variations less distinct. A study of the series nevertheless indicates that they are also in parts subject to very strong cyclical variations. In order to obtain a clearer picture of the strength of these variations, the basic series have been divided up into cyclical periods, the limit years of which are determined with the assistance of the curve of the total production. The more pronounced bottom years 1868, 1879,

Table 28. Short-term Variations of Production and Foreign Trade 1861—1930.

Index series.

Year	1	2	3	4	Year	1	2	3	4
	Pro- duction	Ex- ports	Im- ports	Produc- tion — exports + im- ports		Pro- duction	Ex- ports	Im- ports	Produc- tion — exports + im- ports
1861 . .	95	73	99	100	1896 . .	81	93	79	78
62 . .	93	88	96	95	97 . .	90	101	90	87
63 . .	97	95	96	97	98 . .	98	94	101	100
64 . .	98	98	89	96	99 . .	105	101	114	108
65 . .	101	108	98	99	1900 . .	115	111	115	116
66 . .	101	104	98	100	01 . .	112	99	102	112
67 . .	105	120	112	104	1896—01	100	100	100	100
68 . .	108	115	113	108	1901 . .	83	82	82	83
1861—68	100	100	100	100	02 . .	86	89	86	85
1868 . .	69	61	53	66	03 . .	89	97	91	88
69 . .	74	63	54	70	04 . .	94	92	98	95
70 . .	75	71	65	73	05 . .	96	101	100	96
71 . .	81	81	75	79	06 . .	110	111	113	110
72 . .	101	114	97	97	07 . .	118	114	121	120
73 . .	117	124	122	117	08 . .	114	107	104	113
74 . .	123	123	139	128	09 . .	109	105	104	109
75 . .	120	118	125	122	1901—09	100	100	100	100
76 . .	120	120	133	124	1909 . .	86	76	89	89
77 . .	122	126	137	125	10 . .	100	96	98	101
78 . .	101	98	103	102	11 . .	103	107	101	102
79 . .	97	100	97	97	12 . .	111	121	112	109
1868—79	100	100	100	100	1909—12	100	100	100	100
1879 . .	80	72	73	79	1913 . .	53	60	56	53
80 . .	91	98	96	91	14 . .	53	56	50	52
81 . .	103	98	96	102	15 . .	66	91	69	62
82 . .	108	111	100	105	16 . .	89	117	85	82
83 . .	107	109	112	108	17 . .	105	105	65	95
84 . .	105	106	109	106	18 . .	122	104	99	121
85 . .	109	109	113	110	19 . .	138	122	175	150
86 . .	99	98	101	99	20 . .	171	175	239	187
1879—86	100	100	100	100	21 . .	109	81	86	109
1886 . .	76	72	88	81	22 . .	94	89	78	91
87 . .	78	80	86	80	1913—22	100	100	100	100
88 . .	85	93	96	87	1922 . .	87	80	76	86
89 . .	95	102	111	99	23 . .	88	78	85	90
90 . .	101	101	114	105	24 . .	94	88	91	95
91 . .	107	105	107	107	25 . .	95	96	93	94
92 . .	111	106	104	110	26 . .	101	100	98	101
93 . .	111	110	95	106	27 . .	103	113	105	101
94 . .	117	112	100	112	28 . .	106	110	113	107
95 . .	120	120	101	114	29 . .	115	126	120	114
1886—95	100	100	100	100	30 . .	111	110	119	113
					1922—30	100	100	100	100

Chart 10. Short-term Variations of Production, Imports, and Exports 1861—1930.



1886, 1901, 1909, and 1922, were selected as limit years; while for statistical reasons the curves were also interrupted in 1895 and 1912. In one or two cases the choice of limit year is open to discussion. If the curve giving, say, the production of durable goods had been adopted as a basis, the years 1869 and 1887 would have seemed more suitable. In order not to make the periods too brief, a few not very pronounced years of depression have been disregarded.

In order, finally, to eliminate the influence of the trend within each period, a simple arithmetic mean of the yearly figures concerned has been computed and put at 100, and the corresponding data from each year recalculated in relation to this. The index series so obtained are given

in Table 28. The index series for production, imports, and exports are illustrated in Chart 10.

10. *Debit Items.*

In view of the simplifications and modifications which, for lack of requisite material, have been necessary in calculating the gross values of some other industries, and their allotment to different uses, the debit items of Manufacturing, Mining, and Handicrafts will be given exclusive of certain relatively important amounts that should rightly have been deducted from the gross value in order to obtain as nearly as possible the net value. For this reason the values of services rendered to Manufacturing, Mining, and Handicrafts by Banking and Insurance, and Public Administration, have not been included as debit items; the value of all the services of these branches utilized in production has, in accordance with the plan of the investigation, been entered as a joint debit item of all industries. As, in addition, commerce has been limited to the trade in consumers' and exported goods, that increase in the value of goods used in industrial production which is due to their being bought and sold will consequently be included in the net value. The same applies to the value of such transport services used in manufacturing industries, etc., as are not included in the gross value of transports, e. g. motor-lorry traffic and the like. The costs of maintenance and depreciation of buildings and other permanent plant have, finally, not been estimated here. In Paragraph 14 of this chapter a rough estimate has been made, however, of the last named items (p. 171 and Table 36).

Table 29 gives the value of the debit items, classified as raw materials, services from other industries, and depreciation of machinery and other equipment. Each of the groups raw materials and services comprises a number of items deriving from different industries. The several appendices give accounts of the material and methods used for estimating the debit items, and it therefore appears

sufficient to give here but a brief description of the more important of them.

Raw materials. The group raw materials, which dominates throughout, is in the table divided into products from Agriculture, etc., Forestry, and Manufacturing, Mining, and Handicrafts.

The products from *Agriculture, Horticulture, and Fishing* used as raw material for Manufacturing, Mining, and Handicrafts, may be grouped as follows, in accordance with the classification used in the Trade Statistics (cf. Part II, pp. 249—250):

- a. Colonial produce;
- b. Home-grown vegetable produce;
- c. Horticultural produce, fruit and berries;
- d. Sundry vegetable produce;
- e. Animal agricultural produce: 1) specified, 2) other; and
- f. Fishing produce.

The value of production + import surplus of goods (allotted to I) belonging to the groups b, e: 1, and f (production alone), will be found in Table 9, Col. 7. No industrial raw materials emanating from other groups are regarded as produced in the country; in the cases where there has been some home production, this has been so insignificant that it has been possible entirely to disregard it. The import surplus value of these products has been obtained from the primary material of Tables 104 and 105.

The most important commodities in the group Colonial produce are uncarded cotton, unmanufactured tobacco, and unroasted coffee, and in recent years also soya beans. Only part of the unroasted coffee, however, has been entered as industrial raw material; this has been computed to correspond to the production of the coffee-roasting plants. The average value of the import surplus of Colonial produce (allotted to I) in the following quinquennial periods has been:

Period	Mill. kronor	Period	Mill. kronor
1861/65	12.1	1906/10	39.3
1881/85	22.8	1921/25	103.8
1901/05	31.2	1926/30	138.4

NATIONAL INCOME

Table 29. Debit Items of Manufacturing.

Year	1	2	3	4	5	6
	Raw materials from			Services	Depreciation of machinery and equipment	Total
	Agriculture, etc.	Forestry	Manufacturing, etc.			
1861	101.8	21.6	89.6	1.1	3.3	217.4
62	87.5	22.2	71.0	1.4	3.5	185.6
63	99.4	24.1	68.9	1.4	3.5	197.3
64	96.6	26.3	71.0	1.6	3.5	199.0
65	92.6	31.1	75.3	2.0	3.7	204.7
66	93.8	29.6	83.6	2.2	4.0	213.2
67	109.1	31.7	80.1	2.8	4.4	228.1
68	115.2	33.6	86.4	3.0	4.8	243.0
69	129.6	35.2	91.4	3.1	4.8	264.1
70	114.4	38.6	101.2	3.3	4.8	262.3
1871	117.8	41.1	105.9	3.4	5.2	273.4
72	124.2	59.4	149.2	3.9	5.9	342.6
73	125.7	73.6	195.2	5.0	7.5	407.0
74	167.4	74.1	161.5	5.8	9.5	418.3
75	144.6	66.8	155.1	6.5	11.8	384.8
76	143.6	75.3	168.2	7.2	14.2	408.5
77	151.2	82.2	153.4	7.8	16.0	410.6
78	129.2	55.0	127.0	7.3	16.4	334.9
79	135.5	51.9	116.7	7.3	16.4	327.8
80	132.4	73.1	142.6	8.4	17.9	374.4
1881	170.6	75.9	147.8	9.3	19.1	422.7
82	154.1	88.8	177.3	9.9	19.5	449.6
83	167.5	79.2	169.7	10.4	20.1	446.9
84	156.7	76.2	166.4	11.1	19.9	430.3
85	170.7	78.0	178.3	11.2	18.8	487.0
86	147.7	64.5	156.0	11.0	17.7	396.9
87	148.6	70.3	164.7	10.7	16.9	411.2
88	156.9	84.4	193.0	11.7	17.6	463.6
89	172.2	89.7	222.1	13.3	19.1	516.4
90	185.8	88.2	237.3	13.5	21.2	546.0
1891	198.6	90.2	252.3	13.6	23.7	578.4
92	228.8	82.9	248.7	14.0	24.3	598.7
93	209.0	84.9	252.4	14.3	23.4	584.0
94	209.9	93.0	273.8	15.4	21.8	613.9
95	191.8	97.1	281.1	16.3	22.1	608.4

GROSS AND NET INCOME

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Mining, and Handicrafts 1861—1930. Mill. kronor.

Year	1	2	3	4	5	6
	Raw materials from			Services	Deprecia- tion of machin- ery and equipment	Total
	Agricul- ture, etc.	Forestry	Manu- factur- ing, etc.			
1896	197.2	93.1	364.8	17.7	21.8	694.6
97	218.9	115.2	409.7	18.9	23.4	786.1
98	237.5	113.6	456.2	20.4	26.0	853.7
99	252.2	110.9	487.0	22.4	29.2	901.7
1900	262.4	135.4	560.2	24.1	31.2	1013.3
1901	270.2	117.7	519.1	25.4	31.4	963.8
02	284.7	116.9	534.0	26.7	32.5	994.8
03	282.8	136.6	526.2	29.5	34.4	1009.5
04	300.2	127.5	585.1	31.0	35.8	1079.6
05	286.4	117.2	599.9	32.2	38.7	1074.4
06	315.8	125.7	681.2	35.2	41.0	1198.9
07	328.3	127.2	729.8	37.1	45.4	1267.8
08	324.1	121.1	670.6	37.2	49.0	1202.0
09	346.8	113.7	618.0	36.5	49.7	1164.7
10	357.9	160.3	750.3	41.0	49.3	1358.8
1911	360.3	153.8	762.3	42.5	49.3	1368.2
12	386.6	180.1	834.5	46.1	54.0	1501.3
13	387.4	195.2	732.8	47.8	55.9	1419.1
14	362.6	187.3	703.1	49.4	60.7	1363.1
15	530.7	196.7	894.3	63.7	73.5	1758.9
16	589.8	301.1	1291.4	80.8	87.0	2350.1
17	463.4	351.9	1483.8	98.9	116.4	2514.4
18	432.9	392.0	1891.7	152.1	172.7	3041.4
19	740.6	444.3	2004.0	160.5	212.7	3562.1
20	939.2	675.2	2390.1	181.3	225.2	4411.0
1921	751.0	265.3	1089.8	128.9	207.9	2442.9
22	641.5	260.6	943.6	109.0	173.1	2127.8
23	547.4	303.5	995.7	106.3	160.6	2113.5
24	639.0	316.0	1106.8	107.6	157.8	2327.2
25	605.0	313.1	1108.3	104.3	158.9	2289.6
26	666.7	328.5	1196.3	105.8	153.9	2451.2
27	678.2	340.8	1127.5	108.1	151.7	2406.3
28	713.0	335.0	1249.8	107.1	149.5	2554.4
29	724.6	366.4	1326.8	114.5	148.0	2680.3
30	600.6	330.4	1274.9	109.1	149.1	2464.1

Table 30. Corn Used as Raw Material in Manufacturing, Mining, and Handicrafts 1861/65—1926/30.

Year	1	2	3	4	5	6
	Wheat		Rye		Others	Corn, total
	1000 decitons	Mill. kronor	1000 decitons	Mill. kronor	Mill. kronor	Mill. kronor
1861/65 . . .	499	8.2	3830	48.3	15.1	71.6
1866/70 . . .	491	8.9	3829	55.8	15.2	79.9
1871/75 . . .	664	12.4	4609	65.5	19.1	97.0
1876/80 . . .	692	11.8	5000	65.7	20.2	97.7
1881/85 . . .	1198	20.3	5608	72.0	19.0	111.3
1886/90 . . .	1360	17.8	5643	55.9	15.3	89.0
1891/95 . . .	2113	28.5	5712	66.7	18.0	113.2
1896/00 . . .	2388	35.7	5680	65.2	23.2	124.1
1901/05 . . .	3191	49.3	6055	74.1	23.4	146.8
1906/10 . . .	3422	57.1	5914	78.2	25.2	160.5
1911/15 . . .	3777	68.2	5786	84.6	28.0	180.8
1916/20 . . .	3422	109.8	3993	122.8	39.0	271.6
1921/25 . . .	4679	119.5	4672	94.9	30.3	244.7
1926/30 . . .	5817	125.3	4507	80.6	26.2	232.1

The group Home-grown vegetable produce includes corn (also maize) and roots. The quantities and values of the products used as industrial raw materials are based on comprehensive calculations, an account of which is given in Part II, pp. 17—26 (cf. also Tables 66 and 67). The changes during the period in the total consumption of the more important of these commodities are noted in Tables 30 and 31. The causes of the changing relation between the wheat and the rye consumption have already been discussed in connection with the changes in agricultural production. The strong increase in the consumption of beets is of course connected with the increase in the home production of sugar.

The import surplus values of Horticultural produce, fruit and berries, and Sundry vegetable produce, have been insignificant during the greater part of the period. In the nineteen-twenties it amounted to about 20 mill. *kronor*, however, mainly because of the relatively large linseed imports.

Table 31. Roots Used as Raw Material in Manufacturing, Mining, and Handicrafts 1861/65—1926/30.

Year	1	2	3	4	5
	Potatoes		Sugar-beets		Roots, total Mill. <i>kronor</i>
	1000 decitons	Mill. <i>kronor</i>	1000 decitons	Mill. <i>kronor</i>	
1861/65	1533	3.8	84	0.1	3.9
1866/70	1318	3.5	132	0.2	3.7
1871/75	1769	4.8	236	0.4	5.2
1876/80	1590	4.5	109	0.2	4.7
1881/85	1279	3.7	279	0.5	4.2
1886/90	1099	2.5	812	1.5	4.0
1891/95	974	2.9	3517	6.5	9.4
1896/00	1114	3.7	6543	10.3	14.0
1901/05	1531	5.6	7305	13.4	19.0
1906/10	1646	5.7	8934	22.0	27.7
1911/15	1806	7.7	9230	22.8	30.5
1916/20	1139	8.7	8724	37.4	46.1
1921/25	1285	10.7	9873	55.2	65.9
1926/30	1717	11.6	8724	22.6	34.2

The industrial raw materials from Specified animal agricultural produce (e: 1) are: pigs for slaughter houses, raw hides for tanneries, and milk for dairy factories. All the data are calculated; for details see Appendix B, pp. 90 and 128, and Tables 72 and 75. From the beginning of the 'seventies up to the end of 1910 the value of the milk constituted from 75 % to 80 % of the total value, but this proportion has since dropped to about 60 %. The aggregate value of the different commodities has risen considerably and amounted at the end of the period to more than 200 mill. *kronor*, compared with only 2 or 3 mill. *kronor* at the beginning.

The group Other animal agricultural produce comprises a number of different commodities, the most important being sheep's wool. The value of the import surplus has risen from about 5 to about 25 mill. *kronor*.

The consumption of Fishing produce by the fish-curing establishments was in 1930 estimated at 5.5 mill. *kronor*, a figure that had not been reached earlier.

Table 32. Timber Used as Raw Material in Manufacturing, Mining, and Handicrafts 1861/65—1926/30.

Year	1		2		3		4		5		6		7		8	
	Sawmills		Pulp industry				Charcoal manufacturing				Total					
	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor	1000 m ³	Mill. kronor
1861/65	3142	20.1	—	—	2545	4.5	5687	24.6								
1866/70	4396	28.1	12	0.1	3098	4.9	7506	33.1								
1871/75	5441	51.1	32	0.5	3904	10.7	9377	62.3								
1876/80	6902	57.6	58	0.7	4537	8.3	11497	66.6								
1881/85	8991	67.3	118	1.4	5248	9.5	14357	78.2								
1886/90	10172	67.4	280	2.7	5149	8.2	15601	78.3								
1891/95	10773	74.4	706	5.6	4861	7.9	16340	87.9								
1896/00	12183	90.6	1482	10.7	4721	10.2	18386	111.5								
1901/05	11354	91.7	2585	19.2	4330	9.6	18269	120.5								
1906/10	10713	80.6	4493	34.6	4103	10.7	19309	125.9								
1911/15	11480	108.7	7214	56.2	4210	13.4	22904	178.3								
1916/20	11670	233.5	7033	154.4	4294	40.4	22997	428.3								
1921/25	10103	154.2	8813	122.0	2014	10.3	20930	286.5								
1926/30	12121	158.2	13904	164.5	1974	8.5	27999	331.2								

The raw materials from *Forestry* consist of home-grown and foreign timber for the manufacture of sawmill products, woodpulp, and charcoal, as well as some other minor products. In Part II, pp. 147—158, an account is given of the special calculations made to determine the quantities and values of the timber consumed for the three first-named products. The value of timber for other purposes has been obtained from the manuscripts of Table 86. The estimated timber requirements of Manufacturing, Mining, and Handicrafts are incomplete, in that they do not include wood fuel, no data being available for such a calculation (cf., however, Part II, pp. 164 ff). The production of charcoal, and the raw materials required for this, were moreover estimated at far too low figures in the earlier years. The quantities and values of the timber used in manufacturing the three most important products are given in Table 32.

The values given in Table 29 of the raw materials from *Manufacturing, Mining, and Handicrafts* consumed

Table 33. Imports of Industrial Raw Materials in per cent of Total Supply 1871/75—1926/30.

Year	1	2	3	4	5	6	7	8	9
	Mining and metal industries	Stone, clay, and glass industries	Wood products industries	Paper and printing industries	Food products industries	Textile and clothing industries	Leather, hair, and rubber industries	Chemical industries	Classes 1—9
1871/75	10.8	94.9	10.1	13.1	98.5	37.1	30.4	37.4	39.4
1876/80	13.6	94.5	10.4	15.8	95.7	48.4	48.7	35.5	43.5
1881/85	15.7	93.9	12.9	5.7	95.2	48.6	56.4	46.4	45.7
1886/90	13.1	92.1	11.2	10.3	82.7	50.7	55.7	52.3	43.3
1891/95	11.7	91.0	9.8	7.9	42.3	56.9	54.5	53.5	36.0
1896/00	13.5	89.1	13.2	5.7	14.0	38.7	54.7	51.5	30.1
1901/05	17.7	85.0	10.7	4.3	15.6	29.7	44.9	60.1	30.7
1906/10	20.7	83.3	14.1	2.5	15.3	29.5	44.5	58.6	30.9
1911/12	21.0	83.7	16.8	4.1	17.1	31.1	43.1	58.3	31.8
1913/15	36.0	88.4	16.1	8.2	24.7	41.0	38.4	60.3	41.7
1916/20	24.1	85.7	14.1	5.8	27.5	42.6	34.7	44.9	36.6
1921/25	39.6	78.8	18.1	9.2	18.1	36.6	33.2	56.9	35.1
1926/30	45.7	79.7	14.9	5.3	35.5	44.8	38.2	62.3	43.0

by each branch also include the value of gold for industrial purposes, and are therefore slightly higher than the corresponding values in Table 25. An account is given in Part II, pp. 607 ff., of the estimated quantities and values of the gold required by industry.

It has been repeatedly emphasized in this account that the values given are based on various comprehensive calculations. In respect of individual commodities and commodity groups the production is necessarily largely estimated, the allotment of production, imports and exports to different uses rests partly on rather arbitrary assumptions, and the total supply has finally been assumed to correspond to production + import surplus, no regard being thus paid to any changes in the stocks. All this will naturally affect the reliability of the calculations. Any errors made in the estimates, however, — though in some cases possibly relatively important — will in all probability not all tend the same way, but will most likely partly balance one another. Under certain circumstances, e. g. in special

cyclical phases, there is of course a chance of the errors being cumulative.

The percentage ratios of imports to the total supply of industrial raw materials derived from manufacturing industries in general and the several industrial classes in particular are given in Table 33 ("power stations, gas, and water works" are not accounted for separately, as no products of that class are imported).¹ For statistical reasons, the percentages are generally only comparable in the periods 1861—1895, 1896—1912, and 1913—1930. On the assumption that there has been no real change in the import ratio, the percentages should be highest in the last period, as a number of intermediate products previously accounted for twice have been corrected since 1913, and lowest in the middle period, when the number of such double-accountings was highest.

In the class mining and metal industries the percentages have risen since 1896, and the increase since 1912 has been so large that there must have been an actual relative increase of the imports. This tendency throws light on the structural changes in the iron, metal, and engineering industries of the country, in which the continuous rise in production and exports made them increasingly dependent on the imports of certain qualities of iron and other metal products. The high percentages of the stone, clay, and glass industries class are mainly due to the large coal and coke imports. The relatively low import ratio of the next two classes is significant of the conditions of work in these industries: they mainly process native raw materials belonging to one of the two classes. The imports of food products were remarkably large in the early 10-year periods. One important cause of this was the large quantities of raw

¹ The table also shows approximately how far the raw materials consumed by the different main classes are of foreign origin. It is necessary to remember, however, that products from establishments of one class may also be processed or used in the establishments of other classes. The paper and printing industry, which uses several products of the chemical industry as raw materials, is an example of this. Charcoal, which is a product of the chemical industries, is moreover nowadays mainly used in the works of the mining and metal industries. Tin, wood, paper, and textile fabrics, are used for packing and for containers in several classes, and so on.

sugar imported, the average value of which (exclusive of duty) was about 9.5 mill. *kronor* from 1861 to 1890, but dropped in the next two quinquennial periods to 5.3 and 1.4 mill. *kronor* respectively. In the early part of the period, moreover, the factories of this group were mainly manufacturing finished products. The rise of the bakery industry, which began towards the end of the nineteenth century, changed these relations, in that its raw materials are mainly the products of other factories in the same class of industry. There have been no important changes in the remaining industries. An explanation of the divergent tendencies occurring periodically require very detailed investigations, which cannot be undertaken.

Services from other industries. The value of certain services rendered to this industry must, as has already been said, be included in its net value. The only items deducted are therefore railway, and costal and inland shipping freights, as well as postal, telegraph, and telephone charges. It has been possible to allot the services of these branches fairly satisfactorily according to whether they have been used for production or consumption. In respect of the services used in production, however, these have had to be rather arbitrarily allotted to the different industries. Certain data on which that allotment can be based are, however, available, e. g. with reference to the allotment of railway freights, in respect of which actual figures relating to the distribution of the freight income to various commodities have been used; the order of magnitude, at least, of this item is therefore fairly satisfactorily determined. Railway freights usually constitute about 60 % of the computed debit items; they are accounted for separately in Appendix F and summarily in Table 41.

Machinery and equipment are assumed to have been maintained by the establishments themselves. The value of raw materials used for this purpose, and wages to workers in independent repair shops, are included in the item "Raw Materials from Manufacturing, etc.". The maintenance of buildings is not entered as a separate

debit item. To some extent this work is done by the staff of the establishments. The wages paid to them, as well as the raw materials used, are thus included in the net value.

Depreciation of machinery and equipment has been estimated as described in Appendix J. No deduction has been made here for the depreciation of buildings and plant (cf. Chapter IV, Paragraph 1).

11. *The Trend of the Net Value.*

The necessity of limiting in various respects the estimated debit items of Manufacturing, Mining, and Handicrafts has already been motivated. These limitations will necessarily make the industry correspondingly more comprehensive. As the debit items are calculated, the industry will comprise, besides actual production, the trade connected with, and particularly also the transport of, the raw materials required for that production, as well as the portion of the building activities corresponding to the maintenance and replacement of buildings and other permanent plant, and, finally, some other services rendered. When considering the trend of the net value, due attention must be given to these circumstances, which will affect not only its magnitude, but also the relative changes from time to time.

The results of the calculation of the gross value, the debit items, and the net value, of manufacturing industries and handicrafts have been collected in Table 34. The last two columns of the table give the net value in per cent of the gross value and of the total national income respectively.

The relative share of the net in the gross value will, of course, be influenced by the duplications which, to a greater or less extent, are included in the gross value in the periods 1861—1895, 1896—1912, and 1913—1930. It will be noted that the level of the percentages also varies from one period to another. It is a remarkable fact, how-

ever, that they are lowest in the first period, seeing that the amount of duplications is the largest in the middle period. It would take too long to discuss here why this is so. Suffice it to say that the fundamental data for the period in question are calculated, which in its turn affects the reliability of the results.

From the end of the eighteen-sixties to the middle of the 'nineties, the ratios of net to gross value do not, except for occasional years, vary appreciably. In the two subsequent periods the percentages again rose noticeably, and especially from 1913 to 1930.

A stricter circumscription of the industry would, however, have made the apparent increase even stronger provided the ratio of excluded to included debit items had remained unchanged, or had suffered only slight alterations. Assume, as an illustration, that the industry is restricted to the production of commodities only, and that the additional debit items to be deducted in consequence of that restriction constitute, say, 10 % of the debit items already deducted. The ratios of net to gross value in 1913 and 1930, for example, would then be changed from 45.4 % and 57.9 % to 39.9 % and 53.7 %, respectively, and the ratio in per cent of the 1930 to the 1913 net value would rise from 287.4 to 303.1. The last of these two percentages would only have been equal to the first, 287.4, if the ratio in 1930 of the additional to the previously included debit items had increased since 1913 by 75 %. In reality, this means that the merchanting charges, being the heaviest of the supplementary debit items, would have increased by approximately that percentage in relation to the value of the raw materials, which is hardly likely. The matter may, therefore, be summed up by saying that a wider definition of the scope of an industry tends to decrease the trend of its net income and correspondingly increase the trend of the other industries. The degree to which this is so is directly proportionate to the extent of the relative undervaluation of the debit items, and inversely proportionate to the change in the relation between the values of the excluded and included debit items.

NATIONAL INCOME

Table 34. Gross and Net Income of Manufacturing.

Year	1	2	3	4		5
	Gross income	Debit items	Net income	Net income in % of		
				Gross income	Total national income	
1861	306.6	217.4	89.2	29.1	13.9	
62	300.3	185.6	114.7	38.2	16.9	
63	313.3	197.3	116.0	37.0	17.7	
64	315.7	199.0	116.7	37.0	17.6	
65	324.7	204.7	120.0	37.0	18.1	
66	325.7	213.2	112.5	34.5	16.0	
67	337.7	228.1	109.6	32.5	15.4	
68	348.3	243.0	105.3	30.2	15.5	
69	373.2	264.1	109.1	29.2	15.1	
70	377.1	262.3	114.8	30.4	14.5	
1871	407.5	273.4	134.1	32.9	15.8	
72	508.9	342.6	166.3	32.7	17.8	
73	584.9	407.0	177.9	30.4	16.2	
74	618.0	418.3	199.7	32.3	18.2	
75	600.0	384.8	215.2	35.9	19.2	
76	602.3	408.5	193.8	32.2	17.0	
77	610.0	410.6	199.4	32.7	17.7	
78	507.0	334.9	172.1	33.9	16.7	
79	488.2	327.8	160.4	32.9	16.0	
80	556.3	374.4	181.9	32.7	16.1	
1881	626.4	422.7	203.7	32.5	18.8	
82	662.5	449.6	212.9	32.1	18.7	
83	650.5	446.9	203.6	31.3	17.8	
84	638.3	430.3	208.0	32.6	18.4	
85	663.5	457.0	206.5	31.1	19.0	
86	601.9	396.9	205.0	34.1	19.5	
87	616.8	411.2	205.6	33.3	20.6	
88	676.6	463.6	213.0	31.5	19.1	
89	756.0	516.4	239.6	31.7	20.5	
90	799.3	546.0	253.3	31.7	20.4	
1891	844.1	578.4	268.7	31.5	20.0	
92	876.9	598.7	278.2	31.7	21.5	
93	876.2	584.0	292.2	33.3	22.8	
94	922.9	613.9	309.0	33.5	24.2	
95	950.2	608.4	341.8	36.0	24.9	

GROSS AND NET INCOME

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Mining, and Handicrafts 1861—1930. MILL kronor.

Year	1	2	3	4		5
	Gross income	Debit items	Net income	Net income in % of		Total national income
				Gross income	Total national income	
1896	1109.1	694.6	414.5	37.4		28.2
97	1226.4	786.1	440.3	35.9		28.3
98	1344.1	853.7	490.4	36.5		28.8
99	1435.2	901.7	533.5	37.2		30.3
1900	1567.3	1013.3	554.0	35.3		29.5
1901	1524.4	963.8	560.6	36.8		31.4
02	1570.8	994.8	576.0	36.7		31.2
03	1629.2	1009.5	619.7	38.0		31.0
04	1722.9	1079.6	643.3	37.3		32.9
05	1764.8	1074.4	690.4	39.1		33.2
06	2009.9	1198.9	811.0	40.4		34.6
07	2160.9	1267.8	893.1	41.3		35.0
08	2084.3	1202.0	882.3	42.3		33.7
09	2002.6	1164.7	837.9	41.8		32.6
10	2334.2	1358.8	975.4	41.8		35.1
1911	2394.6	1368.2	1026.4	42.9		36.5
12	2585.3	1501.3	1084.0	41.9		35.5
13	2597.9	1419.1	1178.8	45.4		36.5
14	2587.3	1363.1	1224.2	47.3		36.0
15	3230.7	1758.9	1471.8	45.6		36.9
16	4337.3	2350.1	1987.2	45.8		40.5
17	5098.8	2514.4	2584.4	50.7		43.7
18	5941.6	3041.4	2900.2	48.8		38.2
19	6710.4	3562.1	3148.3	46.9		35.4
20	8331.5	4411.0	3920.5	47.1		37.4
1921	5283.2	2442.9	2840.3	53.8		38.9
22	4594.9	2127.8	2467.1	53.7		38.2
23	4631.2	2113.5	2517.7	54.4		38.8
24	4959.0	2327.2	2631.8	53.1		39.3
25	4999.5	2289.6	2709.9	54.2		39.2
26	5317.1	2451.2	2865.9	53.9		40.7
27	5429.4	2406.3	3023.1	55.7		41.9
28	5582.3	2554.4	3027.9	54.2		41.1
29	6075.8	2680.3	3395.5	55.9		43.2
30	5852.7	2464.1	3388.6	57.9		43.8

An important, though not essential, presumption in the above argument is that the ratio of the net to the gross value has been increasing. Among the factors primarily determining the trend in this respect, the following ought to be specially stressed: (a) the increasing tendency of production towards more highly-processed goods, and the consequent relative changes in the composition of production; and (b) the more favourable price-trend — at least periodically — of the final products than of the raw materials. Both these points have already been dealt with. It has been shown, for instance, that the production of durable goods has become relatively more important; the production of such goods amounted to just under 10 % at the beginning of the period, and at its end to a little over 20 %, of the total output of industrial products.

The following index-series of wholesale prices from 1920 to 1930, prepared by the Board of Trade, is given to illustrate the difference in the price-trends of finished products and of raw materials used.

Indices of wholesale prices, 1920—1930.

1913 = 100.

Year	Raw materials	Semi-finished products	Finished products
1920	369	337	365
1921	194	207	246
1922	147	155	196
1923	147	148	180
1924	150	151	175
1925	154	160	166
1926	142	149	154
1927	138	149	149
1928	144	150	149
1929	135	141	142
1930	117	128	123

From the points of view adopted here, the series "Semi-finished products" consists of products which either are used as raw materials in manufacturing industries or are finished products in the sense that they are exported or intended for further processing in other industries. The splitting up of this category would probably have a corrective effect on the two other series; other summary

index series adapted for this particular purpose are, however, not available. In view of the fact that the imports largely include industrial raw materials, the discrepancy mentioned above between the price trends of imported and of exported goods may also be taken to indicate an actual difference in the price trends of the final products and of the raw materials used in manufacturing industries.

The ratio of the net value of this industry to the total national income, finally, has increased considerably, and relatively steadily; the percentages (in Table 34) are based on the national income series given in Col. 10 of Table 48. That trend is to some extent confirmed by the ratios given below, showing — in per cent of the total population — the part of the population included in the group manufacturing industries and handicrafts, according to the Population Censuses.

Year:	1870	1880	1890	1900	1910	1920	1930
Per cent . . .	14.6	17.4	21.7	27.8	32.0	35.0	35.7

With reference to the question, significant in this connection, of the differences in the trends of wages in some of the more important occupational groups, the Reader is referred to "Wages in Sweden 1860—1930, Part II", published by the Institute.

BUILDING AND CONSTRUCTIONS.

(Appendix E)

12. *Methods.*

The gross value of building and constructions can be calculated in two ways. The first method is to start from an estimate of the total value which then has to be divided into new investments and reinvestments (incl. of maintenance). This latter calculation is necessary when using the figures for computing the national income as the sum of consumption and net investments. The definition of

reinvestment must be the same as used in computing the debit items in each industry, i. e. the total value of reinvestments must equal the sum of the allowances for depreciation of buildings and constructions used in calculating the net incomes (cf. Chapter I, Paragraph 10). New investments are thus defined as the difference between gross investments and reinvestments.

According to the second method the gross value of building and constructions can be regarded as the sum of a series of values, each referring to the work actually done in a special field, e. g. agriculture, the manufacturing industries, etc., in the form of replacements, maintenance, and additions to the existing stock. As the amounts written off, or regarded as normal depreciation allowances, in a certain industry will not in each year correspond to the necessary replacements, the sum total of replacements will not correspond to the value of reinvestments as defined above. As regards the gross product value, the two methods should, however, give the same result, at least theoretically. In practice, the difficulties of getting reliable statistics are so great that there is no possibility of obtaining the same gross value by the one method or the other. As a general remark it may be said that statistics on replacements are very scanty, and that in many instances these have to be assumed to be equal to depreciation allowances. This assumption may be true, if averages for fairly long periods are used.

In the following the two methods and the results of the calculations will be discussed.

13. *Estimating the Total Gross Value of Building and Constructions.*

As the Industrial Statistics do not include the building industries and no other statistics are available, an indirect method must be used for estimating the total gross value of the production, based either on the variations of the assessment values for taxation or fire insurance purposes,

or on a computation of the items of which the gross income is made up.

With regard first to the assessments, it is necessary to note that variations in these give information on the value of the additions to the stock alone, and this only if it is assumed that the value of the old houses has not altered during the period examined. These data, therefore, have to be supplemented by the value of replacements and maintenance, computed in another way. Special investigations must also be made in respect of such constructions as are not assessed for taxation or are not generally insured against fire, e. g. roads. There is also some difficulty in distinguishing the value of the building from that of the site and the fixed machinery. As there is no general assessment of houses for taxation except at certain intervals, variations in their value owing to alterations and additions will not always appear in the assessment figures for the intermediate years.¹ Changes in the principles of assessment, e. g. in the definition of "real estate", and special considerations applying to the assessments for local taxation, will also affect the figures. One of the greatest obstacles, however, to the use of the assessment figures is the circumstance that price fluctuations will affect the value of all houses without any changes having actually taken place. There is no possible way of correcting for such fluctuations, and the assessment figures have therefore proved useless for estimating the value of annually added new buildings and constructions.

The second method of computing the total product value proceeds from the costs of material and wages. In allotting the gross product value to different uses for the purposes of computing the national income, the consumption of raw materials and transport services in the building industries has also been estimated. These calculations can obviously only provide a very approximate measure of this consumption. As the allotment has been made on the same prin-

¹ Legally, there is no need in the intermediate years to demand re-assessment until the value is increased by more than 20 % of the assessed value.

NATIONAL INCOME

Table 35. Gross and Net Income of Building

Year	1	2	3	4	5
	Raw materials and wages	Annual yield of machine capital	Total gross income	Debit items	Net income
1861	13	—	13	7	6
62	14	—	14	7	7
63	15	—	15	7	8
64	19	—	19	9	10
65	23	—	23	11	12
66	19	—	19	9	10
67	16	—	16	8	8
68	22	—	22	11	11
69	27	—	27	13	14
70	26	—	26	13	13
1871	26	—	26	13	13
72	34	—	34	17	17
73	49	—	49	25	24
74	60	—	60	30	30
75	63	—	63	31	32
76	60	—	60	30	30
77	68	—	68	34	34
78	54	—	54	27	27
79	46	—	46	23	23
80	62	—	62	31	31
1881	67	—	67	34	33
82	80	—	80	40	40
83	70	—	70	35	35
84	80	—	80	40	40
85	78	—	78	39	39
86	72	—	72	36	36
87	70	—	70	35	35
88	76	—	76	38	38
89	81	—	81	41	40
90	92	—	92	46	46
1891	90	—	90	45	45
92	85	—	85	42	43
93	80	—	80	40	40
94	97	—	97	48	49
95	111	—	111	56	55

GROSS AND NET INCOME

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and Constructions 1861—1930. MILL. *kronor.*

Year	1	2	3	4	5
	Raw materials and wages	Annual yield of machine capital	Total gross income	Debit items	Net income
1896	140	—	140	70	70
97	149	—	149	75	74
98	185	—	185	93	92
99	203	—	203	102	101
1900	215	—	215	108	107
1901	203	—	203	102	101
02	205	—	205	103	102
03	248	—	248	124	124
04	271	—	271	136	135
05	242	—	242	121	121
06	281	—	281	141	140
07	347	—	347	174	173
08	296	—	296	149	147
09	280	—	280	141	139
10	345	—	345	173	172
1911	344	—	344	172	172
12	340	1	341	171	170
13	394	1	395	197	198
14	406	1	407	204	203
15	423	1	424	212	212
16	564	1	565	283	282
17	834	1	835	418	417
18	1080	2	1082	541	541
19	1140	4	1144	573	571
20	1327	4	1331	666	665
1921	743	4	747	375	372
22	564	4	568	284	284
23	766	3	769	385	384
24	821	3	824	413	411
25	741	4	745	373	372
26	808	4	812	407	405
27	808	4	812	407	405
28	873	4	877	439	438
29	922	3	925	463	462
30	964	3	967	484	483

ciples throughout the period, however, the result may at least be assumed to give a general idea of the fluctuations, apart from changes in the stock, of the production and the internal supply of such materials.

Some reservations are necessary, however. One is that timber used without previous processing is not included in the calculations (cf. Part II, p. 143), nor such timber as is not accounted for in the Industrial Statistics. The second reservation is in respect of transport costs, as they do not include costs of transports by lorries, which in the nineteen-twenties became of increasing importance to the conveyance of building materials. Moreover, as only transport costs, and not merchanting charges, have been added to the value of the raw materials at the works, the figures will be too low. These exclusions will affect not only the level, but also the trend, as their relative importance to the total supply of materials will necessarily have varied in the long period under review.

Even if the calculated values of materials and transport charges are accepted, it must still be decided how to estimate wages. The only available method is to use certain estimated ratios of labour costs to costs of materials. In another connection in this inquiry (cf. Part II, p. 342) the proportion 40 to 60 has been used as applying to the building of residential houses. Data regarding the distribution of costs in different kinds of work can also be obtained from the accounts rendered of the expenditure on such public works organized in 1933/34 in relief of unemployment, where labour was paid at market rates.¹ If "Sub-soil drainage" and "Forest improvements" — which are of a special nature — are eliminated, 44 % of the total costs prove to be wages. The building of houses — which demands less labour in relation to materials than most other constructional work — was probably more dominant in these public works than in constructional work generally. The ratio of labour to material has therefore been assumed to average 50 : 50.

¹ *Allmänna arbeten för arbetslöshetens bekämpande i Sverige 1929—1934.* (Statens offentliga utredningar 1934: 44.)

Apart from wages and costs of material, the gross income of building also includes entrepreneurial incomes and the annual yield of the capital invested in the industry. Entrepreneurial incomes must, for lack of statistical material, be disregarded. The invested capital probably plays a subordinate part in this industry, durable equipment chiefly consisting of work machines, etc. Table 35 shows that the estimated gross value of the services rendered by the machine equipment¹ did not attain to any significance until in the nineteen-twenties.

From these data the gross income of the building industry can be computed by doubling the estimated value of the materials, and adding the gross yield of the machine equipment as measuring the value of services rendered by it. For this purpose it is necessary to assume that the ratio of wages to costs of materials has been constant throughout the period, an assumption which hardly accords with actual conditions. Even if substitution of machinery for labour has not reached the same proportions in the building industry as in industry proper, labour has nevertheless to some extent been replaced by machinery. Materials that formerly used to be manufactured, or prepared on the site of the work, are now frequently replaced by manufactured commodities. The standardization of interior fittings is an example of this change, and the industrialization of mortar mixing is another. Most technical improvements of building methods will have had this effect. A change in raw material prices in comparison with wages which does not result in any corresponding technical change will also affect the ratio of material costs to wages. It is difficult to come to any general conclusion regarding the influence of these factors on the ratio, but it is probably justifiable to conclude that the early value figures are too low in relation to those of the later part of the period, and that the growth of the building industry is therefore too much accentuated in the series. The method used also involves certain duplications, as the net incomes of other industries include the value of building and repair work

¹ As to the method used in this calculation, see Appendix J, p. 552.

done by the staff of the establishments. This is balanced, however, — particularly in agriculture — by the above-mentioned deficiencies in the figures relating to the costs of raw materials.

By this method, the net income will equal the wages plus the net yield of the machine equipment (= gross yield less depreciation and maintenance).

Being based on relatively uncertain data, and on very simplifying assumptions, these calculations can only be used if supported by other estimates.

14. *The Value of Building and Constructions, Regarded as the Aggregate Value of such Work Undertaken in other Industries.*

An attempt has been made to compute the total income of this industry by estimating the expenditure on building and maintenance work made by other industries. The statistical material relating to many of these industries has been so deficient, however, that any claim to completeness has had to be abandoned. The following is an account of the methods that might be used in one case or the other, of the reasons why they have sometimes been considered impracticable, and of the results of the partial investigations made.

According to the nature of its object, constructional work has been divided into the following groups:

Residential building;

Public utilities, governmental and municipal building; and

Building in agriculture, manufacturing industries, and commerce.

As to the two first of these groups, series of relatively reliable figures extending over short or long periods are available, but in respect of the third group there is practically no material at all rendering an estimate possible.

Residential building. The calculations of the value of residential building have been restricted to the period 1902—1930. Data are available on the number of new houses

built in towns and municipalities (*köpingar*) before 1902, but as the number of rooms (including kitchens) in each house was growing rapidly then, such data do not give a correct idea of the trend of building for residential purposes.

From 1902 information is available on the number of additional new rooms (and kitchens) in the urban communities (*städer och stadsliknande samhällen*) of Sweden, which information has gradually come to include practically all densely populated areas. This extension of the statistics has naturally affected the trend, but it does not conceal the cyclical variations, which are clearly discernible in these series.

The product value has been calculated on the basis of certain information, received from various places, on the building cost per room in 1930—1931, which cost has been varied backwards in time according to an index of building costs constructed from material obtained in Stockholm.

To estimate the product value on these lines can obviously only give comparatively uncertain results. For one thing it must be remembered that the costs may have developed differently in other parts of the country than in Stockholm, and for another that they must actually have been affected by changes in the quality of the houses, although it cannot be decided with any certainty how far the prices used in the construction of the index series have been affected thereby.

As the calculations are based on the number of new rooms built during the year, the estimated product value will represent not only an addition to the total value of buildings, but also all replacements of demolished rooms. Building operations that improve the quality of a house without involving demolition, and thus represent a new investment, are not included in this product value, nor are maintenance costs. For these reasons, and also because the statistics do not cover rural districts, the figures are probably too low as a measure of the total value of residential building.¹

¹ Farm dwellings should be included in agricultural building costs.

There having been no inquiries into production costs that might serve as a guide for estimating replacements and maintenance of dwelling houses, all such computations will necessarily be only rough estimates. Experts are of the opinion that the allowances for depreciation and maintenance might be put at an average of 1.5—2 %, and the rent at 8—9 %, of the assessed value of the houses.¹ On the basis of these figures, 20 % of the rent has been considered to correspond to the allowances for depreciation and maintenance, and this percentage has been applied to the total rent (exclusive of the estimated dwelling value of farm buildings) as calculated in Appendix J. The resulting figures are given in Table 36, Col. 4.

A calculation on these lines for the period 1925—1930 gives an average of 112 mill. *kronor*, of which about one third, or 37 mill. *kronor*, has been assumed to correspond to the allowances for depreciation, and about 75 mill. *kronor* to maintenance. Assuming that all replacements are included in the estimated value of the new production, the average of the latter in the corresponding period, 209 mill. *kronor*, would have to be increased to about 280 mill. *kronor* in order to give the total value of residential building. Even that amount is probably a minimum figure.

In order to determine whether the above percentage can be used for the earlier years too, the computed depreciation and maintenance costs for 1908, 34 mill. *kronor*, may be compared with FLODSTRÖM's estimated value² 3,380 mill. *kronor*, of all houses, excluding industrial and certain public buildings. These figures give a ratio of depreciation allowances and maintenance to the value of the houses of 1 %, i. e. less than the 1.5—2 % given above. It should be remembered, however, that FLODSTRÖM's estimated value also includes sites and buildings for commercial purposes, and that if the comparison were restricted to residential property alone, the ratio would thus more nearly approach that on which the calculations are based.

¹ Cf. also HELGER, B., *Prisbildningen på hyresmarknaden. (Stadshollegiets utlåtanden och memorial 1935, Bihang 10 A.)*

² *Sveriges nationalförmögenhet omkring år 1908 och dess utveckling sedan mitten av 1880-talet.*

Public utilities, etc. In this section are included the construction of roads and railways, houses required for transport and communications, hydro-power stations, electrical distribution plant, municipal buildings for industrial purposes, and State and municipal buildings for administrative or other public purposes.

State and private railways have been dealt with separately in the calculations regarding *railway construction*. The value of new constructions has been assumed to equal the difference between the booked value of the track with appurtenant buildings at the end of each year and the corresponding value at its beginning. No depreciation allowances being made on the booked values, the above difference will represent the annual increment of the accumulated building costs. As the booked values only refer to lines in traffic, and not to tracks under construction, the increase shown in a given year will not correspond to the amount actually spent in that year, but represents the aggregate cost of the sections of track completed during the year. The series will therefore display discontinuities that have no counterpart in reality. Special calculations have been made to correct the book values for the costs of any land purchased or private railways taken over by the State railways. For earlier periods certain estimates have been made because of the deficiencies of the material.

The maintenance and renewal costs have been obtained for the State railways from the official reports, while for the private railways they have had to be calculated, on the basis of information for certain years, as a fixed percentage of the gross railway income.

With the above reservation regarding railway lines under construction, the result may be considered satisfactory as far as the State railways are concerned, although the occurrence of negative figures in certain early years indicate errors which cannot be eliminated. As regards the private railways, the final figures are more uncertain, especially for the period before 1904.

Annual statistics on the costs of construction and maintenance of *public roads* are only available from 1906. The

constructional costs prior to that time have been estimated on the basis of quinquennial information on the variations in the aggregate length of the roads, and on the length of re-made or improved roads, as well as data on the expenditure on construction during the 5-year periods. In addition, the total costs of road maintenance have been estimated with the assistance of investigations made on different occasions. These estimates must obviously be very approximate, for one reason because the land-owners' contributions in kind have probably been very inadequately appraised.

Even though the statistics after 1905 leave much to be desired as regards completeness, etc., they nevertheless provide a much better basis for an estimate of the annual expenditure. They comprise annual information on the costs of construction, which also include re-building, maintenance, and administration costs. To the expenditure shown in the statistics must be added that of the State Unemployment Board (*statens arbetslöshetskommission*) on the construction of new roads, a work which has been going on more or less extensively since 1917, but the sums involved have not been large except from 1921 to 1923, when unemployment was great.

The data regarding the building of *harbours, canals, etc.* are very incomplete. They comprise the costs of work paid wholly or in part by the State, and information given in the Municipal Finance Statistics on the expenditure of the communities for new constructions and for maintenance.

Satisfactory information on the constructional activities (including replacements and maintenance) of the *tramways* can be obtained from the company reports for the period from 1905 to 1930. Before that time the annual costs were probably insignificant, and have not been estimated.

The calculations of the constructional costs of the *telegraph and telephone services* have been confined to State establishments. They comprise new plant, replacements, and maintenance during the whole period from 1861 to 1930, although no strict distinction between the three

groups has been possible. The result may be considered satisfactory as far as the totals are concerned.

The harnessing of waterfalls began in the beginning of the 'nineties, but was not very intense until the first decade of this century. The State began to take an active part in this work in 1905.

Official figures have been published since 1906 on the accumulated building costs of State plant ready for work or under construction. These data refer to power stations (also steam power stations), distribution plant, and water regulations. The difference between the values at the end and at the beginning of any one year is an approximate measure of what has been spent during that year on new plant and alterations, inclusive of machinery and electrical equipment. Certain supplementary data have been made use of to distinguish costs of machinery from building costs proper, but it has only been possible to do this for the power stations, and not for the distribution network. Replacements are not included here, but have been obtained from the balance sheets of the State Waterfalls Department (*statens vattenfallsverk*). Information on maintenance costs has been obtained from the official statistics for the years from 1910 to 1924, and they have subsequently been calculated as a fixed proportion of the total working and maintenance costs.

A direct calculation of the building costs of private power stations is impracticable, and they have been calculated from the data available (since 1901) on the annual increase of turbine capacity (in kW) and an estimated building cost per kW of installed effect. Figures relating to the building costs per kW have been obtained from official inquiries. The amounts thus arrived at consequently refer to the cost of plants actually increasing the power output, and not to replacements and maintenance. As the increased power output is not registered until in the year when each station is completed and started, there will also be a time lag. The information, moreover, refers only to regulations of water supply and to hydro-power stations, and do not

comprise reserve power stations and distribution plant, which makes the annual figures much too low.

Even though the figures referring to private enterprises (including municipal undertakings working under the form of independent companies) are not as good as those referring to the State plants, in respect of which the material may be considered satisfactory, they will nevertheless give a fairly good idea of the magnitude — and, with reservations for the time lag pointed out above, also the fluctuations — of the investment activities in this field.

Power stations worked directly by the Local Authorities are included in "Municipal Enterprises"; stations belonging to industrial concerns and only intended to supply their own power requirements have been considered industrial plant.

The costs of constructions connected with the rural electrification have been estimated by means of information in certain official inquiries.

Closely allied to the above are the building activities connected with the *industrial enterprises of Local Authorities*. This category comprises street-cleaning and waterworks, gas and electricity works, and a small group of diverse, rather unimportant enterprises. It is to be noted that only such enterprises are included here as are operated directly by Local Authorities, and whose expenditure and income form part of the municipal budget. Undertakings organized as independent companies have been dealt with as such.

Information on the annual expenditure of the urban municipalities (*stadskommunerna och köpingarna*) on new plant has only been available in the Municipal Finance Statistics since 1918. Maintenance and working costs are shown in a joint account. As the costs given in the statistics include the prices of sites and complete plants bought — a matter of some importance here — and of certain equipment, the value of the final figures as a measure of the actual building is very restricted.

Municipal building for administrative and other public purposes includes the building of churches, schools, hospi-

tals, town halls and court houses, etc., as well as the construction of streets, roads, and parks, etc. Dwelling houses built by the Local Authorities are included in residential building, and have — like municipal enterprises and transportation plant — already been dealt with. A large class of property, mainly houses purchased by the towns for street- and town-planning purposes, and not representing any erection of new buildings, has been entirely left out. The calculations cover all building operations for the above purposes by Local Authorities (*stads- och landskommunerna samt landstingen*).

Owing to revised methods of compiling the Municipal Financial Statistics being introduced in 1918, the data before and after that year are not comparable. The earliest information obtainable refers to 1874. Certain duplications and other deficiencies in the statistics lessen the value of the figures to some extent, but the error will hardly be large enough to prevent their representing the general trend.

The costs of laying out and maintaining streets, squares, sewage pipes, etc. are accounted for in the statistics from 1874.

Information on the *Government expenditure on building* has been obtained from the annual budget statements. The figures refer to the building and maintenance of houses for administrative and other purposes, e. g. palaces, churches, universities, schools, barracks and fortifications, hospitals, prisons, etc.

Building in agriculture, manufacturing industries, and commerce. Constructional activities in *agriculture* comprise a) the erection and maintenance of farm buildings, and b) the cultivation of new land, and soil improvements.

No statistical information is available on the building work proper. The fire insurance values, being partly incomplete and partly — like the assessments — dominated by fluctuations in the value of the existing buildings, cannot be used for this purpose. Nor do they furnish any in-

formation on replacements or maintenance costs, which are quite important items in agriculture.

Since 1914 the General Agricultural Association of Sweden (*Sveriges allmänna lantbrukssällskap*) edits the accounts of certain farms,¹ analysing, for instance, the working costs per hectare, including maintenance and amortization of buildings. The Association has courteously supplied detailed figures, classified by farms of different sizes, for the bookkeeping years 1924/25—1928/29. According to these data the depreciation allowances and maintenance costs per hectare and year were as follows:

Farms of	Kronor per hectare
Less than 10 hectares	21
10—50 "	18
50—100 "	17
Over 100 hectares	15

These averages, if applied to all the farms in the country of corresponding sizes, give an amount of 69 mill. *kronor* as the total depreciation allowances and maintenance costs. That sum may be too high, however, as the farms from which the information is derived are as a rule rationally managed, and presumably spend more on their buildings than the usual run of farms. It should also be noted that the allowances for depreciation and maintenance are calculated by fixing for each farm a standard depreciation percentage, which is permitted to vary between certain limits. Should the actual expenditure on building exceed the upper limit, the surplus is credited the capital account, and if they fall below the lower limit, the capital account is debited. For this reason, too, the figures may be higher than the amount actually spent on replacements and maintenance.

Even though the primary material suffers from certain defects, the conclusion is probably justified that from 1924/25 to 1928/29 the annual expenditure under these headings was some 50 mill. *kronor*, or about 5 % of the computed gross income (Table 2, duplications eliminated) of

¹ NANNESON, L., *Räkenskapsresultat från Svenska jordbruk, 1914/15*
—, (*Meddelanden från k. lantbruksstyrelsen.*)

agriculture proper. Applying the same percentage to the income in 1908, and comparing the resulting amount, 31 mill. *kronor*, with the value of the farm buildings as computed by FLODSTRÖM¹, 1,912 mill. *kronor*, a percentage ratio of replacements and maintenance costs to building values of 1.6 % is obtained. In 1885, when FAHLBECK² estimated the value of the buildings at 1,500 mill. *kronor*, the heavy fall in agricultural prices, which affected the gross income more than the fire insurance value of the houses, reduced the corresponding percentage to only 0.9 %. It would accordingly seem that, even for the early years, 5 % of the gross income is an acceptable measure of the replacements, or amortization and maintenance costs, and that the result will not be too high (Table 36, Col. 1).

Of other constructive agricultural work, the bringing of new land under cultivation is the only one investigated, as no information on soil-improvements is available. The calculations are based on the annual increase in the area under cultivation, and on the computed land value per hectare, and the result is very approximate. In recent years the amounts involved are moreover very insignificant.

An account is given in Part II, pp. 394—396, of some estimates in 1862, 1888, and 1908, of the value of *industrial plants*. A continuous series from 1891 to 1908 and from 1909 to 1930 has in addition been constructed on the basis of the fire insurance values. For the former period FLODSTRÖM's calculations on the basis of the insurance statistics have been used, and for the latter a special inquiry on the same lines. This has entailed certain assumptions as to the relation of industrial to other risks and the ratio of real property to movable property.

On the above lines the variations in the house-values have been computed from 1892 to 1908 and from 1910 to 1930. The 1892—1908 series seems to provide a fairly good representation of the cyclical variations in indus-

¹ *Sverges nationalförmögenhet omkring år 1908 och dess utveckling sedan mitten av 1880-talet.*

² *Sveriges nationalförmögenhet, dess storlek och tillväxt.*

trial building. It is, however, probably affected by the general increase of prices from the middle of the eighteenth century which, by increasing the value of the old houses, magnified the figures for the latter part of the period, and also by a tendency in the opposite direction due to the calculations having assumed that the proportion of industrial buildings to other houses has been constant. In a period of strong industrial expansion, as from 1896 to 1907, that assumption will probably have caused the increase in industrial buildings to be undervalued.

The figures after 1909 can probably only be used for the years 1910—1913 and 1928—1930, with the same reservations for variations in prices as before. Owing to heavy price fluctuations in 1914—1922 and the fact that the last remainders of the inflated values do not seem to have disappeared until 1927 the figures cannot be used for the intermediate years. This method of obtaining a continuous series for the whole period from 1861 to 1930 is consequently impracticable.

The data collected by the Social Board with reference to constructional work also contain information on the area of new-built premises for industrial purposes. On the basis of certain cost-estimates made by the Residential Building Committee (*bostadsproduktionssakkunniga*), the annual value of the industrial building production from 1925 to 1930 have been computed. The results are much too low, however, and average only 16 mill. *kronor* per annum. One reason for this is that the primary material only refers to towns and municipalities (*städer och stadslänkande samhällen*), and not to rural districts. The area figures, as well as the cost-estimates, are probably also inadequate.

A better idea of the magnitude of the industrial building production at the end of the period will therefore probably be obtained if its value is calculated as explained above on the basis of the fire insurance values. These give an average of 70 mill. *kronor* for 1928—1930. Considering that building is known to have been very active at that time, this figure will hardly be too high as a measure of the new production.

The depreciation allowances and maintenance costs can be estimated on the basis of the calculations of the production costs referred to in Appendix D (Part II, p. 310). According to them, the depreciation allowances can be estimated at 0.8 %, 0.7 %, and 1.3 % respectively of the 1913, 1918, and 1926 product values. The relatively high percentage in 1926 is due to the absolute amounts written off being computed as a certain proportion (usually 2.0 %) of the fire insurance values of industrial buildings, and even as late as 1926 these still retained traces of inflation. The 1926 investigation also gives the maintenance costs of the buildings, which averaged about 0.75 % of the product value. If the average depreciation allowance since the War is assumed to have been 1.0 %, the maintenance costs would be about three fourths of it. Using the same ratios, and the depreciation percentage obtained by the 1913 inquiry into production costs (0.8 %), the ratio of depreciation and maintenance to product values in the period 1861—1913 is fixed at 1.4 %.

As the depreciation allowances are as a rule computed at 2.0 % of the fire insurance value of the industrial buildings (to which a computed value of plant not insured against fire has been added), the maintenance costs would be about 1.5 % of the same value, i. e. the total would be 3.5 %. The application of this percentage to the property values of 1862, 1888, and 1908 given in Appendix E, results in the following total allowances for depreciation and maintenance. The amounts calculated on the basis of the product values are given below for comparison (in mill. *kronor*).

Year	3.5 % of the building values	1.4 % of the product values
1862	4.0	3.4
1888	8.8	7.9
1908	15.4 30.8	25.1

The divergencies in 1862 and 1888 may be explained by the circumstance that in those years the building values were calculated from the assessments, and probably include some fixed machinery and sites. In 1908, on the other hand,

Table 36. Depreciation Allowances and Maintenance Costs

Year	1	2	3	4	5
	Agriculture	Manufacturing industries	Transport and communications	Residential building	Total
1861	10	4	—	8	22
62	10	3	—	9	22
63	9	4	1	9	23
64	9	4	1	9	23
65	8	4	1	10	23
66	11	4	1	9	25
67	12	4	1	9	26
68	9	4	1	9	23
69	12	4	1	9	26
70	13	5	2	9	29
1871	13	5	2	10	30
72	13	6	2	10	31
73	17	7	2	12	38
74	14	7	3	12	36
75	16	7	3	13	39
76	14	7	4	14	39
77	14	7	4	13	38
78	15	6	4	12	37
79	15	6	4	12	37
80	17	7	4	12	40
1881	13	7	4	13	37
82	15	8	5	13	41
83	15	8	5	14	42
84	15	7	5	15	42
85	13	8	5	15	41
86	13	7	5	15	40
87	11	7	5	15	38
88	14	8	5	16	43
89	13	9	6	16	44
90	16	9	6	17	48
1891	18	10	6	17	51
92	17	10	6	17	50
93	15	10	7	17	49
94	14	11	7	16	48
95	16	11	8	19	54
96	17	13	9	20	59
97	17	15	10	21	63
98	20	16	10	22	68
99	18	17	11	24	70
1900	22	19	12	24	77

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of Building and Constructions 1861—1930. Mill. Kronor.

Year	1	2	3	4	5
	Agriculture	Manufacturing industries	Transport and communications	Residential building	Total
1901	19	19	14	23	75
02	21	19	14	24	78
03	22	20	15	27	84
04	20	21	17	27	85
05	22	21	18	29	90
06	26	24	19	31	100
07	28	26	21	34	109
08	31	25	22	34	112
09	30	24	21	35	110
10	30	28	24	37	119
1911	29	29	24	36	118
12	33	31	26	39	129
13	33	31	28	41	133
14	38	39	29	42	148
15	48	50	34	44	176
16	51	68	41	48	208
17	57	80	47	50	234
18	97	91	68	53	309
19	101	101	81	59	342
20	91	126	93	65	375
1921	52	75	78	76	281
22	45	67	63	80	255
23	48	68	64	83	263
24	51	73	63	92	279
25	53	74	64	98	289
26	51	79	66	103	299
27	45	80	64	109	298
28	51	84	65	112	312
29	49	91	69	116	325
30	43	87	68	121	319

Notes. Agriculture: 5 % of the gross income of agriculture proper, according to Table 2.

Industry: 1861—1913 = 1.4 % of the product values given in Cols. 1 and 2 of Table 14. 1914—1930 = 1.75 % of the same values.

Transport, etc.: The sum of the relevant items of the railway, tramway, telegraph, telephone, and postal services (cf. Table 40, Col. 4).

Residential building: 20 % of total rents (excluding dwelling houses on farms).

FLODSTRÖM's fire insurance value, 439 mill. *kronor*, and his calculated total value of the industrial buildings, 881 mill. *kronor*, have both been taken to represent the building value. The first of these is probably too low and the second too high in comparison with the building values used in the production cost investigations.

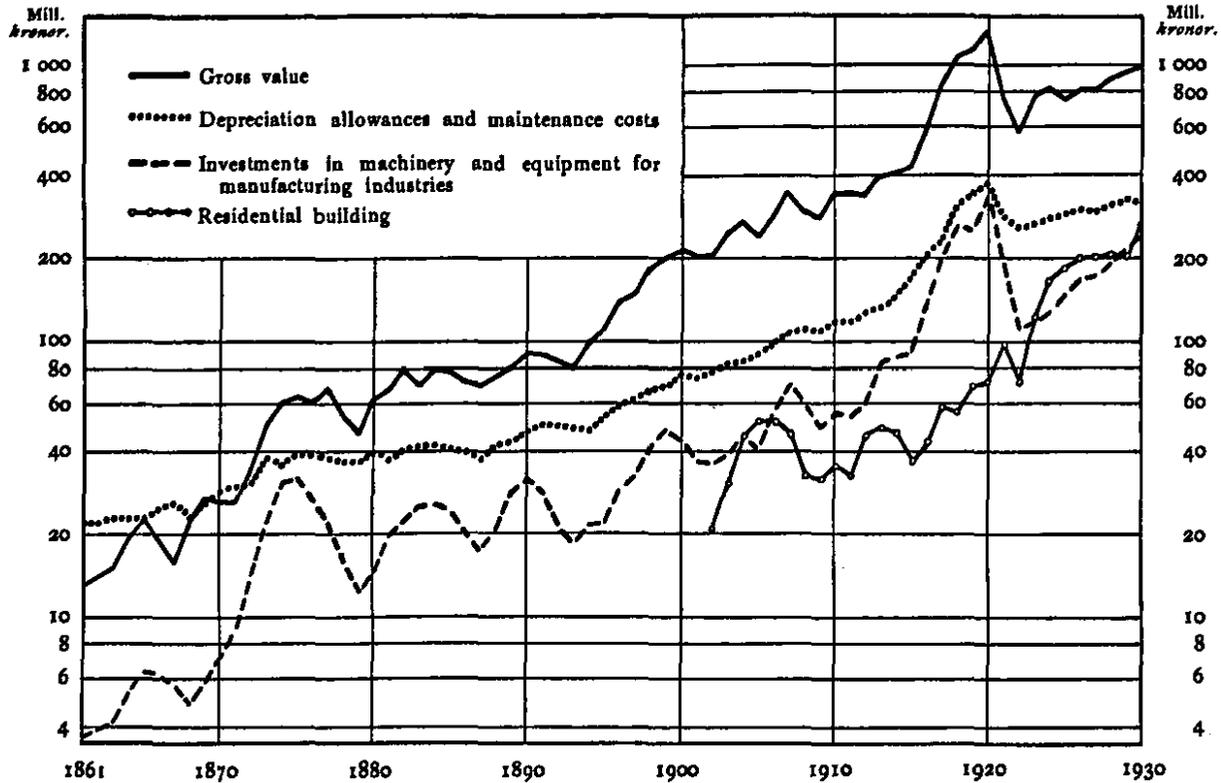
Even though the result be very approximate, this method may be used for estimating the depreciation and maintenance costs. Seeing that the approximations are so large, it has not been considered necessary to take into account that the conception "product value" has been to some extent changed in the course of the period discussed. The percentages have therefore been applied unmodified to the gross industrial product values (exclusive of handicrafts) given in Table 14. The result is seen from Table 36, Col. 2.

There finally remain *buildings for commercial purposes*. These include not only commerce proper, but also banking and insurance, restaurants, hotels, theatres, cinema halls, etc. The building statistics of the Social Board provide material for estimating this activity, and their information on the area of the new premises is probably more complete in respect of this category of buildings than in respect of industrial buildings. Cost data from the years 1925—1930 have been obtained from the Residential Building Committee. According to these computations, the value of the commercial building production in this period averaged about 33 mill. *kronor* per annum. In that sum is included certain replacements, but no maintenance, nor the extensive alterations and improvements made without increasing the number of premises. The figures must not be taken as an exact measure of the product value, but gives some idea of its order of magnitude.

15. *Comparison between the Results Obtained by Different Methods.*

Table 37 is a summary, from 1925 to 1930, of the branches in which it has been possible to estimate the annual building

Chart 11. Building and Constructions 1861—1930.



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value, which is seen to average 658 mill. *kronor*. This sum does not include agriculture and industry. According to the above, additions must also be made for incomplete data. The gross values computed on the basis of costs of materials and wages (Table 35) give an average value, from 1925 to 1930, of 856 mill. *kronor*, or 200 mill. *kronor* more than by the other method. This difference is more than made up by the missing items, agriculture and manufacturing industries, however, and by the incomplete figures under other headings. It may therefore be concluded that the figures in Table 35 on the gross income will hardly be too high towards the end of the period.¹

A summary of the estimates of depreciation allowances and maintenance is given in Table 36. This is restricted to the four most important branches, viz. agricultural and industrial buildings, transportation and communication plant, and residential buildings. As pointed out above, these figures may be regarded as representative of the average costs of replacements actually carried out, and of maintenance. They may therefore be used for controlling the reliability of the computed total building production. It will be seen from Tables 35 and 36 and Chart 11 that the two series agree surprisingly well from the end of the eighteen-nineties onwards. From 1896 to 1930 the estimated

¹ The occupational census (1931 års företagsräkning. *Statistiska meddelanden, ser. A, band IV: 10*) of 1931, which refers mainly to the 1930 turnover, gives a total gross value of constructional work, etc. of 740 mill. *kronor*, and about 105 mill. *kronor* as the gross expenditure for the labour and services required (largely for repairs and work of handicraft nature), i. e. in all about 845 mill. *kronor*. Even though some duplications may be included here, they will not be of any great importance. On the other hand, the data are probably incomplete, especially in respect of small establishments. Agricultural buildings put up without the employment of paid labour are, moreover, not included, nor any like activities connected with Public Administration. — As to the net income, a comparison can be made with the 1930 Population Census (*Statistisk årsbok för Sverige 1935*). Table 35 gives the net income in 1930 as 483 mill. *kronor*, which amount is practically all wages. According to the census the total wage income in building and constructional work was about 280 mill. *kronor*. As the census data are extracted from the declarations for taxation purposes of those in receipt of the income, they will probably be too low, which explains part of the difference. The latter amount, moreover, does not include the income of workmen employed on the building operations of railways, etc. A not inconsiderable amount should therefore be added to the 280 mill. *kronor*.

Table 37. Building and Constructions, including Maintenance, by Industrial Divisions 1925—1930. Mill. kronor.

Year	1	2	3	4	5	6
	Residential building	Railways	Public roads	Harbours, etc.	Tramways	Telephone and telegraph services
1925	248.0	100.6	58.8	9.6	4.5	24.4
1926	269.0	56.7	64.3	9.0	3.9	29.0
1927	273.0	85.7	59.8	8.3	2.6	29.0
1928	280.0	81.3	72.2	7.0	4.3	36.9
1929	278.0	52.6	79.1	6.6	4.4	35.0
1930	346.0	60.6	92.5	10.9	5.5	41.2
Annual average	282.3	72.9	71.1	8.6	4.2	32.6

Year	7	8	9	10	11	12
	Power stations and distribution of electrical power	Municipal enterprises	Municipal, for administration, etc.	Governmental, for administration, etc.	Commercial, etc.	Total
1925	17.4	20.2	101.0	16.9	22.0	623.4
1926	12.8	25.8	94.5	17.3	25.0	607.3
1927	10.4	20.0	84.6	15.5	32.0	620.9
1928	14.9	21.1	88.8	12.5	25.0	644.0
1929	20.7	24.1	98.2	14.5	52.0	665.2
1930	31.8	26.7	110.5	18.1	44.0	787.8
Annual average	18.0	23.0	96.3	15.8	33.3	658.1

value of replacements and maintenance is on an average 35 % of the total gross value of constructional work, and the variations from that figure are relatively small (except during and immediately after the War). Before that period there is a gradually increasing lack of agreement, and in the very first decade the value of replacements and maintenance is even higher than that of the total production. As far as that early period is concerned, both series are based on very deficient material. The better agreement in the middle of the eighteen-nineties is connected with the fact that the methods of compiling the Industrial Statistics were then thoroughly revised. The data referring to the product values of the sawmill industry, and the calculations regarding the allotment of the products to

different uses, which are of special importance in respect of constructional work, are particularly deficient before 1896.

From the above account of the material, and of the results of the calculations, it will be seen that the series can be used for the period after, but not before, 1896. The significance of this to the total national income calculation is discussed in Chapter IV, Paragraph 1.

TRANSPORT AND COMMUNICATIONS.

(Appendix F)

16. *Introduction.*

This heading has been limited to such transport and communication services as are not connected with any other industry. The income from transports carried out by, for instance, farmers or industrial establishments with the assistance of their own staff and their own conveyances is thus included in their respective gross and net incomes. A strict differentiation is naturally often difficult, but the distinction has on the whole been maintained.

Certain branches of commercial transport have been excluded for lack of statistical material. The branches included in this computation of the gross and net incomes are: Shipping (foreign, coastal and inland waterway); Railway traffic; Tramway traffic; Taxicab and bus traffic (after 1919); and the Postal, Telegraph, and Telephone services. Besides these, certain information is given in Appendix F regarding posting services, commercial motor-lorry traffic, and civil aviation.

The 1931 Occupational Census¹ (referring to 1930) provides a basis for certain comparisons with the estimates made here, and an idea can also be obtained from it of the magnitude of the gross income of the excluded branches.

¹ 1931 års företagsräkning (Statistiska meddelanden, ser. A, band IV: 10).

	Gross income 1930, in mill. kronor, according to:	
	the Institute	the Census
Postal services	77.5	63.2
Telegraph, telephone, and radio services	98.4	102.2
Railways	334.5	343.6
Tramways	38.5	38.7
Bus traffic	70.5	25.6
Taxi traffic	78.6	43.1
Combined livery stables, taxicab and bus traffic	—	28.2
Shipping, tug boats, etc.	310.3	285.4

Notes on the differences between the two estimates in the above table:

Postal services: The difference cannot be explained. The Institute's figure is the same as that given in the Post Office Statistics. *Telegraph, etc., services:* The difference is due to the Census including certain private local telephone associations and radio clubs. *Railways:* In the official figures certain items of the railway companies are probably duplicated, and they occasionally also include some income from bus traffic. *Bus and motor traffic:* The Institute figures are very approximate, and probably too high. The official figures, on the other hand, are most likely too low, partly because the returns are incomplete, and partly because the hiring out of motorcars is often a subsidiary business to some other occupation, and is therefore not accounted for separately. *Shipping, etc.:* The difference is due to the same causes as in the preceding group (combined ship-broking and ship-owning firms).

Of the branches separately accounted for in the Census, but not here, "Floating and rafting" is included in the gross and net income of Forestry, and "Ports and canals" in those of Public Administration. The large items entirely excluded here are the incomes of "Livery stables, lorry traffic, licensed porters, etc." (64.3 mill. kronor), and of "Ship-brokers, forwarding agents, and stevedores, etc." (44.9 mill. kronor). The former consists mostly of debit items, and only a small portion of the services are rendered to the ultimate consumers. The exclusion of the latter item, which is due to the lack of statistical material for the early years, causes certain complications. The value of these services represents, *inter alia*, direct disbursements of the consumers, or constitutes part of the ship-brokers', etc., expenses for distributing finished goods through other agencies, or for shipping services (passenger fares). As to the disbursements of the consumers, their exclusion means that the final national income will be correspondingly too small. In the second case there are several alternatives. In so far as the value of the services is part of the retail prices of finished commodities, it will be included in the gross income of Transport or Commerce according to whether it represents transport or merchanting charges. If the former, the corresponding activity should (like the shipping services rendered to the consumers) be dealt with as part of the transport services. As the costs of shipping in respect of such services have been deducted here from its gross income, the final error will correspond to the net income of the agents of production concerned. But if the costs are merchanting charges, the activity will be dealt with as part of Commerce, and will thus be included in both its gross and net income. The same will apply to exported products. If the services concerned are part of the costs to agriculture and the production of raw materials and semi-finished products, their exclusion will not affect the final result, as they will be included in the net income of these industries. As the value of the services rendered direct to the consumers will hardly be considerable, the error will approxi-

mately equal the net income of those agencies the gross income of which corresponds to the expenditure of shipping on commissions, loading, and unloading. According to an investigation referring to 1933¹, total expenses under this heading were between 60 and 70 mill. *kronor*, though that figure is probably lower than the corresponding item in 1930. A considerable portion of this, however, constitutes payments for loading and unloading abroad. The figure quoted above from the 1931 Occupational Census, 45 mill. *kronor*, will accordingly also be too high. Even if this expenditure be chiefly payments for work done, the error in 1930 would hardly be more than 25—30 mill. *kronor*, or about 5 % of the total net income of the transport services.

According to the Occupational Census, other minor branches of the transport services — e. g. aviation, salvage work, etc. — that have not been included here represented in 1930 a gross income of only 4.7 mill. *kronor*.

The statistical material offers certain possibilities of estimating directly not only the gross income, but also the debit items and the net income of the several branches of transport. In view of their heterogeneous character, it may be considered an advantage to deal with them separately.

17. *Shipping.*

Data regarding the gross income of *foreign shipping* have been given in the official statistics since 1873; for earlier years the gross income has been estimated. The income figures can be considered satisfactory, more especially in the later years, when certain deficiencies have been gradually eliminated. No corrections have been made for the early part of the period, as the amounts involved are very small and hardly affect the final results. For the purpose of computing the debit items, the gross freights have been allotted to steamers and sailing ships separately. This allotment was very approximate up to 1874, as no material for more accurate calculations were available.

No direct data regarding the costs of shipping being available, special calculations have had to be made. From 1861 to 1912 these are based on a special inquiry made in 1913, which provided ample material referring to steamers in foreign trade. In accordance with this, the debit items —

¹ ENEBORG, H., *Den svenska sjöfartens ekonomi*. (In: *Sveriges Allmänna Sjöfartsförenings tidskrift* 1935: 4—6.)

coal and oil, repairs and maintenance, depreciation, ships' dues, loading and unloading charges, and office expenses (excl. wages and salaries) — have for the steamers been put at 65 % throughout the period from 1861 to 1912. The corresponding ratio for sailing ships has been fixed at 50 %. Even though the data of the 1913 inquiry may be considered satisfactory, the results will be less reliable the further back in time this method of using a constant ratio is applied.

The same method cannot be used between 1913 and the middle of the 'twenties, as the strong price fluctuations during and after the War affected the relative size of the various items. It has therefore been deemed better to attempt to estimate directly the various items of net income instead of the debit items. They are wages and salaries (including benefits in kind on board the ships), and profits and interest, i. e. the yield of the capital invested.

The cash wages have been satisfactorily computed on the basis of certain returns of fees payable to the Merchant Seamen Registration Offices (*sjömanshusen*). The estimated value of the benefits in kind and of the salaries of the office staff are very approximate, however.

Profits and interest have been determined as a constant proportion of the capital value of the ships, a method which suffers from obvious defects. The ratio used is that obtained from the 1913 inquiry, and the profits and losses given there might well include capital profits or losses affecting the ratio. The capital values given in the Shipping Statistics are as a rule the insured values, which in times of strongly fluctuating prices are not immediately adjusted to the changing values of the ships. Nor does the assumption of a constant ratio of profits and interest to capital values conform to actual conditions. Foreign shipping is strongly influenced by cyclical fluctuations, and — particularly in the period under discussion — the net profits were subject to very great variations, which are not fully reflected in the booked, and still less in the insured, values of the ships. The probability is that in the period of rising prices they were not increased at the same rate as the growing freight income, and that when prices fell after 1920 the capital

losses were not written off immediately, but spread over a number of years. The capital yield should, moreover, only be reckoned on the actually used tonnage. As it is impossible to make due allowance for this, the computed yield during a crisis in the freight market, when part of the tonnage is laid up, will be considerably too high.

Owing to the method of computation in use before 1913, the margin between the net income and the fluctuating gross income will always be 65 %. After 1913, on the other hand, the calculated net income is but slightly affected by the occasional variations in the gross receipts. This is connected with the fact that, out of the items included in the net income, wages alone show any pronounced fluctuations, while the others — benefits in kind, salaries of office staff, and yield of the capital invested —, whether actually or by reason of the methods used, move smoothly and only follow the general tendencies of the gross income. As will be seen in Table 134, Appendix F, this lack of agreement is particularly prominent in years of violent changes of value. The gross income thus reached its maximum in 1919, while the net income did not culminate until 1920. The net income fell considerably less from 1920 to 1921 than did the gross income, and the ratio of one to the other rose from 35 % to 61 %. Some such relative changes were of course to be expected owing to the lag of wages and the heavy drop in the cost of supplies, but it would hardly have been of this magnitude unless the method used had not resulted in too high a value of the yield of the capital in 1921, the year of the economic crisis.

The defects of the method used after 1913 are thus quite obvious. It may be assumed, however, that the error would have been larger, at least up to 1925, if a fixed ratio of net to gross income had been adopted during that period too. The agreement between net and gross income has been better after 1925.

As far as their order of magnitude is concerned, the results are fairly satisfactory. From 1926 to 1930 the net income averaged 40 % of the gross income, which is slightly more than was indicated by the 1913 inquiry. Considering

that technical progress will have rendered a better utilization of the machinery possible, and that the cost of the most important supplies, coal and oil, was lower in this period than in 1913, while wages were higher, this change in the relation of net to gross income seems reasonable.¹

As foreign shipping is largely contingent on imports and exports of industrial raw materials, it is interesting to compare the gross income of that branch as computed here with the industrial cycles. Such a comparison is made in Chart 12, where the division into periods of expansion and contraction has been made on the basis of the changes in the investments of the manufacturing industries in machinery and equipment. It will be noted that on the whole the agreement is good, which supports the validity of the figures. The maxima and minima of the two curves do not always coincide, however. This is due, partly to the difficulty of deciding which year should be regarded as the turning point (e. g. 1899 or 1900), and, foreign shipping being strongly influenced by business conditions in other countries, partly to time-lags between the cyclical fluctuations in Sweden and in other countries. In addition, shipping is more dependent on cyclical conditions and price development in some trades than in others. The timber market, for instance, dominates the outgoing freights, and the coal and grain markets the return freights. This may obviously cause divergencies between the general industrial cycles and the shipping cycles.

For the next twenty years the gross income, which had grown very rapidly in the ten years from 1865 to 1874, kept at an approximately constant level of between 30 and 40 mill. *kronor*. From the middle of the 'nineties to 1913 there was a very strong increase to about four times the amount,

¹ The inquiry quoted on p. 180 was not available when these calculations were made. The business conditions prevailing during the year of the inquiry — small profits and high allowances for depreciation — make it of little use in judging the general applicability of the calculations. The net income percentage derived from the inquiry, 29 %, might, however, justify the conclusion that the method employed since 1913 will give slightly too high results during the second half of the nineteen-twenties.

an increase which was only temporarily checked by the business depressions of 1901—1902 and 1908—1909.

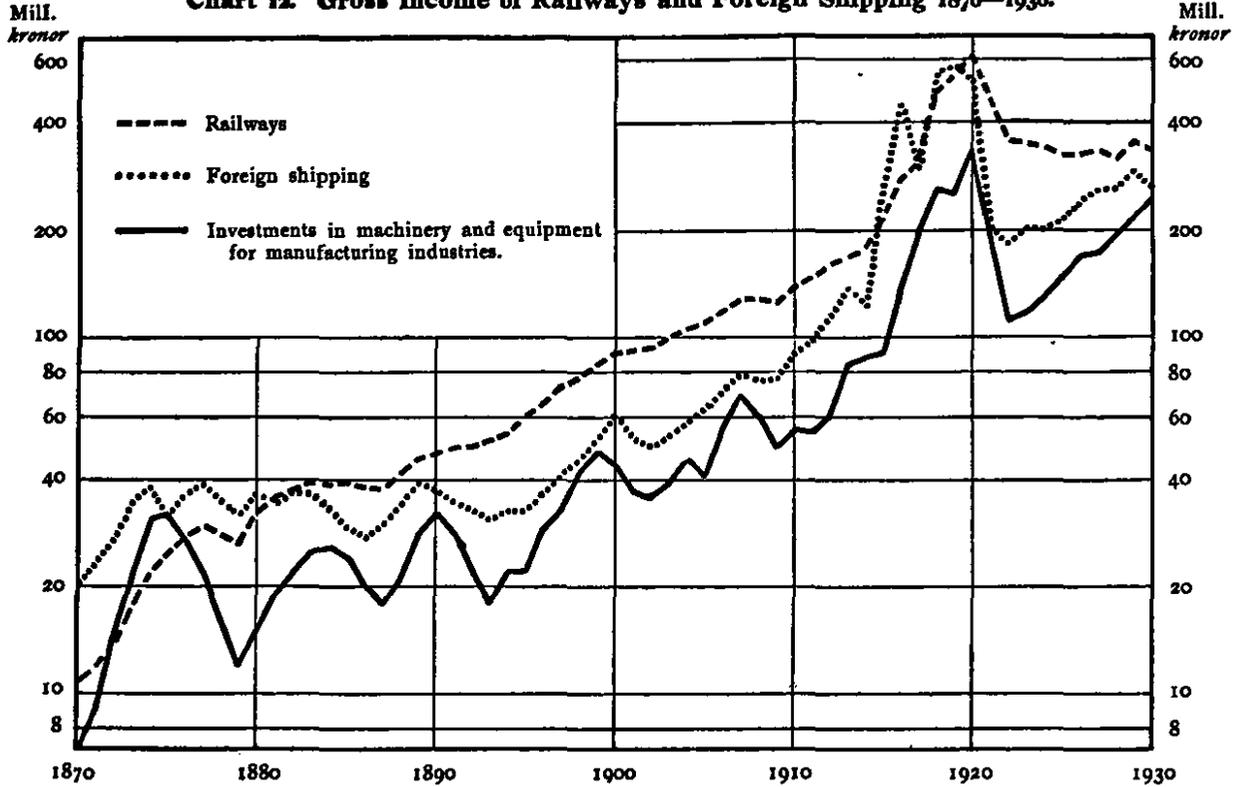
After the abnormal war conditions and the post-war crisis — which hit shipping very hard — the gross income continued to increase, at about the same rate as before 1913, until 1929. The goods freights constituted the main part, or 88 %, of the income in the five years from 1926 to 1930 (1913: 89 %). Time charters declined in importance (from 10 % to 5 %), while passenger fares, which were insignificant in 1913, had risen to 7 % by the end of the 'twenties. This growth in passenger fares dates from the opening of a direct passenger line to North America, and is also connected with the more general establishment in the last decade of regular shipping lines for combined goods and passenger steamers.

The official statistics give no information on the freight income of *coastal and inland waterway shipping* until 1913. For earlier years the 1913 income has been varied backwards in time according to a combined index of seamen's wages and intensity of traffic. Steamers and sailing ships can be kept separate from 1870. Income from barge traffic has not been computed. Throughout the period the debit items have been put at 60 % of the gross income of steamers, and 50 % of that of sailing ships.

The gross income of coastal and inland waterway shipping is far less sensitive to cyclical changes than the foreign shipping income, partly due to the method of computation. This branch of shipping increased comparatively rapidly in relation to foreign shipping up to the middle of the eighteen-nineties, but has since declined in importance. In the nineteen-twenties the income remained practically constant, which may be due to the competition of motor traffic. Goods freights are by far the largest item of income, while the relative share of passenger fares has diminished.

The whole income of foreign shipping has been regarded as exported services. Part of these services (the fares of

Chart 12. Gross Income of Railways and Foreign Shipping 1870—1930.



Swedish passengers) certainly ought to be allotted to Consumption, but that part has been assumed to be balanced by corresponding services for which no allowance has been made. The freights paid in respect of consumers' goods, raw materials, and transient goods imported in Swedish ships, are already included in their import values, and should thus not be included in either the consumption or the debit items of the various branches of business. The gross income of coastal and inland waterway shipping, on the other hand, has been allotted to Consumption (passenger fares) or other industries on the basis of data regarding the tonnage of the different commodities loaded and unloaded in Swedish ports.

18. *Railway Traffic.*

Particulars of the gross railway income have been obtained from the official Railway Statistics, separately for the State and the private railways, and specified as to the different kinds of income.

Expenses for fuel and power, and allowances for depreciation and maintenance of tracks, buildings, and rolling stock, are the only debit items taken into account. Compared to them, other supplies come to so small an amount that they have been excluded from the calculations. So far as the State Railways are concerned, these data can be obtained direct from the statistics. Up to 1911 the depreciation allowances are based on the costs of replacements, which were then booked with maintenance costs; not until that year was it possible to substitute for these data the appropriations for the Renewal Fund. The actual expenditure has been correlated with the gross income, decennial averages have been computed, and these have been used for determining the average annual expenditure on maintenance and depreciation during the whole of the period. For the private railways special estimates have had to be made regarding the value of supplies (1861—1912) as well as depreciation and maintenance (1861—1930). These cal-

culations are based on the corresponding data from the State Railways.

The period 1861—1930 covers practically the whole period during which railways have existed in Sweden. As seen in Table 38, the income only amounted to about 2 mill. *kronor* at the beginning of the period. The extensive railway constructions completed in the 'sixties and 'seventies led to a heavy increase in traffic and income, as indicated by the curve of gross railway income in Chart 12. At first the State Railways dominated, but the extensive private lines completed between 1874 and 1880 brought the income of the private railways up to that of the State Railways, and even above it. Since 1910 this has been reversed, and in the nineteen-twenties the income of the private railways, in absolute figures, showed a downward tendency. This was partly due to several of the private companies having been taken over by the State — the first in 1879 — and partly to the traffic capacity of the State Railways expanding considerably more rapidly. While the new capital invested by the latter in tracks and buildings from 1911 to 1930 amounted to 457 mill. *kronor*, the corresponding figure for the private railways was only 217 mill. *kronor* (cf. Tables 111—112).

The goods freights dominate in the income. Apart from the Lapland ore freights, they amounted to 62 % of the gross income from 1926 to 1930 (1913 62 %), while the income from passenger traffic amounted to 35 % (1913 35 %). It will be noticed that the ratios have not changed since 1913.

From the eighteen-eighties the total railway income — State and private railways combined — rose steadily from about 40 mill. *kronor* to 169 mill. *kronor* in 1913. This strong expansion was interrupted after the War, however, and in the nineteen-twenties the income remained practically constant. The reason for this must be sought — as in respect of the coastal and inland waterway traffic — in the motor traffic, which has met the growing demand for transport services within the country. According to the very approximate calculations made in Appendix F, the

net income of carriers (their gross income has not been estimated) increased from 12.5 mill. in 1923 to 40 mill. *kronor* in 1930, and the gross income of bus traffic from 4.9 mill. in 1920 to 70.5 mill. *kronor* in 1930. Allowance must also be made for the fact that farmers and entrepreneurs themselves are more extensively than before transporting their products by motor lorries to the place of sale, without making use of the railways. The circumstance that the motor traffic has provided regular communications between previously isolated places and the railways, and so increased the income of the latter, tends to have the opposite effect.

Generally speaking, railway income shows considerably less sensitivity to cyclical fluctuations than the income from foreign shipping. With few exceptions, the periods of depression have only retarded the growth of, but not reduced, the income of the railways. The exceptions are the depression of 1878 and 1879, the post-war crisis, and 1930. The reduction in 1928 was due to extensive industrial labour disputes. (See Chart 12.)

Owing to the methods used, the net income follows the gross income very closely, as the greater part of the debit items refers to maintenance and depreciation, which are calculated as a certain percentage of the gross income. The wider margin between the gross and net income, i. e. the higher ratio of debit items to gross income, after 1900 is partly due to an increase in the percentage used for calculating depreciation and maintenance, and partly to a relative increase of the fuel and power costs.

The importance to the fuel costs of the coal prices is apparent from the figures given below, showing coal prices and the average cost of fuel in per cent of the gross income.

	Fuel costs in per cent	Coal prices ¹ 1913=100
1871—80	6.3	91
1881—90	5.1	68
1891—00	7.6	78
1901—10	10.3	86

¹ British export prices according to ÅMARK (*En svensk prisindex för åren 1860—1913. Kommersiella meddelanden 1921: 18*).

Owing to the method adopted for computing depreciation allowances and maintenance costs — fixed ratios over long periods —, the occasional divergencies in movement of the net and gross income will be wholly due to fuel costs.

Of the gross income, all the income from passenger traffic has been allotted to Consumption, and from mail carrying to Transport, while the goods freights have been divided between exports and inland transit goods. Freights referring to export goods have been calculated with the assistance of the reduced export values, computed in Appendix D, p. 231. The remainder of the goods freights has been allotted to different industries and to Consumption on the basis of certain investigations into the distribution of the freight income to various commodities.

19. *Tramway Traffic.*

Data regarding the income from tramway traffic have been obtained from the Directors' Reports of the several companies from 1904 to 1930. Very few tramways existed before that time, but from 1904, when the electrification of the tramways may be said to have been completed, the income from this traffic rose considerably. It has therefore only been included from that year in the calculations of the national income.

The debit items include expenditure on fuel, power, and other supplies, and allowances for depreciation and maintenance of plant and material. Only certain companies have been able to supply information on these points, and from their data the corresponding expenditure of all the companies has been calculated. The tramway service has been considered to be used by the consumers, and the whole gross income has therefore been allotted to Consumption.

20. *Taxicab and Bus Traffic.*

The gross income of these has been calculated on the basis of available information on and estimates of the number of taxicabs and buses, and of the annual expenditure

NATIONAL INCOME

Table 38. Gross Income of Transport and

Year	1	2	3	4	5	6	7	8	9	
	Foreign shipping	Inland waterway shipping	Coastal and inland waterway	Railway traffic	Tramway traffic	Taxicab and bus traffic	Postal services	Telegraph and State telephone services	Private telephone services	Total Gross Income
1861	13.3	2.2	2.0	—	—	1.8	0.5	—	—	19.8
62	13.1	2.1	2.4	—	—	1.9	0.5	—	—	20.0
63	12.9	2.2	3.9	—	—	1.9	0.6	—	—	21.5
64	13.4	2.1	4.5	—	—	2.2	0.6	—	—	22.8
65	13.1	2.3	6.3	—	—	2.4	0.6	—	—	24.7
66	15.4	2.7	7.1	—	—	2.1	0.7	—	—	28.0
67	16.6	2.8	9.2	—	—	2.1	0.7	—	—	31.4
68	17.4	3.6	9.6	—	—	2.2	0.7	—	—	33.5
69	18.9	3.7	9.9	—	—	2.3	0.7	—	—	35.5
70	20.6	3.7	10.8	—	—	2.4	0.8	—	—	38.3
1871	23.6	3.9	11.9	—	—	2.4	0.8	—	—	42.6
72	27.1	4.2	13.7	—	—	2.7	1.0	—	—	48.7
73	34.0	4.5	17.4	—	—	3.1	1.1	—	—	60.1
74	37.7	4.7	21.5	—	—	3.7	1.2	—	—	68.8
75	31.2	5.0	24.9	—	—	4.5	1.3	—	—	66.9
76	36.1	5.2	27.9	—	—	4.9	1.3	—	—	75.4
77	38.4	5.5	29.7	—	—	5.0	1.3	—	—	79.9
78	34.5	5.6	28.0	—	—	4.8	1.2	—	—	74.1
79	32.0	5.8	26.6	—	—	4.7	1.1	—	—	70.2
80	36.6	6.0	32.5	—	—	5.1	1.2	—	—	81.4
1881	34.0	6.6	35.4	—	—	5.3	1.3	—	—	82.6
82	36.8	7.0	37.7	—	—	5.7	1.3	—	—	88.5
83	36.5	7.7	39.1	—	—	5.8	1.3	—	—	90.4
84	33.3	9.9	38.9	—	—	6.1	1.4	0.7	—	90.3
85	29.0	10.1	39.3	—	—	6.0	1.4	1.0	—	86.8
86	27.6	10.2	38.0	—	—	6.0	1.4	1.1	—	84.3
87	29.8	10.0	37.6	—	—	6.2	1.4	1.3	—	86.3
88	33.7	9.5	41.4	—	—	6.6	1.7	1.3	—	94.2
89	38.9	10.8	45.9	—	—	7.0	1.8	1.5	—	105.9
90	37.1	11.6	47.4	—	—	7.3	1.9	1.4	—	106.7
1891	34.4	11.1	49.1	—	—	7.5	2.3	1.1	—	105.5
92	32.9	11.6	49.7	—	—	7.8	2.6	1.2	—	105.8
93	30.7	11.8	51.1	—	—	7.9	2.9	1.4	—	105.8
94	32.5	13.3	54.1	—	—	8.2	3.1	1.5	—	112.7
95	32.1	12.8	60.4	—	—	8.5	3.5	1.7	—	119.0

GROSS AND NET INCOME

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Communications 1861—1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9
	Foreign shipping	Coastal and inland waterway shipping	Railway traffic	Tramway traffic	Taxicab and bus traffic	Postal services	Telegraph and State telephone services	Private telephone services	Total gross income
1896	36.5	14.1	65.1	—	—	9.0	4.0	1.9	130.6
97	41.4	14.3	72.6	—	—	9.7	4.4	1.9	144.3
98	45.4	15.3	77.2	—	—	10.3	5.0	1.8	155.0
99	52.2	16.0	83.6	—	—	11.1	5.7	2.1	170.7
1900	61.1	15.9	90.4	—	—	11.9	6.0	2.2	187.5
1901	52.0	16.0	91.1	—	—	12.8	5.5	2.6	180.0
02	49.7	16.5	92.5	—	—	14.0	6.9	2.7	182.3
03	53.0	18.4	100.4	—	—	15.9	7.2	2.7	197.6
04	57.7	18.7	105.7	4.0	—	16.6	8.0	3.1	213.8
05	63.9	18.8	109.7	5.3	—	17.4	9.1	3.6	227.8
06	70.9	20.3	118.7	6.3	—	18.3	10.3	3.9	248.7
07	77.7	20.8	127.2	7.8	—	19.6	11.6	4.4	269.1
08	75.4	21.4	127.0	8.3	—	19.7	12.5	4.8	269.1
09	76.2	20.4	124.5	7.9	—	19.8	13.3	5.1	267.2
10	89.4	22.6	139.9	8.9	—	21.7	14.3	5.5	302.3
1911	98.7	22.1	148.0	9.6	—	23.1	15.6	6.1	323.2
12	115.6	22.7	160.0	10.3	—	24.5	17.3	6.8	357.2
13	137.5	23.2	169.0	10.7	—	25.5	18.4	7.3	391.6
14	123.9	22.2	173.7	11.4	—	26.5	20.9	7.8	386.4
15	255.6	25.3	216.6	11.7	—	28.5	24.7	8.6	571.0
16	437.1	29.7	273.1	13.7	—	31.0	29.0	9.9	823.5
17	302.2	56.1	308.1	16.3	—	36.5	35.1	11.6	765.9
18	550.5	78.9	486.5	21.4	—	46.1	52.3	—	1235.7
19	568.8	64.5	543.0	29.0	13.7	55.1	69.8	—	1343.9
20	518.2	74.9	615.3	37.3	24.2	63.9	90.1	—	1423.9
1921	201.6	48.4	443.3	38.5	31.7	75.8	99.6	—	938.9
22	185.0	40.5	356.3	35.1	40.5	69.0	85.6	—	812.0
23	202.7	42.9	345.5	33.9	53.3	65.6	82.1	—	826.0
24	202.7	41.7	337.7	31.9	66.0	65.6	77.8	—	823.4
25	212.3	43.5	322.7	32.4	86.2	64.8	79.5	—	841.4
26	242.2	42.7	325.0	33.3	104.6	67.0	82.9	—	897.7
27	261.7	42.6	332.4	33.8	116.3	70.3	86.2	—	943.3
28	261.6	41.8	317.4	34.3	125.6	72.7	90.6	—	944.0
29	293.5	42.4	352.9	35.8	140.9	74.9	94.1	—	1034.5
30	266.8	43.5	334.5	38.5	149.1	77.5	98.4	—	1008.3

NATIONAL INCOME

Table 39. Net Income of Transport and

Year	1	2	3	4	5	6	7	8	9
	Foreign shipping	Coastal and inland waterway shipping	Railway traffic	Tramway traffic	Taxicab and bus traffic	Postal services	Telegraph and State telephone services	Private telephone services	Total net income
1861	6.5	0.9	1.3	—	—	1.6	0.5	—	10.8
62	6.4	0.9	1.6	—	—	1.7	0.5	—	11.1
63	6.3	0.9	2.9	—	—	1.6	0.5	—	12.2
64	6.6	0.9	3.2	—	—	1.8	0.5	—	13.0
65	6.4	1.0	4.7	—	—	1.9	0.5	—	14.5
66	7.5	1.2	5.4	—	—	1.6	0.6	—	16.3
67	8.1	1.2	6.9	—	—	1.6	0.6	—	18.4
68	8.5	1.5	7.2	—	—	1.7	0.6	—	19.5
69	9.2	1.6	7.4	—	—	1.8	0.6	—	20.6
70	9.9	1.6	8.1	—	—	1.9	0.7	—	22.2
1871	11.1	1.7	9.0	—	—	1.9	0.7	—	24.4
72	12.5	1.8	10.3	—	—	2.2	0.9	—	27.7
73	15.2	1.9	12.6	—	—	2.6	1.0	—	33.3
74	17.0	2.0	15.7	—	—	3.0	1.1	—	38.8
75	14.0	2.2	18.4	—	—	3.6	1.2	—	39.4
76	16.2	2.2	20.7	—	—	3.9	1.2	—	44.2
77	17.4	2.4	22.2	—	—	4.1	1.2	—	47.3
78	15.4	2.4	21.0	—	—	3.8	1.1	—	43.7
79	14.3	2.5	20.1	—	—	3.7	1.0	—	41.6
80	16.3	2.6	24.8	—	—	4.0	1.0	—	48.7
1881	15.2	2.8	27.0	—	—	4.2	1.1	—	50.3
82	16.4	3.0	28.8	—	—	4.5	1.1	—	53.8
83	16.1	3.3	29.7	—	—	4.5	1.1	—	54.7
84	14.7	4.2	29.6	—	—	4.8	1.2	0.5	55.0
85	12.4	4.3	29.9	—	—	4.4	1.2	0.8	53.0
86	11.8	4.4	28.9	—	—	4.4	1.2	0.9	51.6
87	12.6	4.2	28.6	—	—	4.6	1.2	1.1	52.3
88	14.4	4.0	31.4	—	—	4.9	1.3	1.1	57.1
89	16.6	4.6	34.8	—	—	5.1	1.3	1.3	63.7
90	15.7	4.9	35.4	—	—	5.5	1.3	1.2	64.0
1891	14.3	4.7	36.5	—	—	5.5	1.7	0.8	63.5
92	13.6	4.9	37.0	—	—	5.8	1.8	0.9	64.0
93	12.6	5.0	38.2	—	—	5.9	2.0	1.0	64.7
94	13.2	5.6	40.7	—	—	6.1	2.0	1.0	68.6
95	13.0	5.4	44.8	—	—	6.3	2.5	1.2	73.2

GROSS AND NET INCOME

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Communications 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9
	Foreign shipping	Coastal and inland waterway shipping	Railway traffic	Tramway traffic	Taxicab and bus traffic	Postal services	Telegraph and State telephone services	Private telephone services	Total net income
1896	14.5	5.9	48.7	—	—	6.8	2.7	1.2	79.8
97	16.3	6.0	54.2	—	—	7.4	2.9	1.2	88.0
98	17.7	6.4	56.9	—	—	7.7	3.2	1.2	93.1
99	20.1	6.7	60.6	—	—	8.0	3.6	1.4	100.4
1900	23.5	6.7	61.8	—	—	8.7	3.9	1.4	106.0
1901	19.9	6.7	61.8	—	—	9.1	3.0	1.6	102.1
02	19.0	6.9	63.9	—	—	9.9	4.4	1.6	105.7
03	20.1	7.7	69.9	—	—	11.7	4.4	1.6	115.4
04	21.6	7.9	74.5	3.1	—	12.0	4.9	1.9	125.9
05	23.8	7.9	77.8	3.7	—	12.7	5.6	2.1	133.6
06	26.3	8.5	83.6	4.1	—	13.5	6.6	2.4	145.0
07	28.6	8.7	88.3	5.1	—	14.4	7.1	2.7	154.9
08	27.6	9.0	87.0	4.9	—	14.2	7.3	3.1	153.1
09	27.7	8.5	86.3	4.4	—	14.1	8.4	3.2	152.6
10	32.3	9.4	98.6	5.2	—	16.2	9.3	3.5	174.5
11	35.6	9.0	105.5	5.4	—	17.5	10.1	4.1	187.2
12	41.7	9.3	113.4	6.0	—	18.6	11.6	4.6	205.2
13	47.8	9.5	117.0	6.1	—	19.7	11.8	4.9	216.8
14	61.8	9.0	120.3	6.9	—	20.3	14.2	5.2	237.7
15	72.6	10.4	130.9	6.6	—	21.1	17.6	5.7	264.9
16	83.9	12.2	137.1	8.0	—	23.0	20.2	6.7	291.1
17	98.7	23.1	150.4	9.9	—	28.1	24.6	7.8	342.6
18	129.1	32.3	200.1	12.4	—	37.7	37.5	—	449.1
19	150.8	26.5	290.9	17.4	4.7	44.1	47.5	—	581.9
20	183.5	31.0	337.1	23.2	8.8	49.4	62.7	—	695.7
1921	123.3	19.9	278.0	23.8	11.2	62.4	70.1	—	588.7
22	91.5	16.6	242.2	20.8	13.5	57.5	62.3	—	504.4
23	92.4	17.7	236.6	20.9	18.7	54.4	57.4	—	498.1
24	93.8	17.3	234.8	19.2	23.6	54.5	52.7	—	495.9
25	98.8	17.9	227.1	19.4	29.7	52.6	51.2	—	496.7
26	97.7	17.6	228.4	19.8	36.7	53.9	53.0	—	507.1
27	100.5	17.5	233.7	19.9	42.9	56.7	59.2	—	530.4
28	106.0	17.2	224.4	20.4	47.9	58.0	61.0	—	534.9
29	114.3	17.5	249.8	21.3	53.6	59.3	65.1	—	580.9
30	117.1	18.0	235.9	23.1	57.8	60.9	67.2	—	580.0

per taxicab or bus. The net income has then been obtained by deducting from the gross income the items of expenditure on fuel, other supplies, maintenance, and depreciation.

These calculations are necessarily rough approximations, and of no independent value as a measure of the economic importance of this branch, but as they will nevertheless give a general idea of magnitude and trend they have been included in order to fill the otherwise unavoidable gap in the contributions of the transport services. This branch, like the tramways, has been considered of direct service to Consumption.

21. *Postal Services.*

The gross income of this branch is composed of the revenue from mail carrying proper as well as from other work entrusted to the Post Office, e. g. remuneration for managing the Post Office Savings Bank and the Postal Cheque Department, tax-collecting, the sale of revenue stamps, etc. Payments for imported or exported services connected with foreign mails are made between Sweden and foreign countries. Before allotting the gross income to different industries and Consumption, the net value of the exported services (in 1920 alone was there a net import) has been deducted from the gross income.

The debit items include expenditure on fuel and power, other supplies, transport charges, and on maintenance and depreciation of buildings and equipment.

All the data are obtained from the official statistics. In some instances, e. g. in respect of maintenance costs before 1927, calculations have had to be made.

22. *Telegraph and State Telephone Services.*

Complete data for a direct computation of the gross income and the debit items are available in the reports of the Board of the Telegraph Office. As far as the telephone service is concerned, however, certain calculations have been necessary before 1903 for determining the debit items. The incomes accounted for also include the debit,

or credit, balance arising out of the foreign traffic, which has been booked as net imports, or exports respectively, of services. The income also includes receipts for radio licences. The debit items, like those of the Post Office, consist of expenditure on fuel and power, other supplies, transport charges, maintenance, and depreciation.

In 1918, when the State purchased the only then existing private telephone company of any importance, there was a heavy increase of the State telephone income.

23. *Private Telephone Services.*

Telephones were originally introduced in Sweden exclusively by private enterprise. They have gradually been taken over by the State, however, and from 1918 practically the whole telephone service has been in the hands of the State. No calculations have therefore been made after that year, and the insignificant still existing municipal or private telephone lines have been disregarded. The data given in the statistics specify only the length of the lines and the number of instruments, and both the gross and the net income have therefore been calculated on the basis of corresponding data from the State telephone service. The result is very approximate, and only serves the purpose of smoothing out the large and sudden variations in the State telephone income due to the absorption of private telephone companies.

24. *Summary.*

Tables 38 and 39 give the gross and net income of the various branches of transport and communications. It has already been pointed out that in respect of most of them — except as regards the taxicab and bus traffic — the final results are satisfactory. In Table 40 all the transport services are summarized. The net income is given there both exclusive and inclusive of depreciation and maintenance of permanent plant and buildings. Table 41 also gives a summary of the allotment to different uses of the total gross income of all transport services.

NATIONAL INCOME

Table 40. Gross and Net Income of Transport

Year	1	2	3	4	5
	Gross income	Debit items	Net income (Col. 1—Col. 2)	Maintenance and depreciation of permanent plant	Net income including depreciation, etc. (Col. 3 + Col. 4)
1861	19.8	9.0	10.8	0.2	11.0
62	20.0	8.9	11.1	0.3	11.4
63	21.5	9.3	12.2	0.5	12.7
64	22.8	9.8	13.0	0.6	13.6
65	24.7	10.2	14.5	0.9	15.4
66	28.0	11.7	16.3	1.0	17.3
67	31.4	13.0	18.4	1.2	19.6
68	33.5	14.0	19.5	1.3	20.8
69	35.5	14.9	20.6	1.3	21.9
70	38.3	16.1	22.2	1.5	23.7
1871	42.6	18.2	24.4	1.6	26.0
72	48.7	21.0	27.7	1.8	29.5
73	60.1	26.8	33.3	2.3	35.6
74	68.8	30.0	38.8	2.8	41.6
75	66.9	27.5	39.4	3.3	42.7
76	75.4	31.2	44.2	3.7	47.9
77	79.9	32.6	47.3	4.0	51.3
78	74.1	30.4	43.7	3.8	47.5
79	70.2	28.6	41.6	3.5	45.1
80	81.4	32.7	48.7	4.4	53.1
1881	82.6	32.3	50.3	4.2	54.5
82	88.5	34.7	53.8	4.5	58.3
83	90.4	35.7	54.7	4.7	59.4
84	90.3	35.3	55.0	4.9	59.9
85	86.8	33.8	53.0	4.9	57.9
86	84.3	32.7	51.6	4.7	56.3
87	86.3	34.0	52.3	4.8	57.1
88	94.2	37.1	57.1	5.4	62.5
89	105.9	42.2	63.7	5.9	69.6
90	106.7	42.7	64.0	6.1	70.1
1891	105.5	42.0	63.5	6.1	69.6
92	105.8	41.8	64.0	6.4	70.4
93	105.8	41.1	64.7	6.7	71.4
94	112.7	44.1	68.6	7.2	75.8
95	119.0	45.8	73.2	7.9	81.1

GROSS AND NET INCOME

and Communications 1861—1930. Mill. kronor.

Year	1	2	3	4	5
	Gross income	Debit items	Net income (Col. 1—Col. 2)	Maintenance and depreciation of permanent plant	Net income including depreciation, etc. (Col. 3 + Col. 4)
1896	130.6	50.8	79.8	8.6	88.4
97	144.3	56.3	88.0	9.6	97.6
98	155.0	61.9	93.1	10.2	103.3
99	170.7	70.3	100.4	11.4	111.8
1900	187.5	81.5	106.0	12.2	118.2
1901	180.0	77.9	102.1	13.5	115.6
02	182.3	76.6	105.7	14.0	119.7
03	197.6	82.2	115.4	15.2	130.6
04	213.8	87.9	125.9	16.5	142.4
05	227.8	94.2	133.6	17.6	151.2
06	248.7	103.7	145.0	19.0	164.0
07	269.1	114.2	154.9	20.9	175.8
08	269.1	116.0	153.1	21.7	174.8
09	267.2	114.6	152.6	21.3	173.9
10	302.3	127.8	174.5	23.5	198.0
1911	323.2	136.0	187.2	24.2	211.4
12	357.2	152.0	205.2	25.9	231.1
13	391.6	174.8	216.8	27.6	244.4
14	386.4	148.7	237.7	28.5	266.2
15	571.0	306.1	264.9	33.7	298.6
16	823.5	532.4	291.1	41.2	332.3
17	765.9	423.3	342.6	47.1	389.7
18	1235.7	786.6	449.1	68.0	517.1
19	1343.9	762.0	581.9	80.6	662.5
20	1423.9	728.2	695.7	93.1	788.8
1921	938.9	350.2	588.7	78.2	666.9
22	812.0	307.6	504.4	63.4	567.8
23	826.0	327.9	498.1	63.5	561.6
24	823.4	327.5	495.9	62.6	558.5
25	841.4	344.7	496.7	64.0	560.7
26	897.7	390.6	507.1	66.2	573.3
27	943.3	412.9	530.4	63.9	594.3
28	944.0	409.1	534.9	65.0	599.9
29	1034.5	453.6	580.9	68.8	649.7
30	1008.3	428.3	580.0	68.4	648.4

Table 41. Transport and Communications: Allotment of

Year	1	2	3	4	5	6	7	8	9	Total	Exported services (net)	Total gross income
	Allotment of transport services consumed in the country											
	A	I	B	R	K	T	C	CD	P			
1861	0.2	1.1	1.0	0.1	1.0	—	2.2	—	0.1	5.7	14.1	19.8
62	0.2	1.4	0.9	0.1	1.1	—	2.4	—	0.1	6.2	13.8	20.0
63	0.2	1.4	1.1	0.1	1.2	0.1	3.4	—	0.1	7.6	13.9	21.5
64	0.2	1.6	1.0	0.1	1.3	0.2	3.5	0.1	0.1	8.1	14.7	22.8
65	0.3	2.0	1.3	0.1	1.3	0.2	4.1	0.1	0.1	9.5	15.2	24.7
66	0.3	2.2	1.6	0.1	1.3	0.2	4.6	0.1	0.1	10.5	17.5	28.0
67	0.4	2.8	1.7	0.1	1.3	0.2	5.1	0.2	0.1	11.9	19.5	31.4
68	0.5	3.0	2.1	0.2	1.3	0.2	5.4	0.2	0.1	13.0	20.5	33.5
69	0.5	3.1	2.1	0.2	1.4	0.2	5.6	0.2	0.1	13.4	22.1	35.5
70	0.6	3.3	2.2	0.2	1.5	0.2	5.7	0.2	0.1	14.0	24.3	38.3
1871	0.6	3.4	2.5	0.2	1.5	0.2	6.3	0.2	0.1	15.0	27.6	42.6
72	0.7	3.9	2.8	0.2	1.8	0.2	7.4	0.2	0.1	17.3	31.4	48.7
73	0.8	5.0	3.1	0.2	2.0	0.2	9.1	0.3	0.1	20.8	39.3	60.1
74	0.9	5.8	3.5	0.2	2.4	0.3	11.3	0.4	0.2	25.0	43.8	68.8
75	1.1	6.5	3.8	0.2	2.6	0.4	12.9	0.4	0.2	28.1	38.8	66.9
76	1.2	7.2	4.2	0.2	2.7	0.5	13.9	0.5	0.2	30.6	44.8	75.4
77	1.3	7.8	4.4	0.2	2.9	0.5	14.7	0.5	0.2	32.5	47.4	79.9
78	1.2	7.3	4.4	0.2	2.9	0.6	14.2	0.5	0.2	31.5	42.6	74.1
79	1.2	7.3	4.3	0.2	2.8	0.6	13.1	0.5	0.2	30.2	40.0	70.2
80	1.4	8.4	4.9	0.2	3.1	0.7	15.4	0.6	0.2	34.9	46.5	81.4
1881	1.6	9.3	5.3	0.3	3.3	0.7	16.4	0.7	0.3	37.9	44.7	82.6
82	1.7	9.9	5.6	0.3	3.4	0.8	17.4	0.7	0.3	40.1	48.4	88.5
83	1.8	10.4	6.1	0.3	3.6	0.9	18.0	0.7	0.3	42.1	48.3	90.4
84	1.8	11.1	7.0	0.4	4.0	0.8	19.3	0.7	0.4	45.5	44.8	90.3
85	1.9	11.2	7.0	0.4	4.0	1.0	19.5	0.7	0.4	46.1	40.7	86.8
86	1.8	10.9	6.9	0.4	4.0	1.0	19.2	0.7	0.4	45.3	39.0	84.3
87	1.7	10.7	6.8	0.4	4.3	1.1	19.6	0.7	0.4	45.7	40.6	86.3
88	1.9	11.7	6.8	0.4	4.6	1.2	20.4	0.8	0.4	48.2	46.0	94.2
89	2.1	13.3	7.8	0.4	4.8	1.3	22.0	0.9	0.5	53.1	52.8	105.9
90	2.2	13.5	8.2	0.5	5.0	1.2	23.4	0.9	0.4	55.3	51.4	106.7
1891	2.2	13.6	8.1	0.4	5.1	1.5	24.0	0.9	0.6	56.4	49.1	105.5
92	2.3	14.0	8.3	0.5	5.2	1.5	24.5	0.9	0.6	57.8	48.0	105.8
93	2.4	14.4	8.5	0.5	5.4	1.5	25.4	0.9	0.6	59.6	46.2	105.8
94	2.5	15.4	9.3	0.5	5.6	1.6	27.1	1.0	0.8	63.8	48.9	112.7
95	2.6	16.3	9.5	0.5	6.1	1.7	28.6	1.1	0.8	67.2	51.8	119.0

GROSS AND NET INCOME

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the Gross Income to Different Uses 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9	Total	Exported services (net)	Total gross income
	Allotment of transport services consumed in the country											
	A	I	B	R	K	T	C	CD	P			
1896	2.9	17.7	10.3	0.6	6.5	1.8	31.1	1.2	0.8	72.9	57.7	130.6
97	3.1	18.9	10.9	0.6	7.0	1.9	35.4	1.3	1.0	80.1	64.2	144.3
98	3.3	20.4	11.6	0.6	7.4	2.1	36.9	1.4	1.0	84.7	70.3	155.0
99	3.6	22.4	12.6	0.6	8.3	2.4	41.1	1.5	1.1	93.6	77.1	170.7
1900	4.1	24.1	13.4	0.6	8.7	2.4	44.6	1.8	1.2	100.9	86.6	187.5
1901	4.2	25.4	13.6	0.6	9.4	2.8	46.3	1.8	1.3	105.4	74.6	180.0
02	4.6	26.7	14.3	0.7	10.0	3.0	47.4	1.9	1.5	110.1	72.2	182.3
03	4.9	29.5	15.9	0.7	11.0	3.0	51.6	2.1	1.6	120.3	77.3	197.6
04	5.2	31.0	16.5	0.7	11.9	3.1	57.9	2.2	1.6	130.1	83.7	213.8
05	5.4	32.2	16.6	0.8	12.5	3.4	61.8	2.3	1.8	136.8	91.0	227.8
06	5.8	35.2	18.0	0.8	13.4	3.5	67.3	2.5	2.0	148.5	100.2	248.7
07	6.0	37.1	18.9	0.8	14.8	3.9	74.7	2.6	2.1	160.9	108.2	269.1
08	6.0	37.2	18.7	0.9	15.3	4.2	76.5	2.6	2.3	163.7	105.4	269.1
09	5.8	36.5	18.1	0.8	15.8	4.3	76.4	2.5	2.5	162.7	104.5	267.2
10	6.5	41.0	20.1	0.9	17.0	4.2	83.4	2.8	2.9	178.8	123.5	302.3
1911	6.7	42.5	20.4	0.8	18.2	4.5	88.4	2.9	3.3	187.7	135.5	323.2
12	7.4	46.1	21.7	0.9	19.9	4.7	94.0	3.2	3.3	201.2	156.0	357.2
13	7.7	47.8	22.2	0.9	20.9	4.8	99.5	3.4	3.4	210.6	181.0	391.6
14	7.7	49.4	22.3	0.8	23.4	5.0	105.0	3.5	4.1	221.2	165.2	386.4
15	10.7	63.7	29.6	1.0	27.3	5.7	115.8	4.9	4.4	263.1	307.9	571.0
16	14.0	80.8	37.8	1.2	30.3	6.1	139.0	6.4	5.1	320.7	502.8	823.5
17	17.1	98.9	54.2	2.5	33.9	6.6	161.2	7.3	7.1	388.8	377.1	765.9
18	27.9	152.1	83.5	3.5	40.1	6.1	232.4	12.2	9.3	567.1	668.6	1235.7
19	28.8	160.5	78.8	2.7	53.9	10.4	298.3	13.1	9.7	656.2	687.7	1343.9
20	31.9	181.3	88.4	3.1	65.8	14.4	351.9	14.4	13.2	764.4	659.5	1423.9
1921	19.4	128.9	53.7	1.8	67.8	14.5	320.9	8.8	14.8	630.6	308.3	938.9
22	16.0	109.0	44.7	1.6	60.3	13.2	276.7	7.2	13.1	541.8	270.2	812.0
23	15.6	106.3	45.2	1.7	57.1	13.1	282.3	7.0	12.4	540.7	285.3	826.0
24	16.0	107.6	45.4	1.7	55.9	12.7	284.0	7.2	12.1	542.6	280.8	823.4
25	15.2	104.3	44.4	1.8	55.8	13.2	300.2	6.7	11.7	553.3	288.1	841.4
26	15.3	105.8	44.5	1.8	57.4	13.7	321.2	6.7	12.3	578.7	319.0	897.7
27	15.5	108.1	45.0	1.8	60.9	14.2	336.7	6.9	12.4	601.5	341.8	943.3
28	15.0	107.1	44.1	1.7	63.6	15.2	348.3	6.6	12.9	614.5	329.5	944.0
29	16.4	114.5	47.0	1.8	66.5	15.7	371.4	7.3	13.4	654.0	380.5	1034.5
30	14.9	109.1	44.2	1.8	69.7	16.4	386.2	6.5	14.0	662.8	345.5	1008.3

COMMERCE, HOTELS AND RESTAURANTS,
BANKING AND INSURANCE, AND
PROFESSIONAL SERVICES.

(Appendices G and H)

25. *Introduction.*

In computing the debit items of the different industries the above branches have been dealt with as one group. The net income will consequently be shown for the group as a whole, and not for each branch separately. In respect of banking and insurance alone has it been possible directly to estimate the net income. The deficiencies of the material have also necessitated another modification of the original plan, in that the amortization and maintenance of equipment in this group could only be computed in conjunction with the same items of Public Administration. The net income in Tables 43 and 47, therefore, also includes the amortization and maintenance costs of the respective industries, and they have not been deducted until in the final summary of the national income.

The following accounts show that the material for the calculations in this group is defective. The results are very approximate, and are therefore not suitable for an analysis of the cyclical fluctuations or long-run trend.

26. *Commerce.*

The economic activity intervening between production and final consumption — i. e. the distribution of the products — constitutes a considerable portion of the national income. If the term "commerce" is taken to mean all work connected with distribution — except transport work, which was dealt with in the previous section — it should be noted that this includes not only the wholesale and retail trade proper, but also everything associated with them, e. g. publicity and advertising.

Commerce deals not only with goods ready for consumption, but also with raw materials and semi-finished goods sold by one producer to another. These services are booked as costs in other industries, from the gross income of which they should be deducted. As the difficulties of estimating these particular services are very great, the computation of the gross income of commerce has — as noted in Chapter II — been restricted to consumers' goods and exported products. The net income of the other industries will therefore include all merchanting charges referable to the raw materials and semi-finished products used by each.

In view of the nature of the available material, the only way is to estimate the difference between the price at which the goods are sold to the consumers, or for export, and their value at the place of production. This margin of distribution is partly composed of transport costs, and partly of merchanting charges.

The margin of distribution of non-durable goods consumed in the country, and of durable goods purchased by the consumers, has been fixed at a certain percentage of the product value at the place of production. This has been done with due consideration to the fact that home-grown agricultural products consumed by the farmers themselves are not bought and sold, and on the assumption that handicraft products are sold directly to the consumers, and not through middlemen. Percentages have been estimated for various groups of commodities. Except for milk, the distribution costs of which can be varied backwards in time, the same percentages have been used throughout the period, as there is no means of determining any variations. The distribution margin of export goods has been put at the difference between their export value as given in the Trade Statistics, with certain adjustments, and their value at the place of production (cf. Part II, p. 231).

The freight charges for non-durable and durable consumers' goods, and for exported goods, have been extracted from Appendix F. They have been deducted from the total distribution costs, and the remainder is a measure of the gross income of commerce. This will include such transports

as are effected by the middlemen with their own staff and their own conveyances, as well as such paid transport services as are not included in railway and sea freights — in recent years more particularly motor transport. To this gross income has been added any indirect taxes on the sale of consumers' goods. After deducting the exported services, the gross income has been allotted partly to consumption (C), and partly to durable consumers' goods (CD).

The result of these calculations must be regarded as very approximate. Only in a few odd cases has it been possible to fix the percentages from actual data received. Most of them are only based on what has been considered a probable average margin in the respective commodity groups. Nor is the assumption that the distribution margins have in all cases remained constant throughout the period likely to be quite correct. The fact that during the latter part of the period, and especially in the nineteen-twenties, a greater proportion of the annual increase in the working population has been absorbed by the distributing than by the manufacturing trades, might be taken to prove that the importance of this branch of production to the national income is growing in comparison with that of manufacture and agriculture. If that is correct, the method of using for the early part of the period the ratios assumed to apply at the end of the nineteen-twenties would result in an overvaluation of the share of distribution services in the national income for that period. Allowance must be made, however, for the increase in the ratio of fixed capital to labour in manufacturing industries, which — on the assumption of a constant ratio of interest on capital to wages — would mean that the net yield of the capital has increased in relation to total wages, and that consequently no direct conclusion in the above direction can be drawn from occupational variations. But the ratio of interest to wages has also changed in the period discussed. Owing to all these contradictory tendencies, there is no possibility of expressing a priori an opinion on the changes that may have occurred in the ratio of distribution

costs to production costs. It has already been said, moreover, that such an opinion is not supported by any statistical material, and there has consequently been no choice but to retain the percentages for the various commodity groups unchanged. To some extent, however, the expansion is due to new commodities, demanding a relatively large distribution machinery, having been added. At unchanged ratios, the increased importance to trade of these commodities or commodity groups will have a tendency to widen the average distribution margin. If agricultural products are getting less able to fill the home demand, as in the period under review, it will have the same effect. The average margin for all non-durable and durable goods has also risen from 27 % of the product value in 1861—1865 to 39 % in 1926—1930.

On the whole, the gross income of commerce follows both the fluctuations and the trend of the gross income of manufacture. As the proportion of agricultural products bought and sold in the market to those consumed by producers was larger at the end of the period than at the beginning, the margin between the gross income of manufacture and that of commerce has not increased as much as might have been expected from the relative retrogression of the agricultural production. Other divergencies between the incomes are due to the merchanting charges being calculated only from the value of export and consumers' goods which have not developed identically with the total product value. Changes in the industrial production between commodity groups of which the distribution margin is relatively large or small, and in the ratio of transport costs to other distribution costs, will also affect the relation between the gross income of the manufacturing industries and of commerce. Changes in indirect taxation have similar effects.

In order to judge the accuracy of the calculations relating to the gross income of commerce, their result may be compared with the income statistics of the 1930 Population Census. The absolute figures cannot be directly compared, but the ratios of the income from commerce to that derived

from agriculture and the manufacturing industries can be computed and compared. The income data of the census having been corrected for unearned income (as to the method, see Part II, p. 495), the income of commerce is found to be 37 % of the industrial and handicraft income, and 27 % if the agricultural income is also included. The net income of commerce is, according to the estimates of the Institute, about 1200 mill. *kronor* (the debit items for commerce alone being estimated at about 10 % of the gross income), which is 34 % of the value added by manufacturing, and 25 % if the net income of agriculture is included. In all the groups the net income includes the depreciation allowances. In view of the fact that the income of the manufacturing industries given in the census does not include the ninth industrial class, which is there combined with the building industry and consequently deducted for the sake of better comparability, and that in the calculations of the national income certain merchanting charges, which in the census are probably included in Commodity Trade, are included in the net income of the manufacturing industries and agriculture, the conclusion is justified that the order of magnitude of the gross income of commerce as computed here is acceptable. The income figures may, however, be too high, as the estimated proportion of marketed agricultural products is possibly on the high side.¹

27. *Hotels and Restaurants.*

The gross income of this branch has been computed on the basis of the number of entrepreneurs and employees and their incomes, to which other working costs have been added. The boundary line between work in hotels and res-

¹ According to the inquiry into the American National Income in 1930 (National Income, 1929—1932), the corresponding ratios were 56 % and 42 % respectively. It must be noted, however, that the heading Trade in that inquiry is of considerably wider scope than its counterpart in the Swedish inquiry, as it includes everything pertaining to wholesale and retail trading — and not just the trade with consumers' and exported goods — besides all restaurants that are not combined with hotels.

taurants and domestic work is very vague, as a great many enterprises are run on a small scale without the assistance of paid labour. The calculations are therefore restricted to the more professional enterprises employing a specially engaged staff. Persons engaged in other enterprises in this branch are more or less completely included under the heading Domestic Work. The costs do not include the value of food, etc., which is carried directly to Consumption in the allotment of the gross value of agricultural and industrial products. The gross income of hotels and restaurants thus corresponds to the cost of preparing the raw materials, which — like the value of the latter — has also been allotted to consumption (C).

28. *Banking.*

The value of the services rendered by the banks to other industries and to consumers — which corresponds to their unearned income (interest on money lent, less interest on money borrowed) and commission — is the gross income of banking. This is not identical with the gross balance shown by the banks, which also includes capital profits and losses.

In so far as the gross income of the banks can be considered remuneration for productive services, it constitutes a debit item in the calculation of the net income of other industries. Part of it represents direct services to the consumers, however, but a division of the value of bank services on these lines is so difficult that it must suffice to regard the gross income of the banks exclusively as payment for productive services, i. e. as a debit item. For practical reasons it will also be necessary to disregard the fact that some of these productive services are rendered to foreign firms, but then foreign banks also render corresponding services to Swedish firms.

This gross income cannot be shared out to the different industries, but is included as a negative item in the total national income, of which the net income of banking is a positive item.

NATIONAL INCOME

Table 42. Gross and Net Income

Year	1	2	3	4	5	6	7	8	9 Of the gross in- come is carried to con- sump- tion (C)
	Gross income				Net income				
	Private insur- ance	State insur- ance	Sick benefit funds	Total	Private insur- ance	State insur- ance	Sick benefit funds	Total	
1861	0.9	—	—	0.9	0.7	—	—	0.7	—
62	1.1	—	—	1.1	0.9	—	—	0.9	—
63	1.1	—	—	1.1	0.9	—	—	0.9	—
64	1.2	—	—	1.2	0.9	—	—	0.9	—
65	1.2	—	—	1.2	0.9	—	—	0.9	—
66	1.2	—	—	1.2	0.9	—	—	0.9	—
67	1.3	—	—	1.3	1.0	—	—	1.0	—
68	1.5	—	—	1.5	1.2	—	—	1.2	—
69	1.5	—	—	1.5	1.2	—	—	1.2	—
70	1.6	—	—	1.6	1.3	—	—	1.3	—
1871	1.7	—	—	1.7	1.3	—	—	1.3	—
72	1.9	—	—	1.9	1.5	—	—	1.5	—
73	2.0	—	—	2.0	1.6	—	—	1.6	—
74	2.1	—	—	2.1	1.6	—	—	1.6	—
75	2.4	—	—	2.4	1.9	—	—	1.9	—
76	2.6	—	—	2.6	2.1	—	—	2.1	—
77	2.8	—	—	2.8	2.2	—	—	2.2	—
78	3.0	—	—	3.0	2.4	—	—	2.4	—
79	3.3	—	—	3.3	2.6	—	—	2.6	—
80	3.4	—	—	3.4	2.7	—	—	2.7	—
1881	3.6	—	—	3.6	2.8	—	—	2.8	—
82	3.7	—	—	3.7	2.9	—	—	2.9	—
83	3.8	—	—	3.8	3.0	—	—	3.0	—
84	4.0	—	—	4.0	3.1	—	—	3.1	—
85	4.2	—	—	4.2	3.3	—	—	3.3	—
86	4.6	—	—	4.6	3.6	—	—	3.6	—
87	5.0	—	—	5.0	3.9	—	—	3.9	—
88	5.4	—	—	5.4	4.2	—	—	4.2	—
89	6.2	—	—	6.2	4.8	—	—	4.8	—
90	7.5	—	—	7.5	5.0	—	—	5.0	2.3
1891	7.8	—	—	7.8	6.1	—	—	6.1	2.4
92	7.4	—	—	7.4	5.8	—	—	5.8	2.5
93	7.8	—	—	7.8	6.1	—	—	6.1	2.7
94	8.2	—	—	8.2	6.4	—	—	6.4	2.9
95	8.6	—	—	8.6	6.7	—	—	6.7	3.0

GROSS AND NET INCOME

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of Insurance 1861—1930. Mill. *kronor*.

Year	1	2	3	4	5	6	7	8	Of the gross income is carried to consumption (C)
	Gross income				Net income				
	Private insurance	State insurance	Sick benefit funds	Total	Private insurance	State insurance	Sick benefit funds	Total	
1896	9.3	—	0.1	9.4	7.3	—	0.1	7.4	3.5
97	10.2	—	0.1	10.3	8.0	—	0.1	8.1	3.7
98	11.4	—	0.2	11.6	8.9	—	0.2	9.1	4.3
99	12.3	—	0.2	12.5	9.6	—	0.2	9.8	4.3
1900	14.0	—	0.2	14.2	11.0	—	0.2	11.2	4.8
1901	15.5	—	0.3	15.8	12.2	—	0.3	12.5	5.2
02	16.0	—	0.3	16.3	12.6	—	0.3	12.9	5.6
03	17.2	—	0.4	17.6	13.5	—	0.4	13.9	6.6
04	18.5	0.1	0.4	19.0	14.6	—	0.4	15.0	7.4
05	19.5	0.1	0.5	20.1	15.3	0.1	0.5	15.9	8.0
06	20.7	0.1	0.5	21.3	16.3	0.1	0.5	16.9	8.7
07	23.3	0.1	0.6	24.0	18.3	0.1	0.6	19.0	10.0
08	24.1	0.1	0.6	24.8	18.9	0.1	0.6	19.6	10.7
09	25.9	0.1	0.7	26.7	20.4	0.1	0.7	21.2	11.3
10	27.1	0.1	0.7	27.9	21.4	0.1	0.7	22.2	12.1
1911	28.4	0.2	0.8	29.4	22.4	0.1	0.8	23.3	13.1
12	33.0	0.2	0.8	34.0	26.1	0.1	0.8	27.0	14.1
13	35.5	0.2	0.8	36.5	28.0	0.1	0.8	28.9	14.9
14	36.0	0.7	0.8	37.5	28.4	0.4	0.8	29.6	15.8
15	41.8	0.9	0.8	43.5	33.1	0.6	0.8	34.5	17.7
16	54.7	1.3	0.9	56.9	43.3	0.7	0.9	44.9	20.6
17	69.6	1.6	1.1	72.3	55.1	1.0	1.1	57.2	23.5
18	104.1	2.6	1.4	108.1	78.2	1.8	1.4	81.4	32.9
19	111.6	3.2	1.8	116.6	88.4	2.4	1.8	92.6	38.2
20	120.1	3.8	2.0	125.9	95.6	2.8	2.0	100.4	42.2
1921	107.2	4.5	2.1	113.8	85.7	3.6	2.1	91.4	41.4
22	93.0	3.9	2.1	99.0	74.5	3.0	2.1	79.6	39.7
23	90.5	3.4	2.1	96.0	72.3	2.7	2.1	77.1	40.1
24	92.2	3.1	2.2	97.5	68.8	2.5	2.2	73.5	41.6
25	94.4	3.2	2.3	99.9	75.4	2.6	2.3	80.3	42.6
26	98.6	3.2	2.3	104.1	78.8	2.7	2.3	83.8	43.8
27	101.7	3.3	2.4	107.4	81.1	2.7	2.4	86.2	44.9
28	107.3	3.4	2.6	113.3	85.6	2.8	2.6	91.0	47.6
29	110.4	3.4	2.7	116.5	87.8	2.8	2.7	93.3	47.0
30	115.5	3.4	2.7	121.6	91.8	2.8	2.7	97.3	50.1

The gross income of the most important groups of credit institutions — commercial banks, savings banks, the Post Office Savings Bank and Postal Cheque Service — have been calculated in Appendix G. These institutions are rendering services to one another, and if all their gross incomes are added together there will consequently be certain duplications which, however, are of minor importance. The position of the *Riksbank* is, on the other hand, of special and fundamental importance. Its main object is to serve as a central bank for the other banks, while its direct associations with the public are very insignificant, and its position as the Bank of the Treasury normally of subordinate importance. A smaller error is thus committed by excluding the *Riksbank* than by including it in the total, and that error is moreover partly neutralized by duplications of opposite effect.

The gross incomes of other credit institutions — mortgage banks, agricultural credit and other credit associations, and the savings banks of economic associations — represent so small amounts that it has not been considered worth while including them in the calculations.

As a general idea of the net income of banking might be of interest, an attempt to estimate the annual value of the debit items from 1923 to 1930 has been made in the appendix (Part II, p. 502). By deducting these from the gross income, the following net income of banking is obtained:

Year	Mill. kronor
1923	66
1924	64
1925	62
1926	62
1927	61
1928	63
1929	66
1930	67

29. Insurance.

This industry includes all existing forms of life, pension, accident, illness, and property insurance, whether carried on by private companies or by the State, while such pension

funds as are worked in direct connection with industrial firms, banks, etc., and certain Government Offices, to provide pensions for the staff, or for their widows and dependents, are not included. For practical reasons the investigation has had to be limited to such insurance companies and funds as are included in the official statistics. The majority of the small funds are moreover managed in the offices concerned, and are thus charged to their respective cost accounts.

Insurance is a means of eliminating uncertainty, the greatest significance of which is subjective. It may thus be considered part of the community's consumption. In estimating the price that the consumers are willing to pay for the services of the insurance companies, allowance must be made for the fact that in certain forms of insurance the premium does not only cover the risk, but is also in part a saving. That part of the premium which exceeds the risk- and savings-premiums combined may be considered to represent the value of both the insurance and the savings services of the insurance companies. Speaking generally, this corresponds to their administration costs, although allowance must be made for the fact that the sense of security is often so highly valued that there will be some profit, large or small, for the insurance companies. The administration costs can therefore be regarded as a minimum value of the services available to the consumers.

The total costs also include the costs of administering the funds, most of which may be considered a service rendered to the savers. It might be argued that this part of the work ought really to be considered banking business, but in most instances, as in life insurance, it is so intimately welded to insurance work proper that such a differentiation seems rather pointless. Nor can it be definitely distinguished from insurance¹, which latter branch may be considered to dominate in most companies.

Beside these services to the ultimate consumers, the insurance companies offer certain services to producers. This

¹ Experts put the cost of fund administration in life insurance at from 15 to 20 % of the total administration costs.

Table 43. Commerce, Hotels and Restaurants, Banking and Insurance—Allotment to Different Uses

Year	1	2	3	4	5	6	7	8	9 10 11 12			
	Com- merce	Hotels and restaurants	Bank- ing	Insur- ance	Profes- sional services	Total gross income	Debit items	Net income	Allotted to ¹			
									C		CD ^a	All indus- tries
									Com- merce	Others		
1861	105.0	2.0	1.2	0.9	3.0	112.1	3.0	109.1	95.0	5.0	4.0	2.1
62	100.0	3.0	1.3	1.1	3.0	108.4	2.7	105.7	95.0	6.3	4.0	2.4
63	105.0	3.0	1.4	1.1	4.0	114.5	3.3	111.2	95.0	6.5	5.0	2.5
64	100.0	3.0	1.4	1.2	4.0	109.6	3.4	106.2	90.0	6.5	5.0	2.6
65	100.0	3.0	1.5	1.2	4.0	109.7	3.0	106.7	90.0	6.8	5.0	2.7
66	100.0	3.0	1.6	1.2	4.0	109.8	3.7	106.1	90.0	7.0	5.0	2.8
67	115.0	4.0	1.8	1.3	4.0	126.1	3.9	122.2	100.0	8.0	5.0	3.1
68	110.0	4.0	1.9	1.5	4.0	121.4	4.0	117.4	100.0	8.3	5.0	3.4
69	110.0	5.0	2.0	1.5	5.0	123.5	4.4	119.1	105.0	9.6	4.0	3.5
70	125.0	5.0	2.0	1.6	5.0	138.6	4.5	134.1	115.0	9.8	5.0	3.6
1871	140.0	5.0	2.3	1.7	5.0	154.0	4.2	149.8	120.0	10.0	7.0	4.0
72	160.0	6.0	2.7	1.9	6.0	176.6	5.3	171.3	140.0	11.6	10.0	4.6
73	180.0	7.0	3.2	2.0	6.0	198.2	6.2	192.0	160.0	13.4	13.0	5.2
74	215.0	8.0	3.7	2.1	7.0	235.8	7.3	228.5	180.0	15.0	15.0	5.8
75	185.0	8.0	4.2	2.4	7.0	206.6	7.4	199.2	165.0	15.3	13.0	6.6
76	205.0	8.0	4.5	2.6	8.0	228.1	8.2	219.9	180.0	15.5	15.0	7.1
77	200.0	8.0	4.9	2.8	7.0	222.7	8.5	214.2	185.0	15.4	14.0	7.7
78	170.0	8.0	4.9	3.0	7.0	192.9	7.5	185.4	160.0	15.1	10.0	7.9
79	170.0	8.0	5.2	3.3	7.0	193.5	6.1	187.4	155.0	15.3	10.0	8.5
80	195.0	8.0	5.0	3.4	8.0	219.4	7.4	212.0	170.0	15.5	12.0	8.4
1881	200.0	8.0	4.8	3.6	8.0	224.4	8.6	215.8	180.0	16.0	13.0	8.4
82	190.0	8.0	5.1	3.7	9.0	215.8	9.0	206.8	175.0	16.5	16.0	8.8
83	210.0	9.0	5.4	3.8	9.0	237.2	9.5	227.7	190.0	17.7	18.0	9.2
84	205.0	9.0	5.7	4.0	9.0	232.7	9.7	223.0	185.0	18.3	18.0	9.7
85	210.0	9.0	5.8	4.2	10.0	239.0	9.7	229.3	185.0	19.0	19.0	10.0
86	190.0	9.0	5.9	4.6	10.0	219.5	10.4	209.1	170.0	19.0	17.0	10.5
87	180.0	9.0	5.9	5.0	10.0	209.9	10.1	199.8	165.0	19.0	17.0	10.9
88	200.0	9.0	6.2	5.4	11.0	231.6	11.6	220.0	170.0	20.0	19.0	11.6
89	225.0	9.0	6.4	6.2	11.0	257.6	13.3	244.3	195.0	20.0	23.0	12.6
90	230.0	10.0	6.7	7.5	12.0	266.2	12.3	253.9	200.0	24.3	24.0	11.9
1891	245.0	10.0	7.1	7.8	13.0	282.9	10.9	272.0	210.0	25.4	23.0	12.5
92	235.0	10.0	7.4	7.4	13.0	272.8	11.2	261.6	210.0	25.5	23.0	12.3
93	235.0	10.0	7.7	7.8	14.0	274.5	12.3	262.2	205.0	26.7	23.0	12.8
94	235.0	10.0	8.3	8.2	15.0	276.5	12.8	263.7	210.0	27.9	24.0	13.6
95	240.0	11.0	8.7	8.6	15.0	283.3	14.0	269.3	215.0	29.0	26.0	14.3

¹ After deducting merchanting charges on export goods from the gross income of Commerce.

GROSS AND NET INCOME

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Insurance, and Professional Services: Gross and Net Income, and 1861-1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9	10	11	12
	Com- merce	Hotels and restaurants	Bank- ing	In- sur- ance	Professional services	Total gross income	Debit items	Net income	Allotted to ^a			
									C		CD ^a	All indus- tries
Com- merce	Others											
1896	265.0	11.0	9.2	9.4	16.0	310.6	17.3	293.3	220.0	30.5	33.0	15.1
97	285.0	12.0	10.1	10.3	17.0	334.4	20.3	314.1	235.0	32.7	38.0	16.7
98	325.0	14.0	11.0	11.6	19.0	380.6	22.8	357.8	265.0	37.3	49.0	18.3
99	345.0	16.0	12.3	12.5	20.0	405.8	24.2	381.6	295.0	40.3	50.0	20.5
1900	345.0	17.0	13.2	14.2	21.0	410.4	25.7	384.7	290.0	42.8	49.0	22.6
1901	340.0	17.0	14.3	15.8	21.0	408.1	26.6	381.5	285.0	43.2	48.0	24.9
02	340.0	17.0	14.5	16.3	22.0	409.8	26.3	383.5	285.0	44.6	48.0	25.2
03	370.0	17.0	15.5	17.6	23.0	443.1	29.7	413.4	300.0	46.6	51.0	26.5
04	380.0	18.0	16.3	19.0	24.0	457.3	33.1	424.2	315.0	49.4	55.0	27.9
05	390.0	19.0	17.3	20.1	25.0	471.4	35.6	435.8	320.0	52.0	59.0	29.4
06	445.0	21.0	20.0	21.3	29.0	536.3	38.7	497.6	355.0	58.7	69.0	32.6
07	500.0	24.0	22.4	24.0	30.0	600.4	41.5	558.9	395.0	64.0	78.0	36.4
08	480.0	24.0	24.4	24.8	30.0	583.2	44.9	538.3	395.0	64.7	73.0	38.5
09	495.0	25.0	25.9	26.7	31.0	603.6	43.7	559.9	415.0	67.3	68.0	41.3
10	520.0	25.0	26.8	27.9	34.0	633.7	51.0	582.7	425.0	71.1	78.0	42.6
1911	525.0	28.0	29.0	29.4	35.0	646.4	54.1	592.3	420.0	76.1	83.0	45.3
12	555.0	31.0	29.8	34.0	39.0	688.8	56.9	631.9	445.0	84.1	90.0	49.7
13	600.0	35.0	31.9	36.5	41.0	744.4	62.2	682.2	495.0	90.9	83.0	53.5
14	575.0	37.0	37.0	37.5	43.0	729.5	68.1	661.4	470.0	95.8	83.0	58.7
15	680.0	44.0	33.6	43.5	45.0	846.1	80.1	766.0	535.0	106.7	91.0	59.4
16	855.0	52.0	47.8	56.9	52.0	1063.7	114.9	948.8	685.0	124.6	119.0	84.1
17	980.0	67.0	74.7	72.3	65.0	1259.0	118.7	1140.3	770.0	155.5	163.0	123.5
18	1240.0	101.0	116.1	108.1	93.0	1658.2	184.8	1473.4	985.0	226.9	251.0	191.3
19	1855.0	122.0	147.6	116.6	121.0	2362.2	181.2	2181.0	1530.0	281.2	316.0	226.0
20	2370.0	127.0	161.4	125.9	145.0	2929.3	234.4	2694.9	1860.0	314.2	430.0	245.1
1921	1380.0	114.0	130.1	113.8	142.0	1879.9	172.6	1707.3	1170.0	297.4	207.0	202.5
22	1215.0	98.0	100.4	99.0	119.0	1631.4	153.3	1478.1	1015.0	256.7	183.0	159.7
23	1220.0	95.0	92.7	96.0	113.0	1616.7	150.7	1466.0	985.0	248.1	203.0	148.6
24	1250.0	99.0	90.3	97.5	114.0	1650.8	155.1	1495.7	1020.0	254.6	202.0	146.2
25	1270.0	107.0	87.9	99.9	117.0	1681.8	157.7	1524.1	1010.0	266.6	215.0	145.2
26	1315.0	106.0	89.8	104.1	120.0	1734.9	167.2	1567.7	1040.0	269.8	237.0	150.1
27	1350.0	109.0	88.5	107.4	124.0	1778.9	173.7	1605.2	1040.0	277.9	252.0	151.0
28	1405.0	114.0	91.8	113.3	127.0	1851.1	176.3	1674.8	1065.0	288.6	280.0	157.5
29	1485.0	118.0	96.1	116.5	131.0	1946.6	192.1	1754.5	1130.0	296.0	283.0	165.6
30	1490.0	118.0	100.3	121.6	134.0	1963.9	193.9	1770.0	1150.0	302.1	290.0	171.8

^a Merchancing charges for consumers' durable goods.

applies to a considerable part of property insurance, and to insurance against accidents at work. The costs to production of these services correspond, as in the case of consumption, to the administration costs of the branches of insurance concerned. These costs constitute a debit item in calculating the net income of other trades, but, as they cannot be apportioned to each industry separately, they must be collectively deducted from the total national income.

Any division of the services into those rendered directly to the consumers on the one hand, and on the other those received by producers, can only be very rough.

The gross income of insurance can thus be measured by its administration costs, including rates and taxes. The net income is obtained by deducting from the gross income such items of the balance sheets as represent the contributions of other industries.

30. *Professional Services.*

This group is very heterogeneous, and closely related to other occupational groups, more especially to company officials and civil or municipal servants. The income of many professional men — doctors, for instance — is derived partly from their salaries as permanent Government or municipal officials, and partly from private practice. In respect of others, e. g. nurses, there is no statistical information on the numbers engaged in public or private service. The professions included in the group are given in Table 158.

The total net income is computed on the basis of the numbers engaged in each branch and their average net income. To this has been added an amount corresponding to the expenditure incurred for their work, such as rent, etc., here fixed at 25 % of the group earnings.

Data regarding the numbers engaged in these professions have been obtained from the Population Census, and from other official statistical publications on certain branches of the occupations concerned. Deductions have as far as possible been made for persons who may be assumed to be

wholly engaged in public administration, or whose work is included elsewhere.

The income per capita in the various professions has been computed for 1920 on the basis of the information given in the census for that year. These incomes have been varied by a specially constructed wage and salary index for the years 1921—1930, and from 1861 to 1919 by an index of industrial wages, slightly modified on account of certain fluctuations characteristic of these wages. Any of these incomes that may be assumed to be partly derived from Government or municipal services have been reduced accordingly.

The total gross value has been carried to consumption (C). No regard has thus been taken to the fact that certain of the services included, e. g. of legal practitioners, are rendered to producers.

DOMESTIC WORK.

(Appendix I)

31. *Gross Value of Paid and Unpaid Work.*

Two different estimates have been made of domestic work. In the first the calculations are restricted to paid domestic work; in the other they also comprise work done by the wives and other members of the family living at home, who are not accounted professionals. In either case consideration must be given to the special conditions obtaining in agriculture, where the women work both on the farm and in the house, and this has been done by adopting a general assumption that women belonging to the agrarian population are employed equally much on domestic as on other work. The number of female servants and other women in agriculture has therefore been reduced by half. Men servants, being very few, have been entirely left out of the calculations.

The difficulties of estimating the income of female servants are not very great, although the material is very

deficient. Their numbers can be obtained from the censuses, and interpolated for intermediate years, and data on their annual wages are obtainable both from the Agricultural Statistics and from the wage statistics of the Social Board.

It is more difficult to estimate the value of the unpaid work. As to the number of women, the only way is to assume that all women more than 15 years old, living at home, and not reported as working outside the home — with the above reservation in respect of the agrarian population —, are doing domestic work. That number has been calculated from the figures given in the census. Even though this assumption involves great approximation, it will nevertheless give a fairly good idea of the trend. Problems of a considerably more difficult nature arise, however, in the evaluation of the unpaid work. This involves the much debated question how far the wives' work should be included in the national income, and to what extent it corresponds to the unpaid services rendered by a person to himself or others. No exchange value can be ascribed to the latter category of services, which consequently cannot be included in a numerical estimate of the national income. As every delimitation must depend on the definitions on which the inquiry is based, and therefore necessarily is more or less conventional, it has been considered best to value the included portion of the wives' work on the same basis as that of female servants. The result is very approximate, but will give some idea of the trend, especially in relation to paid domestic work.

The consequences of excluding the unpaid work is discussed in greater detail elsewhere (cf. Chapter IV, § 2, and Part II, p. 527). The percentages in Table 44 clearly show that there have been considerable changes in the relation of paid to unpaid work. At the beginning of the period almost one fifth of the total was paid work, while in the nineteen-twenties this had diminished to less than one tenth.

Both alternatives have been used in computing the total national income, which is consequently given both inclusive and exclusive of unpaid domestic work.

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Table 44. Value of Domestic Work 1861—1930.
MILL. kronor.

Year	1			2	3	Col. 1 in % of Col. 3	Year	1			2	3	Col. 1 in % of Col. 3
	Total wages				Total			Total wages				Total	
	Women servants	Others	Total	Col. 1 in % of Col. 3				Women servants	Others	Total	Col. 1 in % of Col. 3		
1861	30	140	170	17.6			1896	35	290	325	10.8		
62	30	145	175	17.1			97	35	295	330	10.6		
63	30	145	175	17.1			98	35	325	360	9.7		
64	30	150	180	16.7			99	40	345	385	10.4		
65	30	150	180	16.7			1900	40	360	400	10.0		
66	30	150	180	16.7									
67	30	150	180	16.7			1901	40	355	395	10.1		
68	30	155	185	16.2			02	40	370	410	9.8		
69	30	155	185	16.2			03	40	385	425	9.4		
70	30	160	190	15.8			04	40	390	430	9.3		
							05	40	395	435	9.2		
1871	30	165	195	15.4			06	45	420	465	9.7		
72	35	195	230	15.2			07	50	460	510	9.8		
73	35	215	250	14.0			08	50	475	525	9.5		
74	35	220	255	13.7			09	50	490	540	9.3		
75	35	230	265	13.2			10	55	505	560	9.8		
76	40	245	285	14.0									
77	40	240	280	14.3			1911	55	520	575	9.6		
78	35	220	255	13.7			12	55	555	610	9.0		
79	35	225	260	13.5			13	70	695	765	9.2		
80	35	235	270	13.0			14	75	730	805	9.3		
1881	35	235	270	13.0			15	80	805	885	9.0		
82	35	240	275	12.7			16	100	980	1080	9.3		
83	35	240	275	12.7			17	125	1240	1365	9.2		
84	35	245	280	12.5			18	175	1740	1915	9.1		
85	35	230	265	13.2			19	205	2060	2265	9.1		
86	30	230	260	11.5			20	235	2365	2600	9.0		
87	30	230	260	11.5			1921	185	1885	2070	8.9		
88	30	235	265	11.3			22	150	1585	1735	8.6		
89	35	250	285	12.3			23	145	1505	1650	8.8		
90	35	255	290	12.1			24	145	1555	1700	8.5		
							25	140	1535	1675	8.4		
1891	35	265	300	11.7			26	140	1540	1680	8.3		
92	35	270	305	11.5			27	140	1550	1690	8.3		
93	35	270	305	11.5			28	140	1565	1705	8.2		
94	35	275	310	11.3			29	140	1585	1725	8.1		
95	35	280	315	11.1			30	140	1580	1720	8.1		

SERVICES RENDERED BY DURABLE
CONSUMERS' GOODS.

(Appendix J)

The national income, as calculated here, includes the net value of the services rendered by consumers' durable goods such as dwelling houses, furniture, household utensils, and automobiles. This net value is obtained as the difference between the gross value of these services and the cost of maintaining and replacing the goods as they are wearing out or becoming obsolete. In calculating the gross and net values different methods have been used in respect of houses and of other durable consumers' goods.

The services rendered by dwelling houses have a market price, the rent, which makes a direct valuation possible even for houses occupied by the owner or, if owned by the employer, by a worker as part of his total wages. But there are no market prices on which to base a valuation of the services of the heterogeneous mass of other durable goods. It is therefore necessary to use an indirect method, and to start from the value of such goods when produced, which value might be assumed to equal the discounted value of all the services that the goods are expected to render in the future.

32. The Value of Dwelling.

The gross value of dwelling has been calculated as the product of the number of rooms occupied each year and the current rent¹ per room. As the material is very deficient in respect of both, estimates have to a great extent had to be made. For this purpose the material has been divided into four districts: the City of Stockholm, the City of Gothenburg, other towns, and rural districts. The most

¹ This does not include costs of heating. Certain other items — such as the cost of the water consumed, which has been allotted directly to Consumption — should also have been excluded to avoid duplications, but the amounts involved are so small that such a correction has not been considered worth while.

complete material is available from the City of Stockholm. The figures relating to Gothenburg are also comparatively good, while the statistics from the other towns are more deficient; from the rural districts information is only available in respect of one or two years.

The number of rooms has been estimated on the basis of information on the density of occupation (= the number of inhabitants per 100 rooms) and on the population of the different districts. For Stockholm alone direct information on the number of occupied rooms has been available since 1868. Data on the density of occupation in Gothenburg are available for certain years, from 1905 onwards every fifth. The figures for intermediate years have been obtained by linear interpolation, or extrapolation as the case may be. For other towns the average density of occupation given in the 1912—1914 General Housing Census, or 132, has been used unchanged all the time from 1861 to 1920, and gradually reduced for subsequent years. The only usable information on the density of occupation in the rural districts is found in the 1912—1914 Census. The rural density of occupation has accordingly been fixed at 150 for the agrarian population and 140 for other rural population throughout the period.

No rental values are available for the early part of the period, and they have therefore been estimated by varying the earliest figure available (Stockholm 1894, Gothenburg 1905, other towns and rural districts¹ 1913) according to the cost-of-building index calculated by the Institute.² As far as Stockholm and Gothenburg are concerned, rents are given for so many of the years, from 1894 to 1930 and 1905 to 1930 respectively, that the missing figures could be estimated by linear interpolation. In respect of other towns and rural districts, on the other hand, the figures for 1913 have been varied according to the cost-of-building index of the Social Board, and for the agrarian population according to an index based on the estimated value of *statare* dwellings.

¹ This figure is an estimate, as no actual rents are given.

² The Cost of Living in Sweden 1830—1930.

Table 45. Gross and Net Value

Year	1	2	3	4	5
	Number of rooms in use ¹ 1000	Gross value Mill. <i>kronor</i>	Net value Mill. <i>kronor</i>	Rent per room ¹ <i>Kronor</i>	Rent per capita ² <i>Kronor</i>
1861	2675	101	81	38	31
62	2711	108	86	40	33
63	2749	107	86	39	32
64	2781	108	86	39	32
65	2809	117	94	42	34
66	2839	109	87	38	32
67	2863	104	83	36	30
68	2856	102	82	36	30
69	2843	104	83	37	30
70	2852	106	85	37	31
1871	2873	110	88	38	32
72	2903	116	93	40	33
73	2935	139	111	47	39
74	2964	129	103	44	36
75	2992	141	113	47	39
76	3023	154	123	51	42
77	3054	141	113	46	38
78	3088	134	107	43	35
79	3119	130	104	42	34
80	3119	130	104	42	34
1881	3126	133	106	43	35
82	3132	135	108	43	35
83	3150	141	113	45	37
84	3177	143	114	45	37
85	3205	143	114	45	37
86	3229	143	114	44	36
87	3243	139	111	43	35
88	3254	145	116	45	37
89	3274	147	118	45	37
90	3281	152	122	46	38
1891	3296	150	120	46	37
92	3301	149	119	45	37
93	3315	147	118	44	37
94	3351	141	113	42	35
95	3382	162	130	48	39

¹ Including kitchens. — ² Children under 15 years = 1/2 adult.

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of Dwelling 1861—1930. Mill. *kronor*.

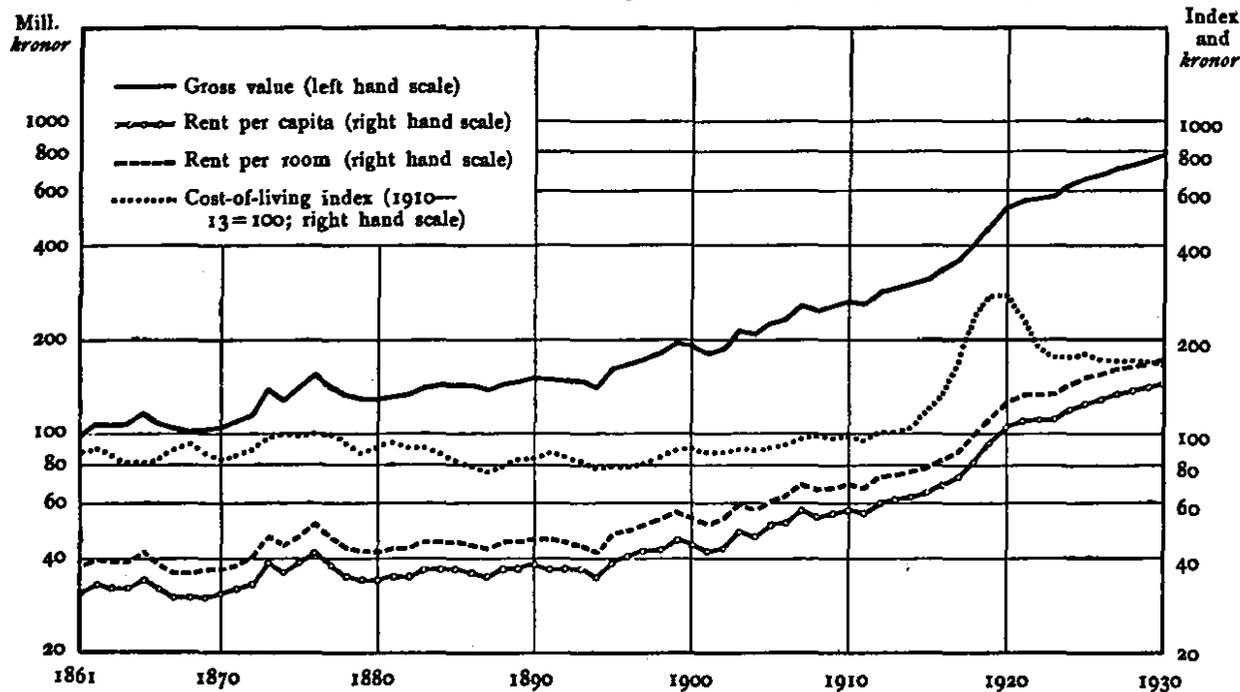
Year	1	2	3	4	5
	Number of rooms in use ¹ 1000	Gross value Mill. <i>kronor</i>	Net value Mill. <i>kronor</i>	Rent per room ² <i>Kronor</i>	Rent per capita ³ <i>Kronor</i>
1896	3416	168	134	49	41
97	3445	174	139	51	42
98	3484	183	146	53	43
99	3509	195	156	56	46
1900	3543	191	153	54	44
1901	3573	181	145	51	42
02	3596	189	151	53	43
03	3615	213	170	59	49
04	3647	208	166	57	47
05	3673	225	180	61	51
06	3708	233	186	63	52
07	3742	258	206	69	57
08	3782	248	198	66	54
09	3818	256	205	67	56
10	3857	266	213	69	57
1911	3888	261	209	67	56
12	3904	285	228	73	60
13	3952	293	234	74	62
14	3984	302	242	76	63
15	4012	312	250	78	65
16	4052	337	270	83	69
17	4087	360	288	88	73
18	4103	406	325	99	82
19	4126	470	376	114	94
20	4166	531	425	127	105
1921	4216	562	450	133	110
22	4258	571	457	134	111
23	4290	575	460	134	111
24	4342	626	501	144	120
25	4376	660	528	151	126
26	4413	682	546	155	130
27	4435	713	570	161	135
28	4459	731	585	164	137
29	4484	752	602	168	141
30	4504	781	625	173	145

This account of the calculations indicates that the results must be dealt with cautiously. As far as the towns are concerned, the material from the post-war period may be considered sufficiently satisfactory for the aggregate rents in this area to be accepted as a measure of the gross value of dwelling, but in respect of the rural districts the calculations are uncertain for that period too. Indeed, it is very hazardous to fix a mean density of occupation at all, as the boundary line between towns and rural districts is drawn from an exclusively administrative, and not from an economic or demographic, point of view. The "rural districts" will therefore comprise places of the most divergent nature, varying from sparsely inhabited, purely farming districts to densely populated agglomerations, more urban in character than many of the small towns.

Nor is it likely that, as has been assumed here, the density of occupation among the majority of the population obtaining about 1913 has always been the same. There is reason to suppose that the number of rooms calculated on that basis for the period before the War will be too high, and probably too low in the nineteen-twenties. The falling birth rate and the rising standard of living have probably had the joint effect of gradually lowering the density of occupation. But it is very difficult to form any opinion on the rate at which it has diminished during the various stages of the period under review, or to what extent the development has differed in different districts, e. g. in the agglomerated rural districts, or in the pure farming districts. The only way has therefore been to assume that, except in Stockholm and Gothenburg, and in other towns after 1920, the density of occupation has been constant.

The cost-of-building index used for estimating the rents at various times before 1913 is really an index of rural building costs, and therefore more representative of small towns and rural districts than of large cities. It must, moreover, be regarded as but an approximation to a true rent index, and because of the methods used for its construction it is probably more sensitive than such an index to industrial cyclical variations. The index series used for the post-war

Chart 13. Gross Value of Dwelling, Total and per Capita, 1861—1930.



period are more reliable and more suitable than this earlier series.

When considering how far the final figures may be trusted, it must be remembered that the part of the material which is statistically most reliable, viz. the town returns, has gradually in the course of the period become more important to the total. The town share of the total rents has grown from 26 % in the first 5-year period to 42 % at the beginning of this century and 57 % by the end of the period.

Chart 13, showing the trend of the total rents, the value of dwelling per adult individual (children under 15 = $\frac{1}{2}$ adult), and the rent per room, may give some indication of the meaning of the figures; the absolute figures are given in Table 45. It shows that, as calculated here, the value per head of dwelling has risen slightly more than the average cost of living — the period 1914—1923, when rents and prices fluctuated abnormally, must be wholly disregarded — and that this difference in the trend was most pronounced in the nineteen-twenties. This is what might be expected, considering that the quality of the dwellings is known to have risen, especially in the towns. The estimated total rents have therefore been accepted as a measure of the gross value of dwelling in spite of the deficiencies of the material. The practically complete conformity of the curves of rent per head and per room means that the variations of the weighted national density of occupation figures obtained by these calculations only correspond to the changes in the composition of the population in respect of children and adults.

The most important debit items are maintenance and depreciation allowances. A very approximate estimate of these will be found on p. 162 and in Table 36. The net value has been obtained as the difference between the gross value and these items, disregarding the minor costs included in the rents. Table 48 (the national income exclusive of the building industry) includes the gross value of dwelling and Table 49 (the national income inclusive of the building industry) the net value. The whole of the gross value has been allotted to Consumption.

33. *The Value of Services Rendered by Other Durable Consumers' Goods.*

The estimate of the gross value of the services rendered by other durable consumers' goods has been based on the value of the goods added each year to the existing stock. The object of the calculations is to find the future annual yields, the present value of which at the date of production of the goods equals the capital value of these goods. For this purpose these durable goods have been classified into different age-groups according to their durability, a classification which must be of a very schematic nature. It has further been assumed that the physical volume of the services rendered by a certain commodity is spread evenly over the whole period of duration, and that the interest rate at which the yield is capitalized has been the same, 5 %, throughout the period. Due regard has been paid to the complications created by changes in the value of money during the lifetime of the goods; in Table 46 the value of the services are given in terms of current prices. The gross value so constructed does not include maintenance costs. The net value is obtained by computing the costs of replacing the goods, i. e. the annual amortization of the goods reckoned on a current price basis, and subtracting these costs from the gross value.

The gross value has been carried to consumption (C).

The gross value is probably too high, as part of the goods classified as durable consumers' goods in all probability are producers' goods utilized in commerce and public administration. There is, however, no possibility of checking the results by other estimates of the stock of durable consumers goods or of the value of services rendered by such goods.¹ But a comparison between the gross value of dwelling and the value of the stock of other durable goods shows that to every 1000 *kronor* paid in rent in 1930 corresponded personal property of a durable character with a purchase value of 8200 *kronor*. This relation-

¹ As to FLODSTRÖMS estimate of the stock, see Part II, p. 552, note 1. See also Chapter IV, Paragraph 9.

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Table 46. Gross and Net Value of Services Rendered

Year	1	2	3	4	5		6
	Value of durable goods added to the stock	Gross value	Amortization	Net value	Adjusted values ^a		Net value
					Gross value	Net value	
1861	20	18	12	6	23	7	
62	21	20	13	7	25	8	
63	21	19	13	6	24	8	
64	22	19	13	6	24	8	
65	23	20	14	6	25	8	
66	22	22	15	7	27	9	
67	22	24	17	7	30	10	
68	21	26	18	8	33	10	
69	19	26	17	9	32	10	
70	21	25	17	8	32	10	
1871	24	27	18	9	35	11	
72	31	29	20	9	38	12	
73	37	34	23	11	44	14	
74	43	38	26	12	49	15	
75	42	41	28	13	53	16	
76	46	44	31	13	57	17	
77	47	46	32	14	60	18	
78	39	45	32	13	59	18	
79	36	44	31	13	57	17	
80	40	47	33	14	61	19	
1881	46	50	35	15	67	20	
82	50	51	35	16	67	21	
83	54	52	36	16	70	21	
84	55	53	37	16	71	21	
85	57	53	37	16	71	21	
86	56	53	37	16	71	21	
87	54	54	38	16	71	21	
88	58	58	40	18	77	23	
89	66	64	44	20	85	25	
90	68	69	48	21	91	28	
1891	69	75	52	23	101	30	
92	70	77	54	23	104	31	
93	70	77	54	23	104	31	
94	73	75	52	23	102	31	
95	78	79	55	24	107	33	

^a Exclusive of houses. — * The value of durable consumers' goods as given in Col. 1 is the value at the place of work, i. e. exclusive of transport and merchanting charges. The final figures have therefore been obtained by multiplying the figures in Col. 2 and 4 by a factor (r) cor-

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by Durable Consumers' Goods¹ 1861—1930. Mill. kronor.

Year	1	2	3	4	5		6
	Value of durable goods added to the stock	Gross value	Amortization	Net value	Adjusted values ²		
					Gross value	Net value	
1896	90	81	56	25	110		34
97	101	88	61	27	119		37
98	120	98	68	30	133		41
99	125	111	77	34	150		46
1900	127	120	83	37	162		50
1901	127	124	86	38	174		53
02	131	133	92	41	186		57
03	140	142	98	44	199		61
04	151	147	102	45	206		64
05	161	159	109	50	222		69
06	181	170	118	52	238		74
07	205	189	131	58	265		82
08	200	203	140	63	285		88
09	190	210	144	66	293		91
10	223	216	148	68	302		95
1911	232	223	153	70	324		102
12	249	250	170	80	362		115
13	231	263	179	84	381		121
14	227	277	189	88	402		128
15	249	328	223	105	476		152
16	304	379	257	122	549		176
17	393	488	331	157	708		228
18	582	696	472	224	1009		325
19	730	829	562	267	1201		386
20	940	867	589	278	1257		402
1921	570	790	540	250	1146		364
22	477	647	441	206	939		299
23	501	609	414	195	883		282
24	514	626	427	199	908		289
25	532	657	448	209	952		303
26	573	646	440	206	936		298
27	596	664	454	210	963		305
28	625	690	472	218	1001		316
29	650	704	483	221	1022		322
30	658	704	482	222	1020		321

responding to the average ratio of the sale value of the annual output of consumers' durable goods to the value of such goods at the place of work. (For the value of r , see Part II, p. 552.)

ship seems reasonable, and the conclusion might therefore be drawn that at the end of the period the estimated value of other services than those of dwellings is not too far from the mark as regards magnitude.

The trend of the two series, however, shows great differences, the rate of increase of the value of other services being much higher than that of the value of dwelling. This may in the former case be due to an undervaluation in the earlier decades, and in the latter case to an overvaluation. On the other hand, it might be assumed that the increase in the standard of living has had a greater effect on the equipment of the homes (including in recent decades also motorcars, bicycles, etc.) than on the standard of housing.

PUBLIC ADMINISTRATION.

(Appendix K)

34. *Definition of Gross and Net Income.*

The gross income of Public Administration has been defined as the value of the services rendered by Government Departments or Local Authorities in dealing with constitutional and foreign affairs, national defence, administration of the law, church and education, science and arts, as well as public health and penal institutions. This limitation means that all industrial and comparable activities are excluded. Moreover, all building and constructional work, even if it is undertaken solely for administrative purposes, has been left out. The last-named branches of public activities have already been dealt with in connection with private business of a similar character under the headings of Building and Constructions, Transport and Communications, and Banking and Insurance. All items which might be regarded as subventions or contributions to different purposes have also been excluded.

The net income of Public Administration corresponds to the expenditure for the above-mentioned purposes on salaries and wages, fees, and pensions; the yield of the

capital invested has not been estimated, because there is no material available for such a calculation.

To the net income have to be added the debit items, i. e. the value of goods and services received from other industries, and the maintenance costs for buildings and plant. The resulting total constitutes the gross income as defined above.

The allotment of the gross income to different uses must be made on conventional lines. As regards Local Administration it has been assumed that all expenses for Ecclesiastical Purposes, Poor Relief, Child Welfare, Public Health, and Old Age Pensions should be allotted to Consumption. For the remaining local services, and for all Government services, a summary distribution has been made by carrying half the gross value to Consumption and regarding the remainder as services rendered to producers. This latter item has not been allocated to the different industries, but has been considered a joint debit item to be deducted from the national income in the final calculation.

For statistical reasons the calculations of the gross and net incomes have been made separately for Government and Local Administration. A short account is given below of the material used in the calculations. In Tables 165—168, the results are given separately for Government and Local Administration. Table 47 contains a summary of both these branches of Public Administration.

35. *Government Administration.*

The information given annually in the treasury accounts under the main heading "Actual Expenditure" has been used for computing the gross and net values of Government Administration. The returns of the expenses of each Government Department include, however, not only costs covered by special revenue, but also unspent grants refunded by the different sections of the department concerned. It has not been possible to make any corrections in this respect, and the resulting gross and net values will therefore tend to be too high. On the other hand, certain items of

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Table 47. Gross and Net Income of Public

Year	1	2	3	4	5	6
	Net income = salaries and wages, pensions, etc.	Debit items		Gross income	Allotment of gross income	
		Goods and services	Mainten- ance of build- ings, etc.		Joint debit items	Con- sump- tion
1861	26.8	6.9	1.1	34.8	15.3	19.5
62	28.2	7.5	1.3	37.0	16.3	20.7
63	30.1	7.6	1.2	38.9	17.1	21.8
64	32.2	7.8	1.4	41.4	18.2	23.2
65	30.3	7.7	1.3	39.3	17.3	22.0
66	31.6	8.5	1.5	41.6	18.3	23.3
67	33.0	8.6	1.4	43.0	18.9	24.1
68	33.9	9.6	1.4	44.9	19.8	25.1
69	34.7	8.3	1.4	44.4	19.5	24.9
70	34.9	9.6	1.5	46.0	20.3	25.7
1871	35.6	9.3	1.5	46.4	20.4	26.0
72	37.4	9.1	1.5	48.0	21.1	26.9
73	39.7	12.5	1.6	53.8	23.6	30.2
74	39.7	12.7	1.7	54.1	23.9	30.2
75	45.8	12.9	1.8	60.5	26.8	33.7
76	52.3	13.4	2.1	67.8	29.1	38.7
77	51.8	17.4	2.2	71.4	30.6	40.8
78	56.2	15.1	2.4	73.7	31.7	42.0
79	56.7	13.6	2.1	72.4	31.1	41.3
80	57.0	12.6	2.3	71.9	30.8	41.1
1881	58.6	13.6	2.1	74.3	31.8	42.5
82	59.8	14.2	2.2	76.2	32.5	43.7
83	60.0	14.9	2.3	77.2	33.0	44.2
84	61.1	15.6	2.3	79.0	34.0	45.0
85	61.3	17.1	2.3	80.7	34.7	46.0
86	63.6	16.7	2.7	83.0	35.8	47.2
87	64.1	16.7	2.5	83.3	35.9	47.4
88	64.6	16.1	2.9	83.6	36.0	47.6
89	65.4	16.8	2.7	84.9	36.7	48.2
90	66.8	18.0	3.0	87.8	37.8	50.0
1891	68.4	19.2	3.1	90.7	39.1	51.6
92	69.6	19.4	2.9	91.9	39.6	52.3
93	71.9	21.3	3.3	96.5	41.6	54.9
94	73.1	21.6	3.1	97.8	42.2	55.6
95	74.0	21.7	3.2	98.9	42.7	56.2

GROSS AND NET INCOME

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Administration 1861—1930. Mill. kronor.

Year	1	2	3	4	5	6
	Net income = salaries and wages, pensions, etc.	Debit items		Gross income	Allotment of gross income	
		Goods and services	Mainten- ance of build- ings, etc.		Joint debit items	Con- sump- tion
1896	75.8	21.2	3.0	100.0	43.4	56.6
97	76.6	28.4	3.3	108.3	47.2	61.1
98	78.9	29.4	3.9	112.2	48.8	63.4
99	81.3	29.4	4.3	115.0	49.8	65.2
1900	86.6	40.9	5.0	132.5	57.8	74.7
1901	88.8	42.7	4.4	135.9	59.4	76.5
02	95.1	39.9	4.9	139.9	60.9	79.0
03	99.1	42.0	5.6	146.7	63.9	82.8
04	102.0	46.9	5.7	154.6	67.9	86.7
05	105.4	50.3	5.9	161.6	70.6	91.0
06	108.7	49.5	6.5	164.7	71.6	93.1
07	115.5	56.3	7.7	179.5	78.0	101.5
08	120.6	65.4	9.5	195.5	84.9	110.6
09	133.1	67.1	7.8	208.0	90.9	117.1
10	139.2	63.6	8.1	210.9	91.9	119.0
1911	145.0	64.6	7.3	216.9	94.7	122.2
12	149.4	69.1	8.6	227.1	99.0	128.1
13	154.7	71.4	8.7	234.8	102.2	132.6
14	162.4	73.8	9.5	245.7	106.7	139.0
15	181.4	96.4	9.3	287.1	126.3	160.8
16	195.6	160.8	8.5	364.9	164.0	200.9
17	213.1	165.2	10.4	388.7	173.2	215.5
18	400.6	293.9	12.9	707.4	323.4	384.0
19	506.4	210.7	19.2	736.3	329.1	407.2
20	619.5	208.1	27.3	854.9	377.4	477.5
1921	629.8	198.3	28.5	856.6	378.2	478.4
22	548.5	158.9	24.5	731.9	321.6	410.3
23	496.2	129.9	21.9	648.0	281.0	367.0
24	484.0	135.1	23.8	642.9	277.6	365.3
25	490.4	137.7	23.4	651.5	281.2	370.3
26	490.3	132.4	25.1	647.8	277.8	370.0
27	492.7	129.7	23.9	646.3	275.5	370.8
28	502.6	134.9	23.2	660.7	281.1	379.6
29	510.9	139.5	24.4	674.8	285.6	389.2
30	517.7	140.4	26.1	684.2	287.6	396.6

expenditure have had to be excluded for statistical reasons, and this will counteract the above tendency. It is therefore impossible to determine the magnitude of the error. If, however, the calculations had been made on the basis of the net expenditure of each department, the gross and net values would certainly have been too low.

The different items of expenditure have been grouped under three headings: Salaries, fees, and pensions; Goods and services; and Maintenance of buildings.

In the first group have been included all items explicitly stated to be salaries, fees or pensions, and such expenses as are considered to consist mainly of salary costs. Under the second heading have been entered all expenses for office supplies, fuel and light, etc., and travelling costs, as well as purchases of material, arms and ammunition for defence purposes and the maintenance and replacement costs for ships of war and naval buildings. It has not been possible to take into account the fact that part of these products are manufactured in Government workshops, which are not included in the Industrial Statistics. The third item, Maintenance of buildings, is taken directly from the accounts, with certain additions.

In earlier years the treasury accounts were not published in the same form as nowadays, and certain modifications have therefore been necessary. As far as possible, the same principles have been used for the calculations.

Since 1923 the accounts refer to the new budget years, July 1st—June 30th, instead of to the calendar years. It has been assumed here that the expenditure is evenly divided on the twelve months, and the recalculation has been made accordingly.

36. *Local Administration.*

The main sources is the Municipal Finance Statistics, published since 1874. In 1918 the statistics were rearranged, and the previous, rather scanty information was changed by sub-dividing the material into a large number of groups. The statistics before and after 1918 are therefore not quite comparable.

Before 1918, the amounts given in the statistics as salaries or wages did not cover the whole expenditure on this account. It has therefore been necessary to make certain additions by estimating the proportion of salaries and wages contained in the amounts given under other headings. This has been done on the basis of information obtained for 1918 and later. In 1876/80 the added items amounted to 19.0 % of the estimated total of salaries and wages; in 1913/17 this percentage ratio had risen to 25.6. It is possible that this method overstates the increase in the municipal expenditure on this account, but it probably gives a better result than that obtained by using the actually recorded figures only. The value of goods and services received from other industries, and the costs of maintaining buildings, have largely been estimated by assuming certain percentage ratios of the relevant items to correspond to this expenditure.

In 1918 and the following years, the statistics give the different kinds of expenditure in much greater detail. It has therefore been possible to allot the expenses more systematically to the three headings Salaries and wages, Goods and services, and Maintenance costs. The expenditure on salaries and wages has also been distributed among the different purposes. It might suffice here to point out that expenses for food and clothing, accounted for under the headings Poor Relief, Child Welfare, and Public Health, have been included neither in the gross income nor in the debit items. They consist mainly of money grants, or food and other consumers' goods that have already been allotted to Consumption in the previous calculations.

CHAPTER IV.

THE NATIONAL INCOME AS THE SUM OF THE NET INCOMES OF THE DIFFERENT INDUSTRIES. — INVESTMENTS AND CONSUMPTION.

NATIONAL INCOME.

I. The National Income Computed by Alternative Methods.

IN the last chapter, the net incomes of the different industries were estimated and analysed; in this, the national income will be computed as the sum total of these net incomes. This cannot be done by simple addition, however, as the net incomes, as calculated above, still include the value of certain services, rendered to producers. For reasons given in Chapter III, Paragraphs 28-29 and 34, this applies to the Banking and Insurance services, and to Public Administration. These items might of course have been allotted to the different industries on conventional lines, for instance in proportion to the net incomes, but in order to avoid misinterpretations it has been considered more expedient to regard them as a joint debit item to be deducted from the aggregate national income.

The difficulties, discussed in Chapter III, Paragraphs 12-15, of estimating the gross and net income of Building and Constructions have made it necessary to compute the national income by two alternative methods. By the first alternative, the income is given exclusive of the net income from Building and Constructions, no deductions for depreciation and maintenance of buildings being made from the gross income of other industries. If, in addition, an amount were deducted in respect of each

industry, corresponding to its consumption of home-produced raw materials and services for the construction of buildings and plant, the result would be the modified income concept discussed in Chapter I, Paragraph 2. This modification means that the value of the invested services — in so far as these refer to buildings and permanent plant — will be included in the national income, not in the year when they are invested, but in the year when they mature in services and utilities through the use of the buildings in production. They will further be included in the net income of every industry. There being no material available to show how the value of such raw materials should be allotted to the industries in which they are used, a joint deduction from all industries has been necessary, just as in respect of services from Banking, Insurance, and Public Administration. The national income in the whole of the period 1861—1930 has been computed according to this first alternative (Table 48).

From 1896, however, the material has permitted an estimate of the national income inclusive of the net income of Building and Constructions. The corresponding depreciation (and maintenance) allowances have been deducted from the gross income of the most important industries: Agriculture, Manufacturing Industries, Transport and Communications, and Dwelling (Table 49).

The first alternative gives only the value of the services maturing in a given year as derived from investments made in an earlier period, while the second alternative includes the value of all services invested during the year. In Chapter I, Paragraph 10, it was laid down that the amounts written off the value of durable goods in any given period should, theoretically, correspond to the concurrent cost of reinvesting services equal in value to the services which have matured in the same period through the use of the durable goods. Reinvestment is thus not confined to the technical process involving an exchange of worn-out or obsolete durable goods for new ones. It will be freed from its connection with any one enterprise or industry, and will only be determined in

NATIONAL INCOME


 Table 48. National Income 1861-1935

Year	1	2	3	4	5	6	7	8	9	10	11					
	Agriculture and subsidiary occupations, forestry	Manufacturing, mining, and handicrafts	Transport and communications	Commerce etc., independent professions, and public administration	Paid domestic work	Services of durable consumers' goods						Total	Less		National income	National income incl. unpaid domestic work
													Joint debit items	Raw materials and services for building		
1861	287	89	11	137	30	108	662	17	5	640	780					
62	296	115	11	135	30	116	703	19	4	680	825					
63	267	116	13	142	30	115	683	20	6	657	802					
64	274	117	14	140	30	116	691	21	7	663	813					
65	263	120	15	138	30	125	691	20	8	663	813					
66	314	113	17	139	30	118	731	21	8	702	852					
67	339	110	20	127	30	114	740	22	7	711	861					
68	293	105	21	153	30	112	714	23	10	681	836					
69	328	109	22	155	30	114	758	23	12	723	878					
70	371	115	24	170	30	116	826	24	12	790	950					
1871	386	134	26	187	30	121	884	24	11	849	1014					
72	406	166	30	210	35	128	975	26	13	936	1131					
73	506	178	36	233	35	153	1141	29	16	1096	1311					
74	459	200	42	269	35	144	1149	30	19	1100	1320					
75	480	215	43	246	35	157	1176	33	22	1121	1351					
76	475	194	48	274	40	171	1202	36	23	1143	1388					
77	473	199	51	268	40	159	1190	38	25	1127	1367					
78	445	172	48	243	35	152	1093	40	22	1033	1253					
79	429	160	45	246	35	147	1062	40	19	1003	1228					
80	504	182	53	271	35	149	1194	39	27	1128	1363					
1881	430	204	55	276	35	153	1153	40	29	1084	1319					
82	482	213	58	268	35	156	1212	41	35	1136	1376					
83	465	204	59	289	35	162	1214	42	28	1144	1384					
84	458	208	60	285	35	164	1210	44	33	1133	1378					
85	406	207	58	292	35	164	1162	45	32	1088	1318					
86	395	205	56	274	30	164	1124	46	29	1049	1279					
87	357	206	57	265	30	160	1075	47	28	1000	1230					
88	433	213	63	286	30	168	1193	48	31	1114	1349					
89	425	240	70	311	35	172	1233	49	34	1170	1420					
90	472	253	70	322	35	180	1332	50	39	1243	1498					
1891	525	266	70	342	35	180	1418	52	38	1328	1598					
92	487	278	70	333	35	180	1383	53	34	1296	1566					
93	455	292	71	336	35	178	1367	54	31	1282	1532					
94	443	309	76	339	35	172	1374	56	41	1277	1552					
95	478	342	81	345	35	195	1476	57	48	1371	1651					

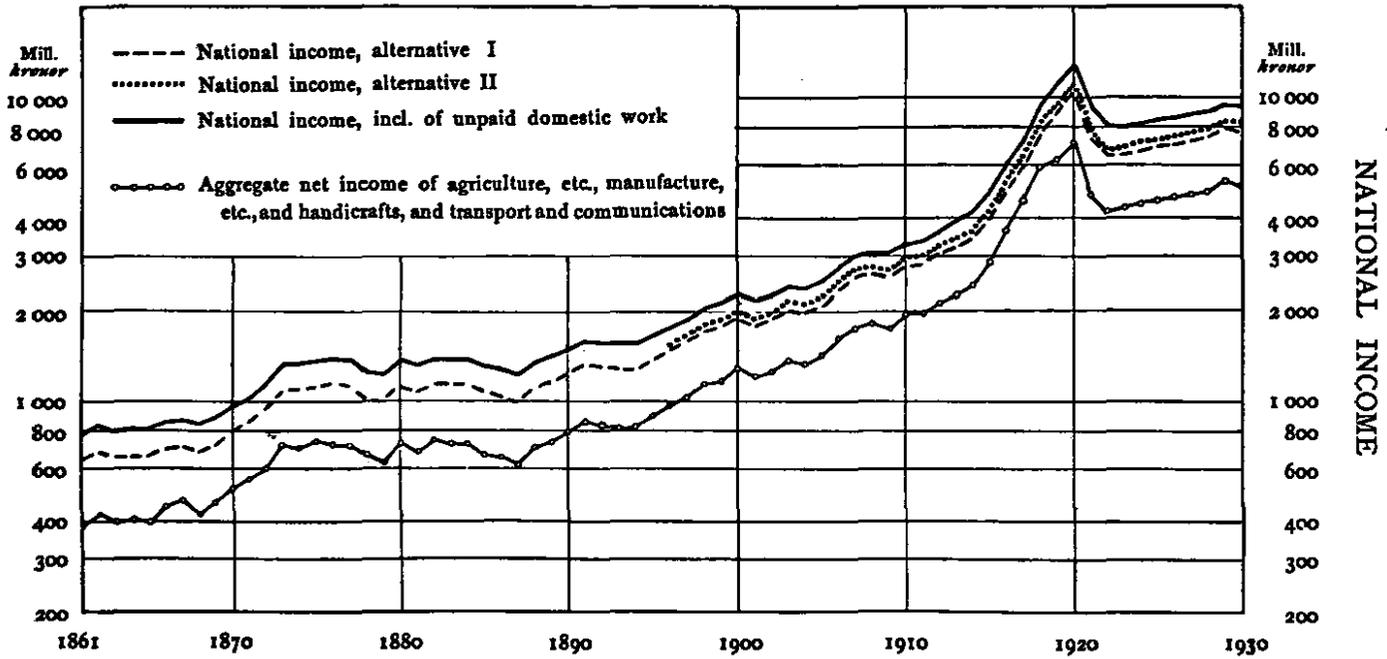
TOTAL INCOME

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Alternative I. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9	10	11
	Agriculture and subsidiary occupations, forestry	Manufacturing, mining, and handicrafts	Transport and communications	Commerce etc., independent professions, and public administration	Paid domestic work	Services of durable consumers' goods	Total	Less		National income	National income incl. unpaid domestic work
								Joint debit items	Raw materials and services for building		
1896	475	415	88	371	35	202	1586	59	59	1468	1758
97	507	440	98	392	35	211	1683	64	61	1558	1853
98	555	490	103	438	35	224	1845	67	76	1702	2027
99	523	534	112	464	40	241	1914	70	81	1763	2108
1900	623	554	118	473	40	241	2049	80	91	1878	2238
1901	533	561	116	470	40	234	1954	84	87	1783	2138
02	556	576	120	478	40	246	2016	86	84	1846	2216
03	614	620	131	512	40	274	2191	90	103	1998	2383
04	543	643	142	525	40	272	2165	96	116	1953	2343
05	569	690	151	539	40	294	2283	100	101	2082	2477
06	637	811	164	604	45	307	2568	104	120	2344	2764
07	682	893	176	671	50	340	2812	114	147	2551	3011
08	767	882	175	657	50	336	2867	123	128	2616	3091
09	725	838	174	689	50	347	2823	132	122	2569	3059
10	761	975	198	717	55	361	3067	135	154	2778	3283
1911	717	1026	211	732	55	363	3104	140	149	2815	3335
12	806	1084	231	776	55	400	3352	149	146	3057	3612
13	824	1179	244	831	70	414	3562	156	176	3230	3925
14	931	1224	266	818	75	430	3744	165	182	3397	4127
15	1112	1472	299	938	80	464	4363	186	192	3987	4792
16	1349	1987	332	1130	100	513	5411	248	254	4909	5889
17	1584	2584	390	1333	125	588	6604	297	396	5911	7151
18	2444	2900	517	1841	175	731	8608	515	504	7589	9329
19	2454	3148	663	2651	205	856	9977	555	527	8895	10955
20	2515	3921	789	3283	235	933	11676	623	581	10472	12837
1921	1266	2840	667	2313	185	926	8197	581	320	7296	9181
22	1131	2467	568	2008	150	870	7194	481	254	6459	8044
23	1239	2518	562	1943	145	857	7264	430	352	6482	7987
24	1273	2632	559	1962	145	915	7486	424	372	6690	8245
25	1308	2710	561	1995	140	963	7677	426	335	6916	8451
26	1245	2866	573	2042	140	980	7846	428	370	7048	8588
27	1151	3023	594	2081	140	1018	8007	427	370	7210	8760
28	1233	3028	600	2159	140	1047	8207	439	401	7367	8932
29	1227	3396	650	2247	140	1074	8734	451	421	7862	9447
30	1095	3389	648	2270	140	1102	8644	459	441	7744	9324

Chart 14. National Income 1861—1930.



TOTAL INCOME

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Table 49. National Income 1896—1930. Alternative II. Mill. kronor

Year	1	2	3	4	5	6	7	8	9	10
	Agriculture and subsidiary occupations, forestry	Manufacturing, mining and handicrafts	Building and constructions	Transport and communications	Commerce, etc., independent professions, and public administration	Paid domestic work	Services of durable consumers' goods	Total	Less: Joint debit items	National income
1896	458	402	70	80	368	35	182	1595	59	1536
97	490	425	74	88	389	35	190	1691	64	1627
98	535	474	92	93	434	35	202	1865	67	1798
99	505	517	101	100	460	40	217	1940	70	1870
1900	601	535	107	106	468	40	217	2074	80	1994
1901	514	542	101	102	466	40	211	1976	84	1892
02	535	557	102	106	473	40	222	2035	86	1949
03	592	600	124	115	506	40	247	2224	90	2134
04	523	622	135	126	519	40	245	2210	96	2114
05	547	669	121	134	533	40	265	2309	100	2209
06	611	787	140	145	597	45	276	2601	104	2497
07	654	867	173	155	664	50	306	2869	114	2755
08	736	857	147	153	647	50	302	2892	123	2769
09	695	814	139	153	681	50	312	2844	132	2712
10	731	947	172	175	709	55	324	3113	135	2978
1911	688	997	172	187	725	55	327	3151	140	3011
12	773	1053	170	205	767	55	361	3384	149	3235
13	791	1148	198	217	823	70	373	3620	156	3464
14	893	1185	203	238	808	75	388	3790	165	3625
15	1064	1422	212	265	929	80	420	4392	186	4206
16	1298	1919	282	291	1122	100	465	5477	248	5229
17	1527	2504	417	343	1323	125	538	6777	297	6480
18	2347	2809	541	449	1828	175	678	8827	515	8312
19	2353	3047	571	582	2631	205	797	10 186	555	9631
20	2424	3795	665	696	3255	235	868	11 938	623	11 315
1921	1214	2765	372	589	2284	185	850	8239	581	7678
22	1086	2400	284	504	1983	150	790	7197	481	6716
23	1191	2450	384	498	1921	145	774	7363	430	6933
24	1222	2559	411	496	1938	145	823	7394	424	7170
25	1255	2636	372	497	1972	140	865	7737	426	7311
26	1194	2787	405	507	2017	140	877	7927	428	7499
27	1106	2943	405	530	2057	140	909	8090	427	7663
28	1182	2944	438	535	2136	140	935	8310	439	7871
29	1178	3305	462	581	2223	140	958	8847	451	8396
30	1052	3302	483	580	2244	140	981	8782	459	8323

relation to the total stock of durable goods. Capital set free by the maturing of services in one industry may obviously be invested as new capital in another industry. This does not represent any new capital investment by the community as a whole, only a reinvestment. The amount of new investments is thus determined by deducting from the total investments, or the value of the total internal supply of durable goods, the allowances for the depreciation of the whole stock of such goods. Applied to the present case, this means that the difference between the two national income estimates in any one year will, theoretically, equal new investments in buildings and constructions. In a progressive society the first alternative will thus result in a lower national income than the second alternative. Exact calculations are not possible, however, in this respect, and the difference between the two national income values must therefore not be used as a numerical estimate of the value of this part of new investments.

The whole problem of the course of investments during the period under review will be taken up for discussion later in this chapter. It is sufficient to point out here that the two series follow each other rather closely, as seen in Chart 14, the margin between the two having only increased from 5.2 % in the first five-year period to 6.3 % in the last. Only the first alternative will therefore be used in the following analysis of the trend of the national income during the seventy-year period.

2. The National Income, inclusive or exclusive of Unpaid Domestic Work.

The question, whether the value of unpaid domestic work should be included or not, remains to be answered. Taking the whole field of domestic services into consideration, it is evident that in such a long period of great changes in the economic structure of the country as that under review, the transfer of processing work from the homes to the factories must have been of great importance. An income estimate in which the value of domestic work,

paid or unpaid, is not included, would thus show a more rapid increase than had actually taken place.

Paid domestic work is as a rule included in national income estimates, since it is rather clearly defined, and at least some statistical material is available. But it cannot *a priori* be said that the inclusion of only paid work will improve the estimate of the total national income. This depends on the trend of paid work in comparison with that of unpaid work and of the total income. On the other hand, paid domestic work is, as a rule, such a small part of the total income that its effect on the trend is hardly noticeable. It is therefore to be expected that the national income, including paid work only, will show a different trend to that of the income including all domestic services, in that the former will rise more steeply than the latter.

If the two estimates are compared graphically, as in Chart 14, it will be found, however, that the trend of the two curves and the cyclical fluctuations are the same. There was a narrowing of the margin in the last decade before the War, but in the 'twenties it again grew wider. This is contrary to what might have been expected, and it is therefore probable that the present calculations, which are only rough approximations, understate the value of unpaid domestic services in the earlier part of the period, when the work performed by the wives often had the character of handicraft.

Both income estimates are given in the summaries, but only the first alternative, excluding the unpaid work, has been used in the analysis. The result will be practically the same whatever alternative is used, but as the attempt to evaluate the unpaid work has not been satisfactory, it is better to exclude it altogether, than to endorse it by using it in the analysis.

3. *The Comparability of Calculations Referring to Different Periods.*

The accounts given in the preceding chapter indicate that, for lack of material, it has only been possible to

estimate the net income of several industries very approximately. Between 60 and 70 % of the total national income, however, come on only three industries, viz. Agriculture and Forestry, Manufacturing, Mining, and Handicrafts, and Transport and Communications. Chart 14 shows that the aggregate net income of these three industries agrees very well with the total national income in respect of both trend and cyclical fluctuations. It is impossible to decide, however, to what extent this agreement is due to the methods and approximations used in the computations relating to the remaining industries, or actual facts. As long as the absolute level is not discussed, however, but only the relative changes, there is little reason to think that other methods would have given an appreciably different result. The conclusion might therefore be drawn that the value of the total national income figures, for comparisons between one period and another, will be contingent on the reliability of the income calculations in respect of Agriculture and Forestry, Manufacturing, Mining, and Handicrafts, and Transport and Communications.

Even though certain of the calculations are necessarily approximate, these three industries can, on the whole, be said to give a satisfactory result. Owing to improvements in the material and changes in the manner of accounting for this in the statistics, however, the figures are not quite comparable except for certain limited periods. The following periods can be distinguished.

1861—1870: The data from this decade are very uncertain, and largely based on estimates. In certain branches quantities alone are given, and their value therefore had to be calculated; in others, both quantities and values have had to be estimated.

1871—1895: Certain changes in the rendering of statistical returns, resulting in appreciable improvements in the material, were made at the beginning of this period. They involved the introduction in 1870 of local agricultural investigations, the inclusion in 1871 of specified values of imported and exported commodities, and in 1873 of informa-

tion on the gross income from the foreign trade of the mercantile marine.

1896—1912: In 1896 the Industrial Statistics were thoroughly revised, which not only made them more comprehensive than before, but also greatly increased the value of the data collected. The Railway Statistics were modernized in 1904—1906.

1913—1930: In 1913, in some cases 1914, thorough modernizations and revisions were undertaken in all branches of economic statistics. The local agricultural investigations were thus reorganized, the scope of the Industrial Statistics was defined and differentiated from the handicrafts, the Trade Statistics were improved by the introduction of compulsory declarations of values, returns of the income of home shipping were demanded, and the private railway statistics were supplemented in accordance with those of the State railways. In other respects, too, they were supplemented and modernized. These reforms have since continued; in the few cases when the changes have been so considerable that they have affected the comparability of one year with another, corrections have been made. In this period the material may therefore be considered satisfactory. An exception has to be made for the years 1915—1921, however, owing to the heavy relative price fluctuations, which made the data less reliable, the calculation of averages more difficult, and the final results unsatisfactory.

The above indicates that the post-war period, reckoned from 1922, or in some cases 1923, may be considered comparable with 1913—1914. Without any great risk of erroneous conclusions, the comparison might even be extended to 1896. Greater caution must be exercised further back in time, especially in the first decade.

4. *Income Trend and Structural Changes.*

In a study of the income trend, allowance must be made for structural changes in economic organization in the course of the period. As these are intimately connected with the

industrialization process, they might expediently be dealt with in connection with the analysis of the trend of investments. Only some of their main features will therefore be touched upon here. The changes connected with the transformation of the domestic work have already been discussed above. The material does not allow of an analysis of such changes in income as are connected with the use in the standard-of-living and the growing insight of the responsibility of the State and the communities with regard to public welfare. The relative rise in the number of people engaged in social work, public administration, and independent professions illustrates these changes.

The period from 1861 to 1930 is chiefly characterized by the transformation of Sweden from an agrarian to an industrial country. This is, for instance, indicated by the diminution of the agricultural population. Relatively speaking, this process had already begun before 1860 — the agricultural population then amounted to 75 %, in 1840 it was 80.9 % — but the absolute figures had continued to rise until about 1880. From that year an absolute reduction began. This reduction was very rapid, and at the end of the period the agricultural population had fallen to only 39.4 %. The eighteen-seventies thus mark the arrival of industrialism.

This is one explanation why the national income remained on the considerably higher level reached during the strong upward cyclical movement from 1869 to 1873. In view of what has been said above about the comparability of the income calculations for the eighteen-sixties with those of subsequent years, the raising of the level, to which there is nothing to correspond in any other period except 1914—1920, might be due to an undervaluation of the national income in the eighteen-sixties. As, however, all the series are of unequivocally the same tendency, the conclusion is justified that the rise in the income recorded here corresponds to an actual increase of approximately the same magnitude.

The change from agriculture to manufacturing is also very clearly marked in the way in which the incomes of

Chart 15. Net Income of Agriculture and Forestry, Manufacturing, Mining and Handicrafts, and Transport and Communications 1861—1930.

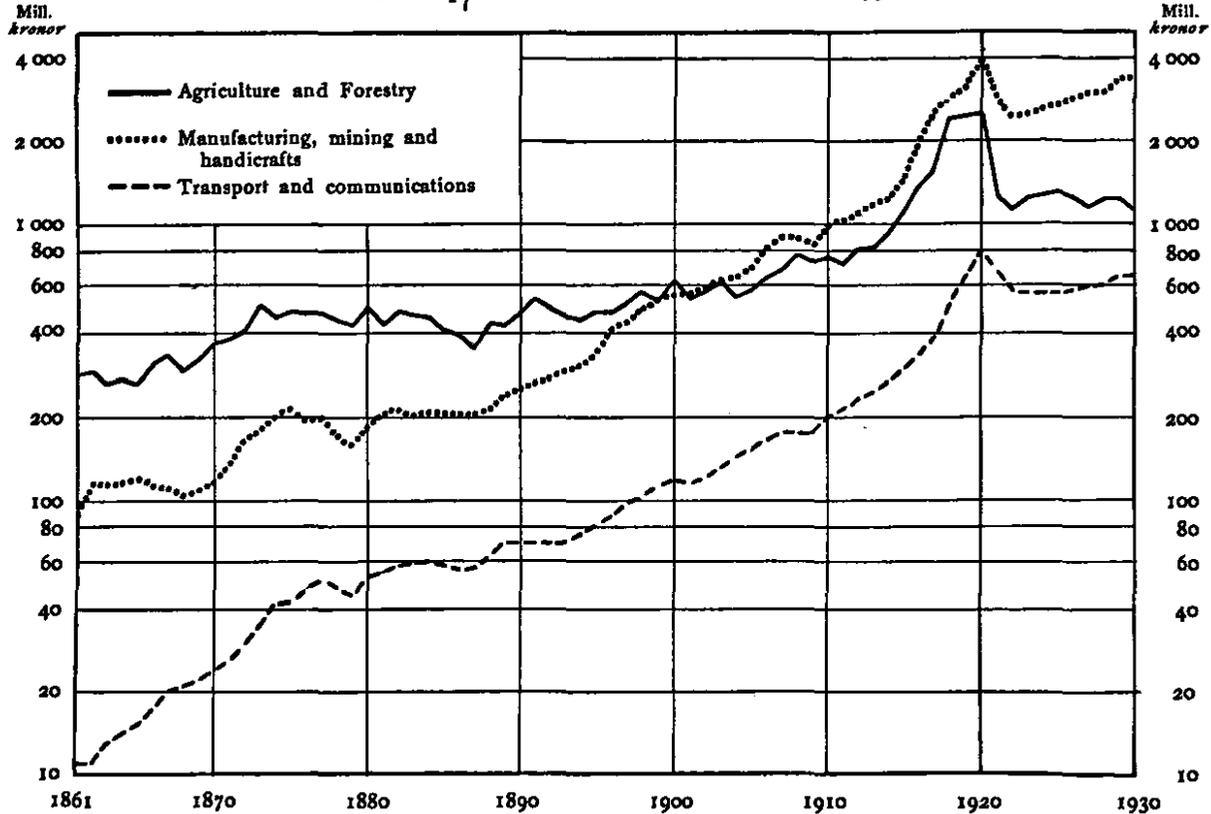


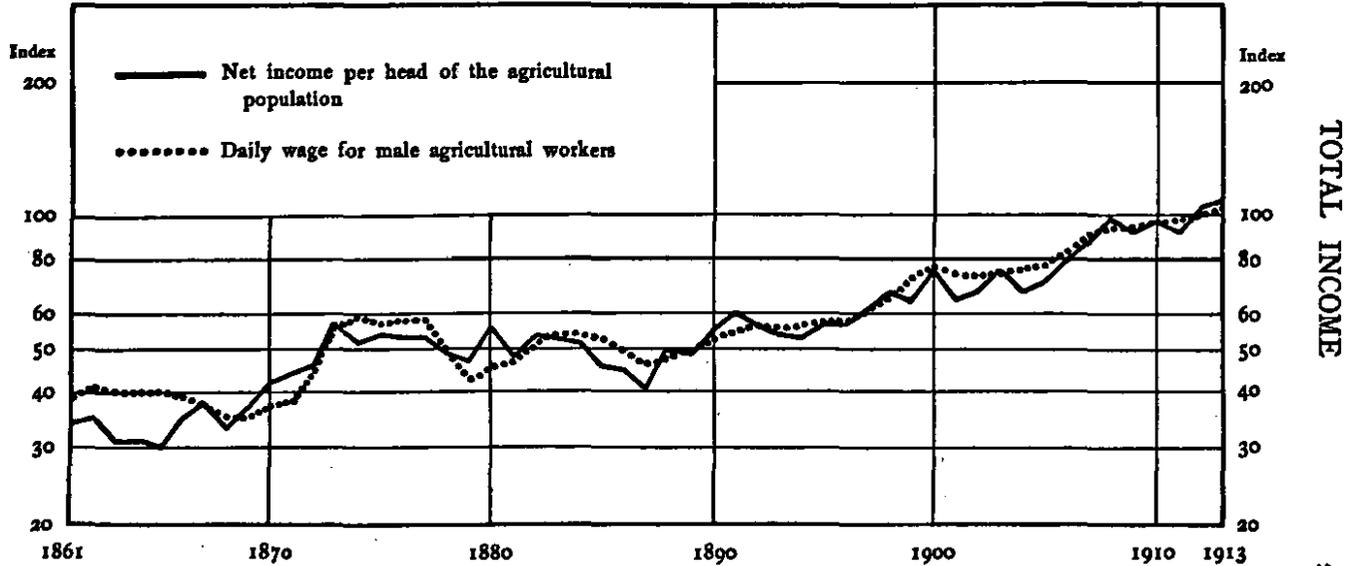
Table 50. Agriculture and Forestry: Net Income per Head and Wages 1861—1913. Index: 1910—1913 = 100.

Year	1	2	Year	1	2
	Income per head	Day-rates of male workers in agriculture		Income per head	Day-rates of male workers in agriculture
1861	34	39	1888	50	48
62	35	41	89	49	50
63	31	40	90	55	53
64	31	40	1891	61	55
65	30	40	92	57	57
66	35	39	93	54	56
67	38	37	94	53	57
68	33	35	95	57	58
69	37	35	96	57	58
70	42	37	97	61	61
1871	44	38	98	67	66
72	46	45	99	64	73
73	57	56	1900	76	77
74	52	59	1901	65	74
75	54	57	02	68	73
76	53	58	03	76	75
77	53	58	04	68	76
78	49	49	05	71	78
79	47	43	06	80	83
80	56	46	07	87	92
1881	48	47	08	98	94
82	54	51	09	92	95
83	53	54	10	97	97
84	52	54	1911	92	98
85	46	53	12	104	101
86	45	50	13	107	104
87	41	47			

the three large main groups have developed. As indicated by Table 48, the net income of Agriculture (including forestry) was trebled from 1861 to 1913, while that of the Manufacturing Industries increased 13-fold, and that of Transport and Communications 22-fold. From 1913 to 1930 the corresponding multipliers were: for Agriculture

Chart 16. Net Income and Wages in Agriculture 1861-1913.

Index: 1910-13 = 100.



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1.3, for the Manufacturing Industries 2.9, and for Transport and Communications 2.7. The differences in trends of the three branches which are further illustrated by Chart 15 are striking, and cannot be ascribed to deficiencies of the material. The fifty years from the beginning of the eighteen-sixties to the outbreak of the War thus involved a complete transformation of economic life, which affected incomes considerably.

It would be interesting to compare the differences in the income trends with the changes in the relative prices of the agents of production engaged in the various industries. Even though wages, the trend of which is known, at least in manufacturing and agriculture, constitute the major part of the net income, this is not sufficient. It would also be necessary to know the numbers engaged in the several industries which can only be obtained from the censuses — and rather incompletely for the early years — as well as changes in the productivity of labour. Such a comparison therefore cannot be undertaken in this connection.¹

As far as agriculture is concerned, however, certain comparisons can be made. Two index series have been constructed in Table 50 for the years 1861—1913. One is based on the net income per head of the agricultural population (including dependents), and the other on male agricultural wages.² Chart 16, plotted from the figures of this table, shows that the trend was approximately the same for the two series, although income per head has varied more strongly than wages from one year to another. The difference in level between 1861 and 1866 may be due to deficient information on the wages, or to an undervaluation of the net income.

5. *Income per Capita, and in Stable Value of Money.*

Changes in the population and in the value of money, are two factors of importance to the trend of the national

¹ For a discussion of the trend of industrial wages and production the Reader is referred to Wages in Sweden 1860—1930, Part II, Chapter XXII.

² Wages in Sweden, Table 170.

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Table 51. Cost-of-Living Index 1861—1930.
1910—1913 = 100.

Year	Index	Year	Index
1861	87.6	1896	78.6
62	90.0	97	81.1
63	85.5	98	85.0
64	81.9	99	88.8
65	81.8	1900	89.7
66	84.4		
67	89.6	1901	87.6
68	92.7	02	88.3
69	87.4	03	89.8
70	83.8	04	88.7
		05	90.6
1871	85.9	06	92.5
72	89.4	07	97.2
73	96.5	08	98.7
74	99.9	09	97.8
75	99.2	10	97.8
76	99.6		
77	99.1	1911	96.4
78	92.6	12	102.8
79	86.9	13	103.1
80	91.4	14	104.5
		15	120.0
1881	93.6	16	135.6
82	91.1	17	171.0
83	90.6	18	238.3
84	87.3	19	275.5
85	83.2	20	277.2
86	79.1		
87	76.3	1921	237.5
88	79.0	22	192.6
89	82.6	23	178.8
90	84.4	24	178.8
		25	182.2
1891	87.0	26	175.3
92	85.4	27	173.6
93	82.0	28	174.4
94	77.8	29	172.7
95	79.2	30	167.5

Note. This index series is based on the Institute's cost-of-living index and the Social Board index recalculated with 1910—1913 as base period. (Wages in Sweden 1860—1930, Part I, Table 26.)

Table 52. National Income¹ per Capita in the Productive Ages, and in Stable Value of Money 1861-1930.

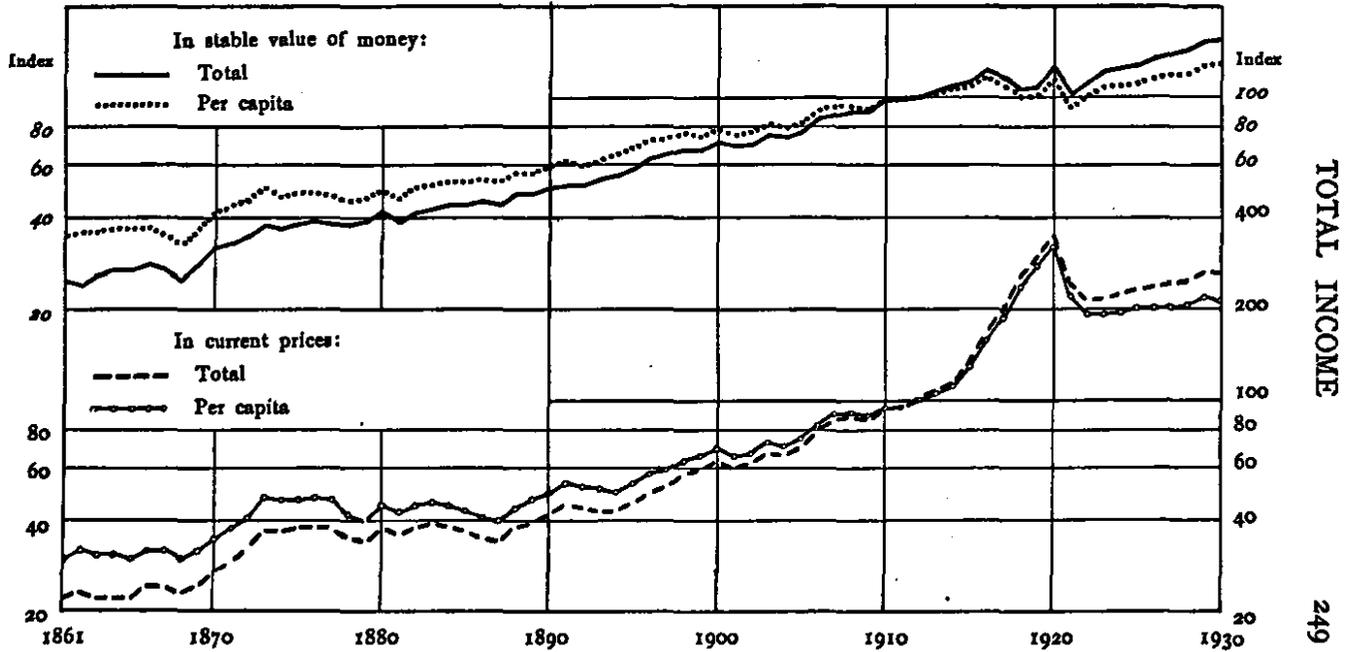
Index: 1910-1913 = 100.

Year	1	2	3	4	Year	1	2	3	4
	In current prices		In stable value of money			In current prices		In stable value of money	
	Total	Per capita	Total	Per capita		Total	Per capita	Total	Per capita
1861	22	30	25	35	1896	49	57	63	72
62	23	32	24	36	97	52	59	65	73
63	22	31	26	36	98	57	64	67	76
64	22	31	27	37	99	59	66	67	74
65	22	30	27	37	1900	63	70	71	78
66	24	32	28	37					
67	24	32	27	35	1901	60	66	69	75
68	23	30	25	33	02	62	67	70	77
69	24	32	28	37	03	67	73	75	81
70	27	35	32	42	04	66	71	74	79
					05	70	75	77	82
1871	29	38	33	44	06	79	83	85	90
72	32	41	35	46	07	86	90	88	93
73	37	48	38	50	08	88	91	89	93
74	37	47	37	47	09	86	89	89	91
75	38	47	38	48	10	94	95	96	97
76	38	48	39	48					
77	38	47	38	47	1911	95	95	98	99
78	35	42	38	45	12	103	102	100	100
79	34	40	39	46	13	109	107	106	104
80	38	45	42	49	14	114	112	110	107
					15	134	130	112	108
1881	36	43	39	46	16	165	158	122	116
82	38	45	42	50	17	199	188	117	110
83	39	46	43	51	18	256	238	107	100
84	38	45	44	52	19	299	277	109	101
85	37	43	44	52	20	353	322	127	116
86	35	41	45	53					
87	34	40	44	52	1921	246	222	104	93
88	38	44	48	56	22	217	194	113	101
89	39	47	48	56	23	218	193	122	108
90	42	49	50	59	24	225	197	126	110
					25	233	202	128	111
1891	45	53	51	61	26	237	204	136	116
92	44	52	51	60	27	243	206	140	119
93	43	51	53	62	28	248	209	142	120
94	43	50	55	65	29	265	221	153	128
95	46	53	58	68	30	261	216	156	129

¹ Alternative I, excl. of unpaid domestic work.

Chart 17. National Income 1861—1930.

Index: 1910—13 = 100.



TOTAL INCOME

income. It must be noted, however, that the national income computed here *ex definitione* refers to the income produced in the country, and not to the income received by its inhabitants. It is thus no direct measure of the standard of living of the population, changes in which are therefore better studied by comparing the estimated value of the consumption with the population and the cost of living. It is, however, of interest to compare the trend of the total national income with the number of working individuals, as representing one of the agents of production. The number of persons of productive age, i. e. between 15 and 65 years (Appendix A, Table 2), may be used as an approximate measure of this factor. As the total income given here does not include the value of unpaid domestic work, an error is certainly committed by including in the population all the women, irrespective of whether they work in their homes or outside them. The income (less unpaid domestic work) per capita will thus be too low, but here the variations in income are of most interest. Nor does it make any difference to the short-term variations. It may, on the other hand, be assumed that the number of persons engaged on unpaid domestic work has diminished in relation to the total population, owing to the increased engagement of women in professional work outside their homes. If the non-professional women are included in the population figures, the trend of income per head, as calculated here, will thus be affected. The conclusion might be drawn that the index series in the table over-emphasize the actual rise in income per head.

In reducing the value figures to a stable money value, the difficulty is to find a suitable price index. This should be based, not only on commodity prices, but also on the prices of services of various kinds. Even if material were available for such an index, its construction would be extremely difficult on account of the great changes in the composition of the national income during the long period here discussed. As it is impossible to obtain a satisfactory price index, one of the available index series will therefore

have to do. The choice has fallen on the cost-of-living index (see Table 51), as this is based on prices more in conformity with the prices of finished products than the other indices, which are based on the prices of raw materials and semi-finished products. In this case, moreover, comparable series can be obtained for the periods before and after 1913. One weakness of the cost-of-living index is that prices of durable consumers' goods and services are included only to a very limited extent.

Four index series, all with 1910—1913 as base period, are given in Table 52 and Chart 17. They represent the total income and the income per capita in the productive ages, expressed both in current prices and in stable value of money. The curves show that, since the strong increase in the beginning of the eighteen-seventies, and the period of relative stability up to 1880, both the total and the per capita real income rose steadily up to the world War, interrupted only by slight cyclical variations. After 1922 the increase continued at a slightly more rapid rate than before 1913. This may be due to the fact that the years 1922—1930 represented the upward swing of a trade cycle. The higher rate of increase in the post-war period does not prove that a change has taken place in the long-term trend. If the rates of increase of each series are computed for the periods 1896—1913 and 1922—1930, in which the figures are more comparable, the following results are obtained.

Income	Annual rate of increase in per cent	
	1896—1913	1922—1930
In current prices:		
Total	4 ¹ / ₈	2 ¹ / ₈
Per capita	3 ¹ / ₈	1 ¹ / ₈
In stable value of money:		
Total	3 ¹ / ₈	4 ¹ / ₈
Per capita	2 ¹ / ₈	3 ¹ / ₈

INVESTMENTS.

6. *Methods.*

The value of gross investments during a year has been defined in Chapter I as the value of the services invested

during the same period in durable goods, i. e. as the value of the internal supply of such goods. That value has been obtained as a result of the national income calculations, since in the course of these calculations the gross product value of each industry was allotted to different uses. The methods used have been described in the appendices and in Chapter III, including also the modifications rendered necessary by the nature of the material. It is therefore now sufficient to bear in mind that in many cases the allotments are based on mere estimates, and that the result cannot be considered an exact measure of the value of investments. Moreover, as shown above, material has not been available for the computation of the value of building and constructions for the whole 70-year period. Only from 1896 can the result be considered satisfactory enough to throw any light on the fluctuations. Before that year, the only data available were those of the annual investments in durable goods other than buildings and plants. As, however, according to Chart 18, the two curves — investments in durable goods, and in buildings and plants — follow one another fairly closely except in the first post-war years, when special conditions obtained in respect of residential building, and as the object of this investigation is not to obtain a measure of the absolute magnitude of the investments, but merely to elucidate its trend and fluctuations, the one series alone may suffice.

The figures given in Table 53, on which Chart 18 is based, refer to gross investments, i. e. both reinvestments (in respect of houses and permanent plant also maintenance) and net investments. The gross investments during a certain year are calculated as the gross value of production, plus imports and less exports, of durable goods. Any increase in the stocks in one year will thus form part of the total investments. A reduction of the stocks, on the other hand, which means a transfer of previously produced durable goods from producers or middlemen to those who will use them as producers or consumers, is not included. It has thus not been possible to make any allowance for

time lags due to delays in the utilization of the durable goods, or for part of the goods produced being possibly never used. Any consequent losses have to be considered capital losses.

The accounts given in Chapter III and Appendix J of how the depreciation allowances on various kinds of durable goods are computed, indicate the difficulties of estimating reinvestments and new investments. As the results of these computations are very uncertain, it has been considered best to deal here only with gross investments. But this modification precludes a computation of the absolute magnitude of the new investments, as well as of the total national income defined as the sum of consumption and net investments.

To give some idea of their order of magnitude, however, it may be mentioned that from 1926 to 1930 the estimated gross investments were 2 100 mill. *kronor* per annum,¹ of which about 900 mill. *kronor*, or between 40 and 45 %, were new investments. Estimating the consumption at 7 200 mill. *kronor*, new investment would approximate about 11 % of the sum of new investments and consumption.

An analysis of the investment figures must allow for the fact that they are expressed in current prices. No price index exists, however, that can be used for a reduction to a stable value of money. The only way to get any conception of the trend of real investments is therefore to compare the trend of the value figures with that of the best available price index. For this purpose an index based on the prices of industrial raw materials has been selected.*

Such a comparison indicates (see Chart 18) that the very pronounced cyclical variations in the investment curve to a great extent reflect the cyclical price fluctuations. The variations in the investment curve are much greater,

¹ Including maintenance of buildings and permanent plant.

* The index computed in "Wages in Sweden" from AMARK's price-material has been used from 1861 to 1913, and subsequently the Board of Trade (*hommerskollegium*) index of industrial raw materials (Wages in Sweden, Part II, Table 190). The raw-material index differs but slightly from AMARK's general index; it is only in certain years of rapid changes in prices that the results, when using the one or the other index, will show any appreciable differences.

Table 53. Investments

Year	1 In build- ings and plant	2 Total ¹	3 4 5 6 In other durable goods			
			Of which			
			AD	ID	TD	CD
1861	.	31	3	4	5	19
62	.	33	3	4	5	21
63	.	34	3	4	5	21
64	.	36	3	5	5	22
65	.	37	3	6	6	22
66	.	39	3	6	7	22
67	.	38	3	6	7	22
68	.	36	3	5	7	21
69	.	36	3	6	7	19
70	.	39	4	7	7	21
1871	.	46	4	9	8	24
72	.	62	5	14	12	30
73	.	81	6	22	15	37
74	.	98	8	31	16	43
75	.	99	8	32	16	42
76	.	90	7	27	10	46
77	.	86	6	22	10	47
78	.	68	6	16	7	39
79	.	61	5	12	6	36
80	.	68	6	15	7	40
1881	.	82	7	19	8	46
82	.	90	7	22	9	50
83	.	97	8	25	9	54
84	.	100	8	26	10	54
85	.	100	8	24	8	57
86	.	94	8	20	8	56
87	.	87	7	18	7	54
88	.	98	7	21	11	57
89	.	117	9	28	13	66
90	.	123	9	32	12	68
1891	.	120	9	28	13	69
92	.	119	8	22	17	70
93	.	114	8	18	16	69
94	.	122	8	22	17	73
95	.	129	9	22	18	78

¹ The difference between Col. 2 and the sum of Cols. 3—6 represents investments in durable goods used in Building and Constructions, Commerce, etc., and Public Administration.

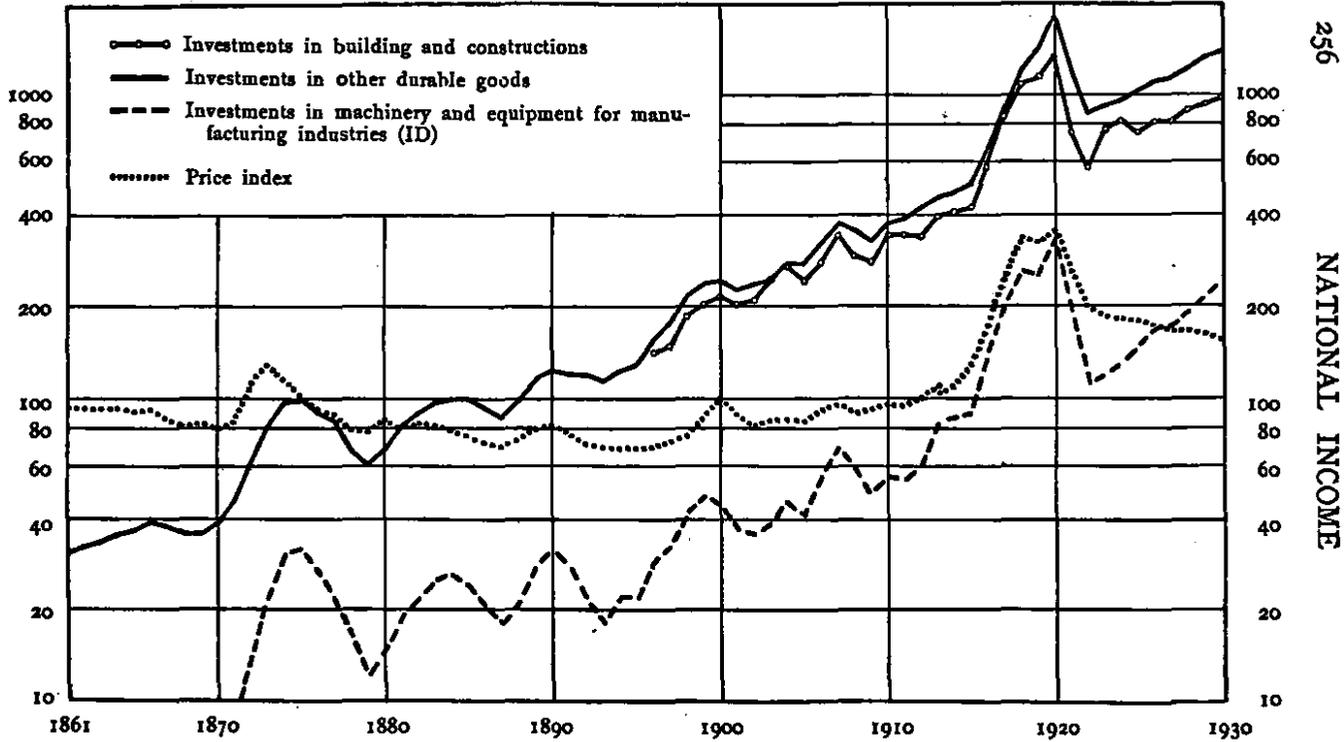
INVESTMENTS

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1861—1930. Mill. kronor.

Year	1	2	3	4	5	6
	In build- ings and plant	In other durable goods				
		Total ¹	Of which			
			AD	ID	TD	CD
1896	140	154	12	29	21	87
97	149	177	13	33	28	97
98	185	218	15	42	38	116
99	203	238	16	48	45	121
1900	215	241	16	44	48	122
1901	203	229	16	37	42	122
02	205	237	17	36	46	126
03	248	245	19	39	42	134
04	271	273	21	46	49	146
05	242	274	21	41	44	154
06	281	324	25	55	52	175
07	347	379	31	69	65	198
08	296	359	31	60	60	193
09	280	329	31	49	55	181
10	345	377	36	55	57	214
1911	344	390	37	54	57	224
12	341	422	39	60	66	240
13	395	455	45	84	72	231
14	407	469	46	87	84	227
15	424	504	51	90	81	249
16	565	650	65	136	102	304
17	835	890	88	199	153	393
18	1082	1203	121	261	172	581
19	1144	1413	149	253	213	730
20	1331	1843	164	334	316	940
1921	747	1175	123	192	231	570
22	568	872	84	111	148	477
23	769	910	89	118	151	500
24	824	951	98	129	154	514
25	745	1034	102	149	196	532
26	812	1095	111	169	183	573
27	812	1127	106	172	193	596
28	877	1215	107	191	233	625
29	925	1324	120	217	269	650
30	967	1367	121	242	277	658

Chart 18. Gross Investments 1861—1930.



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Note. The price index (1910—13 = 100) in Charts 18—20 refers to industrial raw materials in 1861—1913 and to industrial products in 1913—1930 (see Wages in Sweden, Part II, Table 190). — From 1861 to 1871 investments in ID rose from 4 to 9 mill. kronor.

however, which indicates that real investments are highly sensitive to trade fluctuations. The conclusion might further be drawn that in the 'eighties the increase in real investments was greater than indicated by the value figures, while from the middle of the 'nineties up to 1913 it was probably slightly less. The curves indicate that, if the cyclical variations were smoothed out, the resulting series of real investments before 1913 would be rising in practically geometrical progression. The war period was wholly dominated by the price fluctuations; from 1922 the value figures resumed the same rate of increase as in the decades before the War. They started, however, from a level, which was about 90 % higher than in 1913. This percentage corresponds approximately to the rise in the industrial raw-material price index. Real investments probably rose more rapidly in the nineteen-twenties than in the two pre-war decades, there being a fall in prices in the former period, while in the latter prices were rising.

The curve based on the value of investments in machinery and equipment for manufacturing industries is particularly interesting. In the first place, it gives a better picture of the industrial business fluctuations than does the curve of total investments, and has therefore in the following been used to illustrate the cyclical changes. This series is only *one* of the indicators of trade fluctuations, but it is a very important one, and a comparison with other data shows that it gives a very good picture of the main changes in business conditions. It is also the most useful in this study, which aims at analysing the development of investments in the country, and their dependence on the importation of foreign capital. Correlated with other data, such as number of workers, product values, investments in transport and communications, etc., it illustrates the industrialization and its character at different times.

7. *Investments and Industrialization 1861—1930.*

A brief account will be given below of the investments in the period 1861—1930, with special reference to the in-

dustrialization process.¹ In this paragraph no regard will be paid to the sources of the capital invested, but the way in which it has been used will be analysed. Even though the industrialization process has been influenced by the trade fluctuations, these are of minor importance to the following analysis. This must necessarily be very summary, since a detailed analysis would be equivalent to writing the economic history of Sweden during this period.

In the eighteen-sixties, the manufacturing industries were at a stage demanding very small investments of capital. The average amount invested in durable goods (not including buildings) was about 35 mill. *kronor* per annum, of which the greater part, about 20 mill. *kronor*, was invested in consumers' durable goods. In 1870 investments in industrial equipment reached their maximum, 7 mill. *kronor* for the period 1861—1870. As far as constructional work was concerned, the period was characterized by the beginning of railway building, which also resulted in increased investments in transport materials. New, mostly State-owned railway lines, representing an aggregate building cost of about 70 mill. *kronor*, were opened to traffic in that decade.

The boom at the beginning of the eighteen-seventies gave rise to a very strong increase in the investments in manufacturing industries as well as in transport and communications. The annual investments in durable goods thus rose from 39 mill. *kronor* in 1870 to 99 mill. *kronor* in 1875, or by 20 % per annum. Investments in industrial equipment, which in 1875 represented a value of 32 mill. *kronor*, increased the most. Owing to the strong rise in prices, the increase in real investments was of course smaller, but nevertheless probably considerable. The output capacity of industry also increased rapidly, and the value added by manufacturing rose by no less

¹ Cf. Wages in Sweden 1860—1930, Part II, Chapters XXII—XXIV; MONTGOMERY, A., *Industrialismens genombrott i Sverige*, and several papers read to the Economic Society (*Nationalekonomiska föreningen*) and published in its Transactions (*Nationalekonomiska föreningens förhandlingar*). THORP, W. L., & MITCHELL, W. C., *Business Annals*, has been used as a source of information on the business situation abroad.

than 14 % per annum. This industrial expansion meant that a proportionately larger number of workers were employed for the increased production, but mechanization obviously also progressed at the same time, as the value of investment per worker rose considerably more than prices. Industrial progress in this period was also characterized by the expansion of the timber industry, and by booming iron and steel exports. The last obstacles to the importation of timber into England and France had been removed in the middle of the 'sixties, and an opening was created for the rapid expansion of Swedish wood exports. The boom occasioned by the Franco-German war 1870—71 was traceable in the increased demand for wood, but was even more distinctly apparent in the iron and steel exports. While wood exports continued unabated after the War had ended, the boom in iron and steel was of short duration.

The dominant feature of this period, however, was the very extensive building of new, mainly private, railways, which was intimately connected with and one of the chief pre-requisites of the industrialization. In the five years from 1871 to 1875, the total construction costs of new State railways opened for traffic was 38 mill. *kronor*, and of private railways 73 mill. *kronor*. Private railway building continued to increase in the next two years, raising the building costs by 46 mill. *kronor*, while the State railway constructions only amounted to 11 mill. *kronor*. About 170 mill. *kronor* were thus invested in this period in railway construction alone. This led to considerable investments in transport material, which as far as the railways were concerned amounted to about 60 mill. *kronor* in the same period. The eighteen-seventies, with their both extensive and intensive development of industry, and the expansion of railway communications, thus mark the arrival of industrialism in Sweden.

Agriculture was in a favourable position during the greater part of the eighteen-seventies. Investments in agricultural equipment increased greatly in this period, but nevertheless the expansion was mainly extensive, as

proved by the figures given in Appendix E, relating to new land brought under cultivation, which represented quite a considerable investment of capital. The increasing capital requirements of agriculture are also evidenced by the extensive borrowing of the General Mortgage Bank of Sweden (*Sveriges allmänna hypoteksbank*), founded in 1861.

During the following period, from the end of the 'seventies up to 1893, investments in durable goods increased at a slower rate than before. As prices were falling, they were, however, quantitatively larger than indicated by the figures. The simultaneous quantitative expansion of the manufacturing industries in this period is indicated by a comparison between the investment and product-value curves, and by the increase in the number of workers employed. In other respects, this period was characterized by the investment per worker, as well as the value added per worker, largely following the trend of the prices. Consequently, a change-over to more intensive production methods can hardly have taken place.

The capital requirements of agriculture probably diminished as the cultivation of new land gradually ceased in the middle of the 'eighties. The outstanding loans of the Mortgage Bank also began to diminish towards the end of the decade, and continued to do so until the end of the century. Investments in machinery and equipment, on the other hand, increased at a percentage rate which approximately corresponded to that of industrial investments of a similar nature.

The rapid expansion of railway building in the eighteen-seventies in connection with the general depression caused a severe crisis in the following decade, which threatened the existence of many railway companies and led to stagnation in the construction of new lines. Residential building, on the other hand, progressed considerably in the 'eighties, stimulated by the rise in rents, which was due to an increasing housing shortage in the latter part of the 'seventies, and a continued decrease in the rate of interest. The peak was reached in 1885, but building activity remained at a relatively high level dur-

ing the succeeding years, too, with an increase in the boom year 1890. This applies mainly to Stockholm, but there is reason to suppose that the growth of the towns at this time led to similar developments elsewhere.¹ The depression in the beginning of the 'nineties caused a very pronounced reversal in the building industry, with strongly reduced activity.

The eighteen-nineties represent a period of particularly strong industrial expansion, especially after 1893, which year in certain respects represented a minimum. The large investments in industry resulted in an increase of production and of the number of workers employed. As to the value added by manufacturing, Chart 19 shows that this had been steadily increasing since the depression in 1887, and was but slightly affected by cyclical changes. In spite of a considerable reduction of the average working time per day, the increase in the value added per worker was larger than the simultaneous increase in prices (Chart 20). This indicates that, contrary to what was the case in the 'eighties, the manufacturing industries progressed both extensively and intensively in this decade.

The rise in investments, which continued from the turn of the century up to 1913 at the same rate as the net product value of industry, was checked only temporarily in the years of depression. This period differs from the 'nineties, however, in that the industrial development was largely intensive. The number of workers rose considerably less than investments and product values, which means that the capital invested was mainly used for labour-saving devices, and that the productivity of the work was increased by mechanization. Value added per worker also continued to rise more rapidly than prices.

A general change-over to animal production, and to a more intensive production technique, influenced the capital requirements of agriculture in this period, as indicated by the strong increase of the investments in machinery and

¹ PALME, J. H., *Byggnadsverksamheten och bostadshyrvorna* (National-ekonomiska föreningens förhandlingar 1893). — The number of new houses in the towns had increased considerably already in the 5-year period 1876—1880 (see Appendix E, Part II, p. 338).

Mill. kronor

Chart 19. Manufacturing Industries: Investments and Value Added 1861—1930.

Mill.
kronor
and
index

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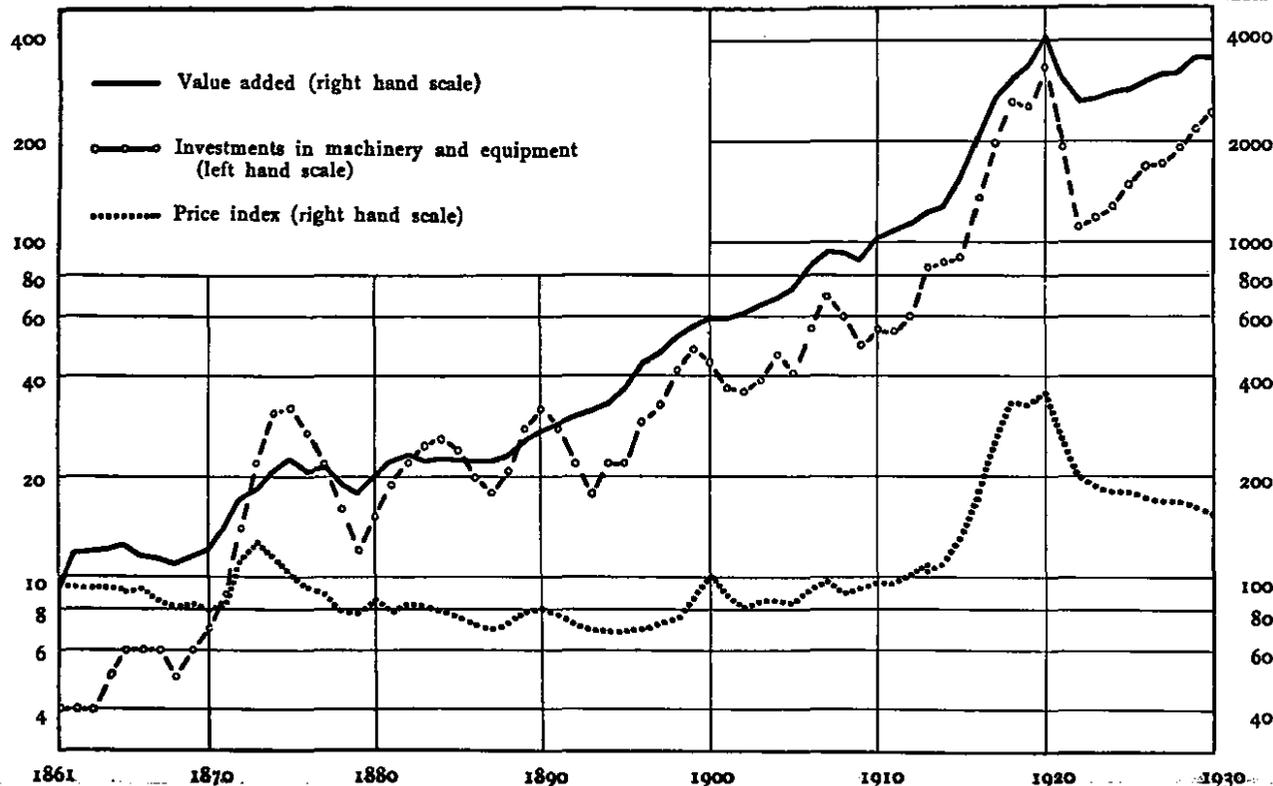
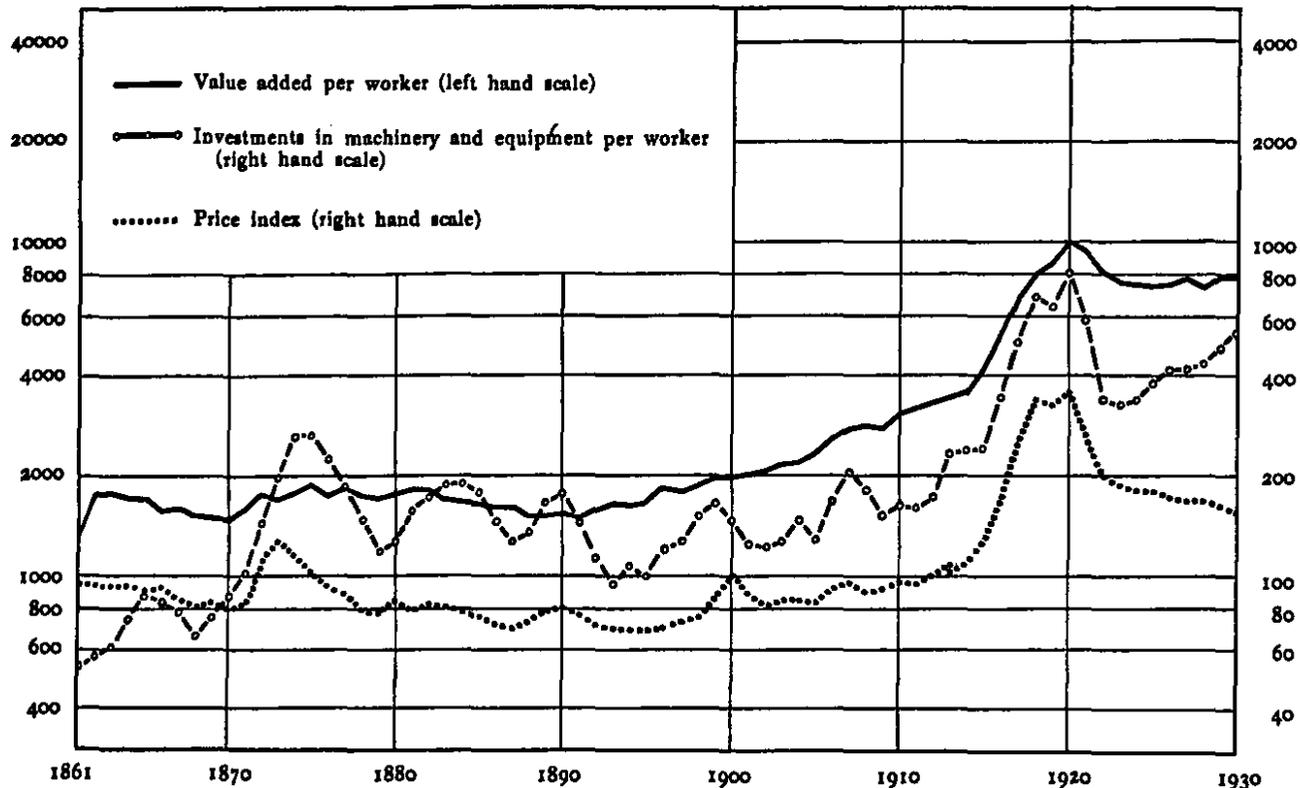


Chart 20. Manufacturing Industries: Investment and Value Added per Worker 1861-1930.

Kroner and Index

Kroner



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implements since the middle of the 'nineties. It should be noted that up to 1913 the trend of this figure-series rose more rapidly than that of investments in industrial equipment. This does not, however, justify the conclusion that total investments increased more in agriculture than in industry. The powerful expansion in a number of relatively "new" industries (the wood-pulp, engineering, and Norrland mining industries, hydro-electrical power production, etc.), which all demanded large investments, gave rise to a considerable industrial constructional activity in this period. Railway building increased slightly in the early 'nineties and in the years from 1900 to 1906, which explains part of the very rapid increase in the investments in transport material from 1888 to 1900. This was, however, mainly due to the railways' need of replacements, about 20 years having by this time elapsed since the initial expansion of railway building. Money was, moreover, invested in transport material of other kinds, e. g. ships, vehicles, etc.

Residential building received another impetus towards the end of the eighteen-nineties, and was very active until the housing crisis in 1908—1911, after which it again became extensive in 1912 and 1913. The cyclical changes in residential building are of interest to municipal constructional work, which is closely connected with the migration to the towns and a consequent need of new houses for municipal purposes, as well as of street and sanitary work. This is reflected in increased municipal borrowing. The very scanty figures given in Appendix E, indicate that municipal constructional work also expanded throughout the 'eighties, and from the end of the 'nineties.

The war and immediate post-war years can hardly be made the subject of a short analysis, owing to the abnormal price changes. The period 1922—1930, as has already been said, shows a strong expansion of total investments. The investments in durable goods for the manufacturing industries and transports increased by 118 and 87 % or by 10 and 8 % per annum. The capital invested in agriculture and in durable consumers' goods grew appreciably less, or by 44 and 38 %, i. e. 5 and 4 % per

annum. The strong increase in industrial investments was due to this part of the formation of capital having been hit particularly hard by the post-war crisis. This is seen from the fact that while investments in durable agricultural, transport, and consumers' goods increased by between 89 and 106 % from 1913 to 1922, and the value added by 114 %, investments in industrial equipment only increased by 32 %.

As the years 1913 and 1930 were on the whole similar from a cyclical point of view, a comparison between the values of industrial investments in these years will give a better picture of their growth than if 1922 and 1930 were compared. Such a comparison shows that in 1930 industrial investments were 188 % higher than in 1913. This corresponds to the increase in the value added in the same period.

The difference in the trade situation in 1922 and 1930 also explains the divergent development of value added per worker and of investment per worker. While the latter increased by 56 %, the former remained approximately constant from 1922 to 1930. In comparing the productivity in this period with that of 1913, allowance must be made for the reduction in 1920 of the daily working time by almost 20 %, and for the rise in prices.

Railway construction continued at approximately the same rate in the 'twenties as before the War. In 1923—1930 about 33 mill. *kronor* were invested per annum in new permanent plant and about 5 mill. *kronor* in rolling stock. The amounts invested in building and roads, on the other hand, increased strongly. Unlike most other branches, road constructions did not reach their maximum value during the War but in 1921—1923, in which years extensive work in relief of unemployment was organized.

The strong increase in the investments in traffic material, which cannot be explained in the same way as that of industrial investments, is one of the most characteristic features of the formation of capital in the nineteen-twenties. Like road constructions, they were connected with the rapid advance of motorism in that period. Modernization

of rolling stock in connection with railway electrification, and of shipping in connection with the advances in the technical uses of oil, also had some influence on this process.

It has already been pointed out that residential building showed quite a special cyclical variation. After the inactivity produced by restrictive rent laws, this branch experienced a strong expansion in 1923—1926. In the following years, too, residential building was very active. This affects the curve of the total value of building and constructions (see Charts 11 and 18) which therefore has a somewhat different shape than that of other investments. The increase in per cent from 1922 to 1930, however, is approximately the same for both curves.

8. *Investments and Capital Movements 1861—1930.*

Methods. The outlets found for the capital invested in the different periods have been analysed above, special attention being paid to the industrialization and the trend of real investments. The question of the origin of the capital invested, on the other hand, has not yet been dealt with. This question is largely connected with the monetary development and the trade fluctuations, which consequently will dominate in the analysis of the capital movements.

A numerical estimate of the exports and imports of capital can be made directly by means of data regarding loan issues, purchases and sales of securities, etc., and short-term credit transactions. In this respect, however, the statistics are very poor for the pre-war period. The only figures available are those relating to changes in the national debt and in the net foreign balances of the *Riksbank*, the commercial banks, and the National Debt Office (*Riksgäldskontoret*). In addition, estimates have been made of the amount of Swedish bonds issued abroad. No figures at all are obtainable regarding purchases and sales of securities, shares in undertakings of different kinds, real estate, etc., nor is there any possibility of estimating the short-term credit transactions of Local Authorities, industrial and other firms, and individuals. During the greater part of

the pre-war period such transactions were of great importance, since it was the practice, not only of the banks but also of the Local Authorities and private undertakings, to borrow abroad on bills of exchange. FAHLBECK¹ estimated that commercial bills held abroad amounted to 25 mill. *kronor* in 1885, and for 1908 FLODSTRÖM² gives a figure of about 160 mill. *kronor* for all floating debts, excluding bank liabilities. In 1908, an inquiry was made in the Department of Finance³ into the floating debt of the towns, and the credits obtained abroad were at that time estimated at 38 mill. *kronor* or half the total amount of the floating debt. These short term credits were counter-balanced by credits in the opposite direction, mainly in the form of commercial bills. Such bills were, however, to a great extent sold to the banks. In the reports of the banks they are thus included in the foreign assets, in so far as they were not rediscounted or pledged as securities for short-term loans abroad.

It is therefore impossible to use the direct method of evaluating the transfer of capital, and the available figures can only serve as a complement to the figures obtained by the indirect method. This method is based on an estimate of the value of goods and services exchanged between Sweden and foreign countries. The balance of payments for goods and services for 1861—1921, as computed in Appendix L, is given in Table 54, Col. 1. This includes merchandise, net income from shipping, immigrants' and emigrants' funds, and interest paid on the funded debt. If this balance were complete, and if there were no gold movements, the surplus or deficit would represent outward or inward capital movements.

Gold and silver movements to and from Sweden have as a rule been of slight importance, as seen in the table. In the beginning of the eighteen-seventies alone did the change from the silver to the gold standard cause a relatively great influx of gold. The purchases of gold were also

¹ *Sveriges nationalförmögenhet, dess storlek och tillväxt.*

² *Sveriges nationalförmögenhet omkring år 1908 och dess utveckling sedan mitten av 1880-talet.*

³ *Betänkhande angående statens och kommunernas skuldsättning, p. 76.*

Table 54. Some Important Items of Sweden's

Year	1	2	3	4	5	6	7	8	9
	Net balance of current payments	Net gold and silver balance	Total ¹	Short-term capital movements ²	Long-term capital movements ²				Securities purchased
					Increase (+) or decrease (-) of National debt	Capital issues abroad			
				Government		Other borrowers	Total		
1861	- 29	+ 1	- 28	- 5	+ 3	± 0	+ 34	+ 34	.
62	- 13	- 2	- 15	- 1	- 1	± 0	+ 32	+ 32	.
63	- 7	± 0	- 7	± 0	± 0	± 0	± 0	± 0	.
64	- 5	- 1	- 6	+ 1	+ 9	+ 10	+ 1	+ 11	.
65	- 1	- 1	- 2	+ 1	+ 10	± 0	+ 1	+ 1	.
66	- 13	± 0	- 13	+ 2	+ 12	+ 26	± 0	+ 26	.
67	- 14	± 0	- 14	+ 1	- 1	± 0	± 0	± 0	.
68	- 27	- 2	- 29	- 4	+ 19	+ 21	± 0	+ 21	.
69	- 21	- 1	- 22	± 0	+ 2	± 0	+ 3	+ 3	.
70	+ 4	+ 1	+ 5	- 13	± 0	± 0	± 0	± 0	.
1871	+ 6	- 4	+ 2	- 5	- 4	± 0	± 0	± 0	.
72	+ 7	- 10	- 3	- 1	- 1	± 0	± 0	± 0	.
73	- 24	- 8	- 32	- 3	- 1	± 0	+ 13	+ 13	.
74	- 49	- 1	- 50	+ 4	+ 13	± 0	+ 33	+ 33	.
75	- 38	+ 3	- 35	- 2	+ 10	+ 37	+ 1	+ 38	.
76	- 41	+ 2	- 39	- 11	+ 37	+ 36	+ 1	+ 37	.
77	- 64	+ 1	- 63	+ 12	+ 7	± 0	± 0	± 0	.
78	- 34	+ 2	- 32	- 10	+ 33	+ 27	+ 116	+ 143	.
79	- 18	- 7	- 25	- 35	+ 4	± 0	+ 67	+ 67	.
80	- 24	- 1	- 25	- 17	+ 3	+ 119	+ 26	+ 145	.
1881	- 56	± 0	- 56	+ 19	+ 4	± 0	+ 5	+ 5	.
82	- 38	- 2	- 40	- 7	- 1	± 0	+ 9	+ 9	.
83	- 63	± 0	- 63	+ 11	+ 4	± 0	+ 11	+ 11	.
84	- 76	- 2	- 78	± 0	+ 4	± 0	+ 3	+ 3	.
85	- 87	- 1	- 88	- 1	+ 17	± 0	+ 16	+ 16	.
86	- 71	- 1	- 72	- 13	+ 9	+ 65	+ 55	+ 120	.
87	- 50	- 4	- 54	- 12	- 2	+ 10	+ 10	+ 20	.
88	- 43	- 1	- 44	- 12	+ 12	+ 27	+ 9	+ 36	.
89	- 64	- 2	- 66	+ 23	- 11	± 0	+ 2	+ 2	.
90	- 68	- 1	- 69	+ 12	- 2	+ 36	+ 6	+ 42	.
1891	- 41	- 1	- 42	+ 3	+ 7	± 0	+ 6	+ 6	.
92	- 34	- 1	- 35	- 11	+ 3	± 0	± 0	± 0	.

¹ + indicates inward, and - outward payments.² + = capital imports; - = capital exports.

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Balance of Payments 1861—1921. Mill. *kronor*.

Year	1	2	3	4	5	6	7	8	9	
	Net balance of current payments	Net gold and silver balance	Total ¹	Short-term capital movements ²	Long-term capital movements ³				Securities purchased	
					Increase (+) or decrease (—) of National debt	Capital issues abroad				
						Gov-ernment	Other bor-rowers	Total		
1893	+ 8	— 1	+ 7	— 18	+ 4	± 0	± 0	± 0	.	.
94	— 9	— 6	— 15	— 12	+ 10	+ 18	+ 9	+ 27	.	.
95	+ 5	— 4	+ 1	— 5	— 11	± 0	± 0	± 0	.	.
96	+ 25	— 2	+ 23	— 4	— 8	± 0	± 0	± 0	.	.
97	+ 5	— 9	— 4	+ 6	— 3	± 0	+ 2	+ 2	.	.
98	— 56	— 6	— 62	+ 24	— 2	± 0	+ 16	+ 16	.	.
99	— 93	— 2	— 95	— 29	+ 33	+ 36	+ 7	+ 43	.	.
1900	— 76	— 9	— 85	— 5	+ 21	+ 36	+ 25	+ 61	.	.
1901	— 67	— 9	— 76	+ 6	+ 11	± 0	± 0	± 0	.	.
02	— 84	— 3	— 87	+ 29	— 3	± 0	+ 10	+ 10	.	.
03	— 56	— 8	— 64	— 5	+ 1	± 0	+ 25	+ 25	.	.
04	— 116	— 7	— 123	— 4	+ 39	+ 36	+ 67	+ 103	.	.
05	— 79	— 8	— 87	+ 19	— 4	± 0	+ 38	+ 38	.	.
06	— 83	— 7	— 90	+ 14	+ 40	+ 43	+ 30	+ 73	.	.
07	— 92	— 2	— 94	+ 24	+ 43	+ 47	± 0	+ 47	.	.
08	— 67	— 11	— 78	— 31	+ 53	+ 54	+ 56	+ 110	.	.
09	— 96	— 6	— 102	+ 18	+ 13	± 0	+ 46	+ 46	.	.
10	— 19	— 3	— 22	— 53	+ 11	± 0	+ 138	+ 138	.	.
1911	+ 33	— 8	+ 25	— 105	+ 68	.	.	.	.	.
12	+ 31	— 18	+ 13	+ 45	— 4	.	.	.	.	.
13	+ 33	— 6	+ 27	— 42	+ 20	.	.	.	.	.
14	+ 110	— 10	+ 100	— 5	+ 44	.	.	.	.	.
15	+ 290	— 55	+ 235	— 149	— 18	.	.	.	.	— 54 ³
16	+ 618	— 21	+ 597	— 258	— 59	.	.	.	.	— 154 ⁴
17	+ 666	— 80	+ 586	+ 124	— 56	.	.	.	.	— 131
18	+ 333	— 36	+ 297	— 223	— 15	.	.	.	.	— 20
19	— 605	— 3	— 608	+ 67	+ 61	.	.	.	.	— 49
20	— 726	— 217	— 943	+ 202	— 109	.	.	.	.	— 112
1921	— 54	+ 250	+ 196	— 122	— 78	.	.	.	.	— 78

³ 1/11 1914—³⁰/11 1915.

⁴ 1/11 1915—³¹/11 1916.

rather large during the War, and in 1920. The gold purchased in the latter year was sold already in 1921, however, this being a special transaction without any connection with monetary conditions in the country. In the period under review the imports of gold were as a rule caused by the demand of the *Riksbank* for gold as cover for the growing note issue, and of certain industries for gold as a raw material.

The difference between the net receipts (or net payments) for merchandise and services and the net imports (or exports) of gold and silver is given in Col. 3. This difference is regarded as a numerical measure of inward or outward capital movements.

It is evident from the description of material and methods given in Appendix L that the result is very approximate. Not only is the material deficient in many respects, which has made rough estimates necessary, but there are services of various kinds of which no account has been taken. Services received by Sweden are to a great extent counter-balanced by services rendered, however, and the error of omitting them is therefore relatively insignificant.¹

From 1922 onwards the balance of payments has been officially estimated. In several respects, especially with regard to interest payments and dividends, as well as long-term capital movements, the official figures for 1922—1930 are more complete than the figures given in Table 54 for the earlier years. They have therefore been used to supplement the data collected by the Institute. The result is given in Table 55. The great differences between the balance of payments for goods and services, corrected for purchases and sales of gold and silver, and the balance of capital transferred on long or short account, show that the estimates are still very approximate.

¹ In the detailed balance of payments published by the Board of Trade for 1934 such items as have been excluded here before 1922 (except payments of interest and dividends, which are not comparable with those in pre-war years) amounted to 74 mill. kronor receipts and 67 mill. kronor expenditure. Moreover, these services are relatively insensitive to trade fluctuations, and it is therefore hardly probable that their net balance would show any great divergencies during the different phases of the trade cycle.

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Table 55. Sweden's Balance of Payments 1922—1930.
Mill. *kronor*.

Year	1	2	3	4	5	6	7	8	9
	Net balance of current pay- ments	Net gold and silver bal- ance	Total ¹	Short- term capital move- ments ¹	Long-term capital movements ²			Total of short and long term capital move- ments ²	Items not ac- count- ed for
					Ex- ported secur- ities	Im- ported secur- ities	Other capital trans- fers, net balance		
1922	+118	+32	+150	+ 48	+ 40	-100	- 20	- 32	-118
1923	- 12	- 2	- 14	+156	+ 55	- 72	- 13	+126	-112
1924	- 4	+33	+ 29	+ 37	+100	- 67	- 15	+ 55	- 84
1925	+ 77	- 4	+ 73	- 89	+ 48	- 55	- 25	-121	+ 48
1926	+114	+ 1	+115	+ 28	+ 58	-102	+ 60	+ 44	-159
1927	+241	- 2	+239	-201	+161	-207	+155	- 92	-147
1928	+ 76	-13	+ 63	+ 55	+125	-190	-118	-128	+ 65
1929	+268	-15	+253	- 65	+168 ³	-207	+ 10 ³	- 94	-159
1930	+104	- 3	+101	+ 69	+198	-535 ³	- 5 ³	-273	+172

¹ + indicates inward, and - outward payments.

² + = capital imports; - = capital exports.

³ Different accounting system from that in 1922—1928.

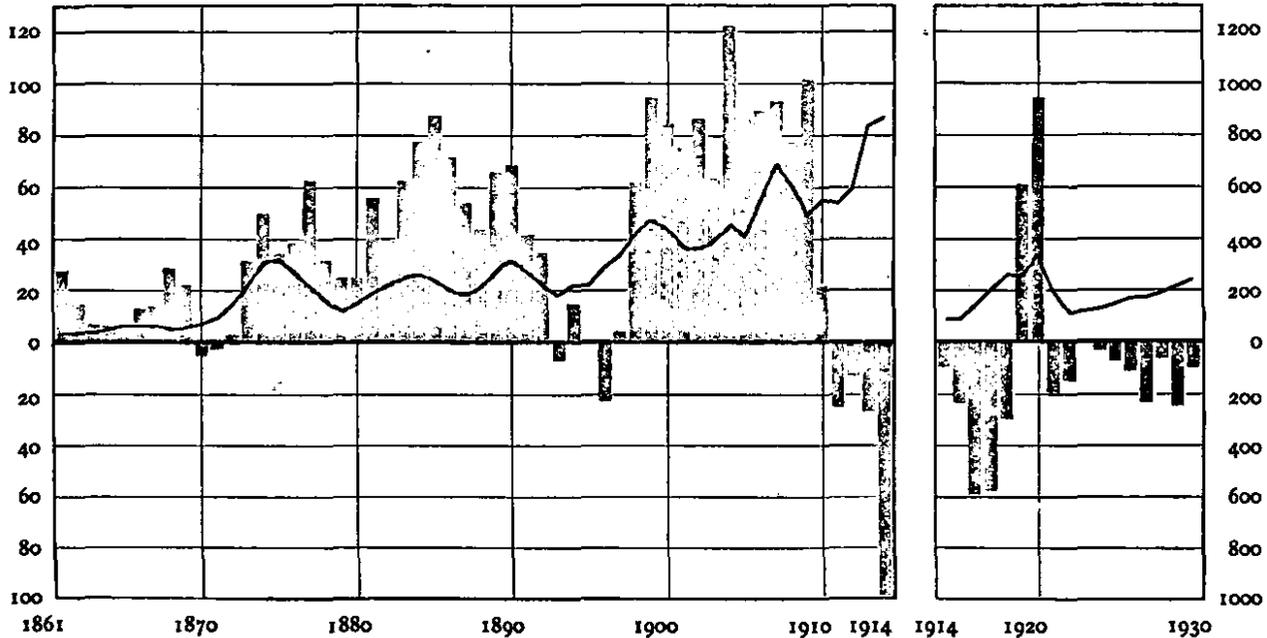
If the error, as given in Col. 9, had always pointed the same way, there would have been reason to consider it due to an error in the estimate of the export or import values. But in some years it is negative and in others positive. Moreover, if it were due to deficiencies in the trade statistics, the most likely explanation would be that export values were too low. But if the export values were raised, the error would, except in three years, have been still greater. It is therefore probable that the error is to be found in the statistics of capital transfers, which are known to be very deficient. For this period, too, Col. 3 has thus been used as a measure of capital imports and exports.

In the accompanying Chart 21 the movements of capital have been illustrated by columns the heights of which indicate the magnitude of the deficit or surplus in the balance of goods and services, increased or reduced, as the case may be, by net sales and net purchases of gold

Mill. kronor

Chart 21. Capital Imports and Exports 1861—1914 and 1914—1930.

Mill. kronor



Note. Columns above the zero-line indicate capital imports and those below the zero-line capital exports. The curve represents investments in machinery, etc. for the manufacturing industries.

and silver. Columns above the zero-line show the magnitude of capital imported, and those below the line the magnitude of capital exported. The curve used for illustrating the business cycles is based on the series in Table 53, Col. 4, of the investments in machinery and equipment for the manufacturing industries.

The very deficient data available for the period 1861—1910 with reference to foreign issues and changes in short term balances abroad are given in Table 54. They do not answer the question whether the bond issues have followed an accumulation of short-term foreign debts during a period of heavy deficits in foreign trade, or have been primary in relation to the trade movements. In a few instances, e. g. in 1905—1907, the figures indicate a heavy increase in foreign indebtedness on short account due to big deficits in foreign trade. It is moreover known from other sources that the Government loan in 1907 was issued in order to strengthen the position of the *Riksbank*. The Government loans of 1878 and 1899 were also motivated by an acute stringency in the foreign exchange market. On the other hand, the figures illustrate the well-known fact that big loans abroad often are followed by a reverse movement through an accumulation of foreign exchange reserves, which are later successively consumed for the importation of goods or securities, as for instance in 1878—1880, 1886—1888, 1899, and 1910. Moreover, the foreign exchange position is as a rule improved during the later phase of a depression and the first years of revival.

Interest rates. The movements in long-term interest rates in Sweden, England, and Germany 1861—1913 are seen from Table 56 and Chart 22.

England and Germany, together with France, have been the principal loan markets for the Swedish borrowers. It is always difficult to find series of comparable interest rates, especially for earlier periods, but as long as it is only a question of comparing changes in their relationship, and not the actual differences in levels, the problem becomes easier to solve. The rates of interest used are for

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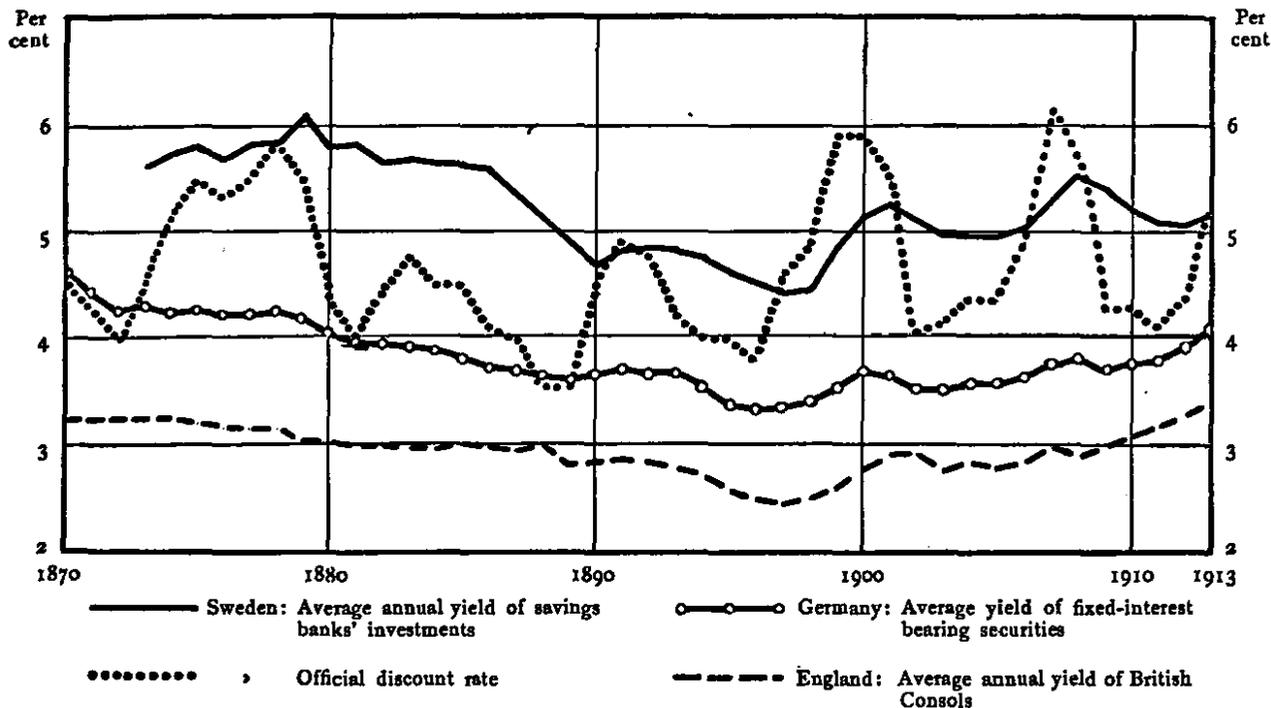
Table 56. Long-term Interest Rates in England, Germany, and Sweden 1861-1913, in per cent p. a.

Year	1	2	3	Year	1	2	3
	Yield of British Consols	Yield of German bonds	Average yield of savings banks' assets in Sweden		Yield of British Consols	Yield of German bonds	Average yield of savings banks' assets in Sweden
1861	3.28	.	.	1888	2.97	3.64	5.14
62	3.23	.	.	89	2.81	3.61	4.90
63	3.24	.	.	90	2.85	3.67	4.70
64	3.33	.	.				
65	3.35	.	.	1891	2.87	3.71	4.82
66	3.41	.	.	92	2.84	3.67	4.85
67	3.23	.	.	93	2.79	3.66	4.81
68	3.20	.	.	94	2.72	3.55	4.75
69	3.23	.	.	95	2.59	3.37	4.60
70	3.24	4.61	.	96	2.48	3.34	4.51
				97	2.45	3.36	4.41
1871	3.23	4.44	.	98	2.48	3.41	4.43
72	3.24	4.26	.	99	2.57	3.54	4.84
73	3.24	4.30	5.60	1900	2.76	3.68	5.14
74	3.24	4.24	5.72				
75	3.20	4.25	5.77	1901	2.92	3.65	5.25
76	3.16	4.22	5.68	02	2.91	3.52	5.09
77	3.15	4.23	5.82	03	2.75	3.53	4.94
78	3.15	4.25	5.83	04	2.83	3.57	4.94
79	3.08	4.18	6.18	05	2.78	3.57	4.94
80	3.05	4.05	5.80	06	2.83	3.63	5.03
				07	2.97	3.75	5.28
1881	3.00	3.97	5.81	08	2.90	3.80	5.51
82	2.99	3.95	5.65	09	2.98	3.70	5.37
83	2.97	3.93	5.68	10	3.08	3.76	5.17
84	2.97	3.88	5.65				
85	3.02	3.81	5.64	1911	3.15	3.79	5.07
86	2.98	3.73	5.60	12	3.28	2.91	5.04
87	2.95	3.70	5.36	13	3.39	4.09	5.13

England, the yield of British Consols, and for Germany the yield of fixed-interest bearing securities.¹

¹ WARREN, G. F., & PEARSON, F. A., Prices, p. 273; DONNER, O., Die Kursbildung am Aktienmarkt (Vierteljahrshefte zur Konjunkturforschung 1934, Sonderheft 36). The German rates of interest are, according to information received from the author, weighted averages of the interest yielded by German Government and Mortgage Bank Bonds.

Chart 22. Interest Rates in Sweden, England, and Germany 1870—1913.



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In Sweden no active bond market existed before the War, and it has therefore been impossible to obtain a series of bond prices that could be used for this purpose. Nor could the new loans issued by the Government or other big borrowers be used for computing the long-term rate of interest, since the loan conditions for these loans, which were wholly or partly placed abroad, were influenced more by external than by internal market conditions. The only series of interest rates available for the greater part of the period (from 1873),¹ is the average annual yield of all the investments of the savings banks. As the investments of the banks have changed during the period, the trend of the yield will be influenced not only by changes in the level of interest rates, but also by the gradual change from one type of investment to another. In this respect, the characteristic feature of the pre-war period was a steady increase in the proportion of loans against mortgages to other investments, a decline of bonds up to 1890, an increase during the following seven years and a subsequent decrease, and a decline in loans against personal guarantees.

Investments of the Savings Banks, classified according to securities, in per cent.²

	1876	1890	1897	1910
Bonds, etc.	17.0	11.6	17.7	13.8
Loans against mortgages	38.6	51.5	50.6	56.1
" " personal guarantees	33.4	24.6	18.8	16.4
Other investments (including cash)	11.0	12.3	12.9	13.7
Total	100.0	100.0	100.0	100.0

This change in the investment policy of the savings banks meant an improvement in the quality of the investments with regard to safety, and consequently a lowering of the average yield, irrespective of the general trend of the rate of interest. During the last decades before the War, from the turning-point in 1897, the influence of this

¹ KUYLENSTIERNA, C. W. U., *Inledningsanförande i räntefrågan* (Svensk sparbankstidsskrift 1934), p. 825.

² 1893—1910: *Sparbanker och liknande penninginrättningar* (Bidrag till Sveriges officiella statistik, Litt. Y). The data for the years 1860—1892 are published in *Statistisk tidskrift*.

factor seems to have been less marked than earlier. The conclusion might therefore be drawn that the fall in the yield from 1880 to 1897 was greater than the fall in the general interest rate, and that the curve in Chart 22 therefore exaggerates the downward movement.

Moreover, the fact that the yield is computed on the whole stock of securities, and not on new investments, must be observed when comparing this with other series. The consequence is that the curve is flattened out, and that probably there is a time lag in its relation to other series of interest rates. The importance of this factor depends on the policy of the banks in evaluating the securities in their balance sheet, on the currency of the loans, and on the practice of changing the loan rate or not during the life-time of the loans. A comparison between the yield of the savings banks' investments and the official discount rate¹ shows a time lag of about one year. For a short period, from 1873 to 1887, the savings banks' rate of interest can be compared with the rate of interest on two internal loans, issued by *Sveriges Allmänna Hypoteksbank*. This comparison proves that, with the above reservations, the first-mentioned rate is a rather good indicator of the general movements in long-term rates.

Capital movements and trade cycles 1861—1913. From 1861 to 1870 Sweden's capital requirements were, as pointed out above, relatively small, but with the exploitation of the forests, and the railway building, the demands on the capital market were growing. The home market was apparently not sufficient, and capital was imported from abroad. The fluctuations in the trade balance were mainly due to variations in the imports, which dropped from 1861 to 1863, and then rapidly rose in the next four years in connection with the improvement in the economic conditions in Sweden in the middle of the decade. The bad harvests

¹ In the earlier part of the period the discount rate of the *Riksbank* was not as effective with regard to the loan rates of the commercial banks and other market rates as later. It was not until the 'nineties that the modern type of banking organization, with the *Riksbank* as the central bank, began to take more definite shape.

in 1866—1868 caused a fresh increase of the imports and a stagnation of the exports. The statistical material for this period is too deficient, however, to allow an analysis.

The turn in the trade cycle, both in respect of investments and industrial production, arrived already in 1869, but the bad harvest affected the imports and exports of that year; in the foreign trade the turn was therefore not noticed until the following year. Investments, like the value added, reached their peak in 1875, while exports and imports culminated a year earlier. Up to the end of 1873, the growth in value was partly due to higher prices, but the increase in the following year, when prices fell, must be wholly ascribed to a quantitative increase. During the first years of the period, 1870—1872, the trade balance showed a small surplus, partly balanced by a purchase of gold in connection with the adoption of the gold standard. The figures are too small, however, to admit of any definite conclusion regarding the capital movements. The cessation of Swedish bond issues abroad, the reduction of the official discount rate, which reached a minimum in 1872, and the improvement in the currency situation of the banks, however, indicate that there was a certain export of capital on short account.

The expansion seems to have started as a result of the increase in the foreign demand for agricultural produce, wood goods, and iron and steel, due to the outbreak of War, but already at this stage the extensive railway-building operations, planned and begun towards the end of the previous decade, seem to have had some influence on the internal business situation.

In the first instance the increased income from abroad created an easy money market and stimulated investments. This internal expansion caused an increased demand for imported goods. At the same time exports began to fall off by reason of the changing outlook in Germany and Great Britain, and already in 1873 there was a growing surplus of imports.

The internal expansion continued through 1877, in spite of the depression in other European countries. The agri-

cultural situation was favourable, and wages rose up to the end of that year. Employment and wages in industry developed similarly. The investment curve certainly indicates a retrogression in industrial investments after 1875, but the depression seems to have been confined to the iron and steel industry. This industry was strongly affected by the international crisis, as it had been put in a structurally unfavourable position by the simultaneous technical changes in foreign countries. The timber industry, on the other hand, which at this time was passing through a period of structural expansion, was but slightly affected. In the last years before the crisis in 1878 the boom was chiefly kept up by the building of railways, which continued undiminished. Owing to the long time required for their completion, the constructions planned and begun had to be completed, even though some of the circumstances conditioning them had changed.

The growing margin between the interest rate in Sweden, and in England and Germany increased the issues of foreign loans. The industrial expansion, and the great opportunities offered at this time for exploiting the natural resources of the country, mainly the forests, created favourable openings for investments. Foreign capital was therefore imported for the purchase of real estate and for starting new industries. The influx of capital eased the situation and made the internal expansion possible. Meanwhile, this expansion, in conjunction with the stagnation of the exports caused by the depression abroad, produced a growing import surplus, a lack of foreign currency, an increased demand for capital at home, and a continuous increase in the *Riksbank* discount rate.¹ The tension between the trade development at home and abroad could, therefore, only be eliminated for a short time. It was too

¹ In this respect the official discount rate was an indicator of the situation in the money market. The other banks met the demand for foreign currency, not only by borrowing abroad, but also by collecting *Riksbank* notes, which were paid into the *Riksbank* for the purchase of foreign currency, private bank notes taking the place of the *Riksbank* notes in the circulation. The responsibility of covering the deficit in the balance of payments was thus transferred to the *Riksbank*, which defended its reserves by raising the discount rate.

great for a crisis to be avoided. This arrived in 1878, in the form of a financial crisis that created extreme demands on the *Riksbank*. The depressive factors, e. g. the strong fall in prices, began to make themselves felt.

The upward cyclical movement from 1880 to 1885 was partly conditioned by an increase of exports in 1880, following an improvement in foreign markets, and partly by an investment boom at home in residential building and, to a less extent, in industry. The period of active residential building continued until 1885. This apparently maintained the boom longer in Sweden than in other countries, where the turning point was reached already in 1883. The strong increase of imports right up to 1885, with simultaneously diminishing exports, is typical of this difference in the trade situation at home and abroad. The agricultural depression also played a considerable part, owing to the resulting reduction in the exports and increase in the imports of corn.

The whole period from 1879 to 1890 was characterized by a considerable deficit in the trade balance and an appreciable import of capital, which varied with the cyclical fluctuations. The rate of interest in Sweden, which right up to the end of the 'seventies seems to have remained at the high level attained during the boom from 1870 to 1875, began to drop about 1880. It fell so much after the turn in trade conditions in 1885 that the margin between the rates at home and in the western European countries diminished appreciably. The continuous considerable capital imports, and an increasing capacity to save, apparently caused a relative satiety towards the end of this period. This is reflected in contemporaneous discussions, in which complaints were made of the growing difficulty of finding remunerative investments.

In the quinquennial period 1874—1878 the foreign national debt had increased by 100 mill. *kronor*. In the next few years the State made relatively small demands on the loan market, the loans issued in this period being mainly for conversion purposes. From 1879 to 1890 the foreign debt was thus only increased by 41 mill. *kronor*.

The considerable capital imports seem to have been directly devoted to private enterprises, more especially to industry and constructional activities, and possibly also to the towns. The urban mortgage institutes were thus large borrowers. From 1885 to 1889 the new *Stockholms Intecknings Garanti Aktiebolag* raised four 30 mill. *kronor* loans, of which the three first were wholly placed abroad. From 1880 to 1887 the City of Stockholm borrowed 75 mill. *kronor*, but of these some might have been for conversions. That agriculture needed less capital is evident from the fact that from the end of the 'eighties the General Mortgage Bank of Sweden (*Sveriges Allmänna Hypoteksbank*) did not borrow any money for a period of twenty years.

The next decade is of special interest to the capital movements, as Sweden was in that period for some years an exporter of capital. These exports largely consisted in repurchases of Swedish bonds from abroad, and in the increased foreign balances of the banks. The early 'nineties were characterized by a serious depression in most countries. In Sweden, too, the years 1891 to 1893 inclusive must be regarded as years of depression, but the depression in Sweden was not very deep as seen from the fact that in spite of the price fall in these years, the net value of industrial production steadily increased. There was no cyclical downward trend of the wages either, and industrial employment increased. Exports, which diminished slightly in 1892, were in the following year 27 mill. *kronor* higher than in the boom year 1890.

This process was obviously connected with the continuous structural changes in the Swedish industries. The iron and steel exports diminished considerably, as they had done during the crisis following the Franco-German war. The exports of several other industrial commodities increased, on the other hand, which indicates a greater differentiation of industrial manufacturing than before. Such was, for instance, the case with cement, glass and stone — the exports of which had previously been insignificant —, wood goods, pulp, and butter. The very strong increase in the value of exported butter, indicated by the table

below, illustrates the change of Swedish agriculture from vegetable to animal production. The exploitation of the Norrland mine fields began to appear in the iron ore export figures of this period.

Comparison, by different industrial classes, of the 1890 and 1893 exports.

Increase (+) or decrease (—) in mill. kronor.

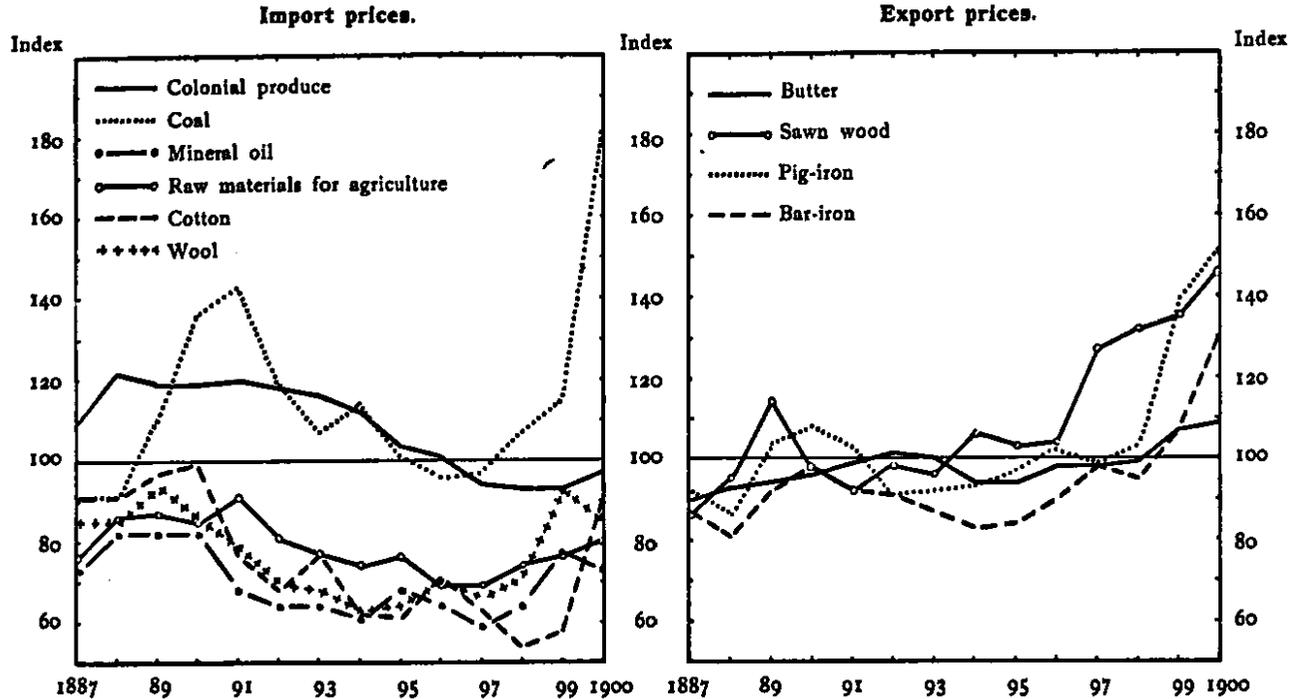
Mining and metal industries	— 6.1	(iron bars — 6.0; ships — 1.4; iron ore + 3.0)
Stone, clay, and glass industries	+ 5.1	(cement + 1.0; glass + 2.1; stone + 1.2)
Wood products industries	+ 6.0	
Paper and printing industries	+ 3.7	
Food products industries	+ 11.5	(butter + 12.3)
Textile and clothing industries	+ 0.8	
Leather, hair, and rubber industries	+ 0.4	
Chemical industries	— 2.2	
Total	+ 19.2	

While exports were thus growing, imports diminished strongly from 1890 to 1893. This was partly due to a heavy drop in the prices of imported commodities and freights. The 'nineties were characterized by a change in the terms of trade which was favourable to Sweden. Import prices thus continued to fall up to 1896—1897 (see Chart 23), while export prices were very stable in the first couple of years, and began to rise as early as about 1893. This improvement was of importance not only to Sweden's balance of payments, but also to the trade situation in the country, which showed a distinct turn for the better already in 1893 in spite of the continued depression in the international market. The 1895 setback in international trade conditions therefore left but slight traces in Swedish business life.

The change from free trade to protection introduced in the Swedish tariff policy in 1888 was of most importance to agriculture, and was made in a period of industrial advance. It is therefore difficult to say what effect it had on the import and manufacture of industrial products. The duties imposed in June 1892 on a number of industrial products such as textiles, china, glass-ware, iron manufactures, and engineering products, resulted, on the other

Chart 23. Import and Export Prices 1887—1900.

Index: 1881—1885 = 100.



hand, in distinctly reduced imports and increased home production,¹ and may therefore have contributed to the improvement in 1893 of business in Sweden. If so, this is a typical instance of the short-term effects of raising the tariffs during a depression.

The development outlined above of Sweden's trade with other countries caused a rapid improvement in the foreign exchange situation. The balance of current payments became positive already in 1893. The following year imports rose (owing to the bad harvest in 1893), which led to a negative balance, but in 1895—1897 this again became positive. The fact that the rate of interest fell in Sweden also indicates that the situation in the money market became easier after 1893, with greater difficulties to find investments for capital except at low interest rates. A contributory factor was the reduced demand for capital due to the decrease in residential building. At this time there was also a considerable increase in the amount of capital offered by the insurance companies, savings banks, and funds of various kinds, which now began to be of importance to the home capital market. PALME² estimated that in 1897 the funds, largely created in the immediately preceding ten years, of the investing institutions amounted to about 900 mill. *kronor*. The difficulty to find objects for investment led to relatively more money than before being placed in bonds than on mortgage, and especially in bonds that were not gilt-edged. Shares began also to be in greater demand among the investors. Under such conditions Swedish bonds that had been sold abroad were repurchased, even at prices which yielded but little profit.

As early as in 1890 a rise in the rate of interest abroad, and the consequent fall in the prices of Swedish bonds sold in foreign markets, had caused an import of securities. In the prevailing exchange situation, the demands on the *Riksbank* became so large that the discount rate had to be

¹ The production of industrial durable goods, some of which belonged to the protected engineering products, reached its minimum as early as 1892, while the investments did not do so until 1893.

² PALME, S., *Penningeplaceringar* (*Nationalekonomiska föreningens förhandlingar 1897*).

raised. This stopped the import of securities, but when the exchange situation changed in 1893 and later, it received new impetus. By the middle of the 'nineties the rate of interest in Sweden had fallen so much that borrowers considered it at least as cheap to borrow at home as abroad, frequently even cheaper. Data on the extent of the imports are available in respect of certain securities and for certain years. The national foreign debt was thus reduced by purchases and amortization by 22 mill. *kronor* in 1895—1897. FAHLBECK estimates that from 1885 to 1898 the total bond debt to other countries was reduced by 140 mill. *kronor*. The import of securities in 1897 alone was calculated at about 25 mill. *kronor*. Gold for 14 mill. *kronor* was, in addition, purchased in 1895—1898 in connection with the re-organization of the *Riksbank* to be the sole note-issuing bank.

In 1897, the purchases of securities put a great strain on the market, and as the trade balance was reversed at the same time the foreign exchange reserve consequently suffered. This led to the discount rate being raised, and to an increased firmness of the capital market. That year is therefore the year of transition to the final period of large capital imports, 1898—1910. The strong industrial expansion, the electrification, the larger credit requirements of agriculture for mechanization, and the growth of residential building, caused a strong increase of the capital requirements in the country, with which the capital available at home could not cope. This is also indicated by the trend of interest rates, which for the next ten years rose much higher in Sweden than in the foreign capital markets. The great expansion at home resulted in a growing import surplus, which was paid for partly by the money received from numerous bond issues abroad, and partly by an increase of the short-term debts of the banks, private companies, and Local Authorities. Warnings were heard in contemporary discussions against this excessive short-term borrowing, which led to great difficulties for the *Riksbank* in the 1907 crisis, when the National Debt Office

was compelled to borrow money abroad in order to provide the Bank with the necessary currencies.

A new reversal from capital imports to capital exports came in 1910—1911. The suddenness of this change was partly due to the general strike in 1909, which cut down exports and led to a considerable import surplus in that year. But for this extensive stoppage of work, the reduction of the capital imports from the peak in 1907 to 1910/11 would probably have been more gradual than was now the case. This only explains the temporary increase of capital imports recorded during the business depression, however, and is of subordinate interest to the circumstance that Sweden's relations with foreign countries changed radically at this time.

A more important consequence of the general strike was that it delayed the recovery in Sweden. This is for instance indicated by the fact that whereas the rate of interest began to rise in Germany and England as early as 1908—1909, that change did not reach Sweden until in 1911. The favourable effects on the exports of the increased foreign demand for Swedish goods were, however, noticeable already in the year after the general strike. The relative value of the foreign trade improved, as the prices of the export goods rose at a more rapid rate than those of the import goods. The demand of the armament industries was no doubt a dominant factor of this trend, as the increase of the iron and steel exports dominated in the development of the exports. The exports of goods of Class 1 (mines, metal industries, etc.) rose by 100 % from 1909 to 1913, inclusive, or by 100 mill. *kronor* out of a total increase of 325 mill. *kronor*. Increased export values also characterize practically all the commodity groups. Even the timber exports, which since the end of the 'nineties had kept at a level of about 130 mill. *kronor*, rose slightly.

In spite of the reduced margin between the interest rates in Sweden and in the capital-exporting countries, borrowing abroad continued. A large mortgage-bank loan was thus issued in 1910, and two important loan transactions were

undertaken in 1911 and 1913 by the Swedish Government. Other loans were of course also obtained abroad in this period. On the other hand, no repurchases of Swedish bonds seem to have been made, at least not on any large scale. Such repurchases did not become of sufficient importance to affect the capital market until after the outbreak of War in 1914.

Long-term capital transfers of this nature were therefore, apart from the regular amortizations, mainly uni-directional, from abroad to Sweden. As the balance of current payments had been positive since 1911, they did not, however, result in any corresponding import of real capital. The equalizing factor must therefore be sought elsewhere. Other long-term capital exports than bond purchases may possibly have taken place. The Swedish export industries began at this time to extend their activities abroad by the formation of subsidiary companies, which necessitated investment of Swedish money. Most likely, however, this played but a small part in the absorption of the foreign currency surplus, jointly created by the export surplus and the borrowing. Most of the surplus was probably used for reducing the short-term debts and increasing the foreign exchange reserves. In the four years from 1910 to 1913, about 155 mill. *kronor* were used by the commercial banks and the *Riksbank* for such purposes. In addition, gold and silver for 35 mill. *kronor* was also purchased abroad. The large municipal and private short-term loans were probably also paid off, or at least considerably reduced, in this period.

Even though business conditions improved more slowly in Sweden than elsewhere in 1909, the same can hardly be said of the years immediately before 1913. It is therefore interesting to note that, in spite of a very strong internal expansion involving brisk building and constructional activities as well as extensive investments in durable goods, Sweden was able to export capital. This period of capital exports thus differed from the previous ones in that it appeared during the boom and not, as in the nineteenth century, during the first stage of the upward movement. This indicates that the forty years of industrialization end-

ing in 1910 had raised the productive capacity of the Swedish industries, and consequently also the national income and the savings, to a point where further expansion was possible without the addition of foreign capital. It is of course difficult to draw any definite conclusions, as nobody knows what the position would have been but for the war-time changes in the foreign trade. The assumption seems motivated, however, that at the outbreak of War, Sweden had attained a position in respect of her capital supply which in the long run would have changed her from a capital-importing to a capital-exporting country.

This analysis of pre-war capital movements and formation of capital indicates that the variations in the capital imports were largely conditioned by the relation of the internal to the international trade situation. This indicates that any theoretical analysis of causality in this sphere must proceed from certain assumptions with regard to the trade situation. The connection demonstrated in this particular case between capital movements and cyclical changes may, however, be explained by certain characteristic features in the economic structure of Sweden.

Capital imports usually reach their maxima during a boom, and their minima when the depression is at its lowest or at the beginning of an upward movement. This is apparently due to the fact that an export expansion, following an improvement in the terms of trade, usually gives the first impulse to the upward cyclical movement. It is to be noted that an expansion of the Swedish export industries has a very slight direct effect on imports, since the main part of the raw materials are obtainable in the home market. The first stage of the upward cyclical movement will therefore produce a reduction of the deficit in the trade balance, or even a surplus, and an export of capital. It is only when that movement has led to increasing investments in the export industries, or to an expansion of the home industries, and consequently to higher incomes, that imports will show a more substantial rise, due to increased purchases of industrial raw materials, machinery, etc., and consumers' goods from abroad. Owing to the

growing import surplus the foreign exchange and the money market become firmer, which gives rise to an import of capital. The causes conditioning the long-term capital movements do not as a rule change as rapidly as indicated by the experiences in 1897 and 1911; short-term credit transactions may at first serve as an equalizing factor.

At the turn of a business cycle, the change in the terms of trade and in the trade balance may be considered the primary factor that creates the necessary conditions for a change in the transfer of capital. When a capital movement has once started in this way, new capital movements may, of course, appear, that may be regarded as primary in relation to the commodity trade. The industrial expansion in Sweden, which required considerable capital, thus affected directly the relative rates of interest at home and abroad, with the consequence that the Government and the industries could borrow money more cheaply in foreign markets than at home. The expansion also created favourable opportunities for the direct investment of foreign capital in Swedish industries. Taking the longer view, however, the problem of causal connections will lose interest. Loan transactions and changes in the trade balance appear as simultaneous factors of reciprocal effect.

The fact that no difficulties of adjustment can be observed is in favour of the assumption that the foreign trade plays an active part in the changes in capital movements during an upward cyclical movement. Lack of equilibrium is generally only indicated towards the end of a boom, i. e. towards the end of a period of continuous borrowing. The material available does not permit an analysis that can explain the causes of this lack of equilibrium. It may be due to a continued borrowing meeting with difficulties, which might be temporarily obviated by short-term credit transactions, but eventually demand a change in the terms of trade. But it may also be caused by the demand for imported goods growing so much in comparison with the foreign demand for export goods that the need of foreign exchanges must be covered by short-term loans. It is necessary to bear in mind that only a limited number of

borrowers are in a position to apply to the foreign bond markets, and that their need of loans does not necessarily rise at the same rate as the imports. The short-term borrowings would in either case lead to a situation in the money market necessitating restrictive measures in order to establish equilibrium.

Occasional harvest fluctuations, with consequent variations of the exports and imports of agricultural produce, may obviously affect the trade balance. The variations in the capital movements shown in Chart 21 may therefore be due to them and not to any cyclical changes in industry. An approximate idea of the extent to which the harvest results have affected the figures will be obtained by computing a trade balance in which the exports and imports of corn and flour are not included. This new series would show, however, a still better agreement with the cyclical curve. Such a comparison can, of course, only illustrate certain temporary phenomena, as harvest results and industrial cycles cannot be regarded as independent of one another, nor can the fluctuations of imports and exports of agricultural produce solely be due to the harvest results being favourable or unfavourable.

If the absolute figures alone are considered, the trend of capital imports was rising up to 1910. By correlating the capital imports with the total investments in the country — no exact ratio can be computed from the deficient material available, but the comparison must be based on the trend indicated by the two series of figures — the conclusion is justified that the proportion of the capital imports has been diminishing since the eighteen-eighties. These imports are themselves a condition precedent of their cessation, as they have made possible a rapid industrial expansion resulting in an increase, on the one hand of the national income and the capacity to save, and on the other of the exports, and with them also of the imports, without any consequent increase in the need of borrowing abroad.

Note. A discussion of the rôle played by the exploitation, characteristic of this period, of certain natural resources of Sweden, viz. her forests and the Norrland mining fields, may be worth while. The point which is of particular interest here is not the larger incomes from wages and

interest created by the exploitation, but the circumstance that the very fact that they were exploited gave to the forests and mine fields a capital value which could be set free by exporting the products.

As far as the forests are concerned, and looking only at the quantitative side of the problem, it is the cutting in excess of the net re-growth, which determines the withdrawal of capital from the forests. According to certain estimates placed at the disposal of the Institute,¹ the quantities representing capital withdrawn from the North of Sweden forests from 1860 to 1930 amounted to about 30 % of the total cut of the period. The withdrawals are said to have been the largest in the 'seventies and 'eighties, diminishing gradually from that time to 1910, and very rapidly in the following twenty years. Such excess cutting was made possible by the occurrence of large virgin forest stands. As to the mine fields, all the ore taken out represents withdrawal of capital.

It is possible to speak here of a release of capital only because their exploitation gave to the forests and ore deposits a capital value which did not come under the heading of capital investments. The exports of timber and ore must therefore be said to provide a certain income for the owners of the natural resources, which could not be regarded as derived from labour or as interest, but as a release of tied capital.² The value of the released capital is thus contingent both on the quantities withdrawn and on the price of the standing timber in the forest, or of the ore in the mine. The price factor is of dominant importance in this respect. In view of the fact that the price of standing timber was extremely low during the first stage of the exploitation, i. e. at the beginning of the period under discussion, but afterwards rose steadily up to the War, it may be concluded that the capital released from the forests can hardly have been of any appreciable magnitude until in the eighteen-seventies at the earliest. The ore only became of importance to the exports towards the end of the 'nineties. It is obviously impossible to draw any definite conclusions regarding the significance of these factors without a thorough investigation of the amounts invested and the ratios of timber and ore prices to production costs. The point here is only to raise, and not to answer, the question in what way the exploitation of Sweden's natural resources has contributed to its rapid industrial expansion, and was able to make Sweden less dependent on foreign money markets than would otherwise have been the case.

Capital movements and trade cycles 1914—1930. The compulsory limitation of imports during the War, while the exports could continue more unrestrictedly, resulted in a strongly active trade balance in the years from 1914 to 1917. The freight incomes also jumped to a very high level. The result was a considerable surplus in the balance of current payments from 1914 to 1918, which was partly placed at short notice abroad, but also

¹ These estimates were made by TH. STREYFFERT, Lecturer at the School of Forestry (*Skogshögskolan*).

² The term "released" capital is here taken in a more comprehensive sense than the usual, which denotes an increase of income due to an omission to make requisite re-investments. In so far as the excess has been obtained by stripping the forest completely, and not by thinning virgin stands, a release of capital in this restricted sense may be spoken of.

largely used for the repatriation of Swedish bonds. Such purchases were very advantageous to the Swedish investors, at least periodically. The prices of Swedish bonds in Marks, Francs, or Sterling did not rise in proportion to the fall in exchange rates, partly because of a relatively greater rise in real interest rates in the belligerent countries than in Sweden. It is worth noting that the National Debt Office (*Riksgäldskontoret*) which was responsible for the greater part of the foreign debt, made all payments of interest and amortizations in Swedish currency.

It is estimated that about 600 mill. *kronor*'s worth of Swedish securities were bought from 1914 to 1921. The fact that these repurchases also continued in 1919 and 1920, when the trade balance was strongly negative, indicates that the short-term credits were sufficiently large to leave a margin over and above the cost of the goods purchased. In these two years the imports were exceedingly large — the total deficit in the trade balance was about 2 000 mill. *kronor* — partly because of deferred import requirements, and partly because of an increase in the demand for imported goods, due to booming trade conditions. The Government loan issued in 1919 in the United States naturally also contributed to cover the currency requirements.

These repurchases, and the extensive Government loans during the War, which were raised exclusively at home, increased the material in the home bond market, and created the conditions necessary for an active market. The extent of this change is indicated by the fact that while no less than 92 % of the National debt was held abroad in 1913, the corresponding figure in 1922 was estimated at 21 %, and in 1930 at 16 %. The total funded foreign debt, computed by FLODSTRÖM at 957 mill. *kronor* in 1908, was in 1921 estimated by *Skandinaviska Kreditaktiebolaget* at 610 mill. *kronor*, which figure probably is too high (see Appendix L). This reduction in foreign debts meant a decrease in the interest payable to other countries, which affected the trade balance in the nineteen-twenties. It is

estimated that already in 1923 interest received exceeded interest paid.

The trend during the nineteen-twenties will only be briefly dealt with. That decade was characterized by a favourable development of Swedish exports, and by a reduction of the import surplus in relation to the total turnover. In certain years there was even an export surplus. The freight income, rising at the same rate as the exports, was a very important item in the balance of payments, and so was the interest income in the later years of the decade. Except in 1923 and 1924, when there were small deficits, the balance of current payments has been positive, and a considerable surplus has been available for investment abroad. In 1923 and 1928 extensive labour conflicts in the export industries affected the trade balance. The decade was further characterized by extensive capital movements both to and from Sweden. Side by side with large purchases of securities from abroad, there was a considerable export of securities. The character of the capital exports — formerly mainly representing repurchases of Swedish securities and to a less extent investments abroad of Swedish capital — changed. Large amounts were invested in foreign securities, particularly in bonds on account of the higher interest yield obtainable in certain other countries, especially in Germany. Swedish assets in Germany, mainly acquired between 1924 and 1931, were inventoried at the end of 1933, and estimated at 870 mill. *kronor* (at the old parity). At the same date the total value of foreign bonds held in Sweden was estimated at 1,412 mill. *kronor* (nominal value at current rates of exchange).

The capital exports reached their maximum in 1929. The big reduction of the surplus in the balance of current payments in 1930 was partly due to a strongly increased import surplus, and partly to a reduction in the freight income. The business outlook was fairly good in Sweden in that year in comparison to most other countries. Imports therefore kept at a higher level than exports, which were affected by the reduced foreign demand. There was also an influx of short-term capital, partly due to the uncertain

economic and political conditions in certain countries, and partly to a heavier fall in the rate of interest in England than in Sweden. The consequences of this influx of capital, which may in this case be regarded as a primary factor, did not really become apparent until in 1931, and will therefore not be discussed here. Otherwise, in the nineteen-twenties the change in the balance of current payments may be regarded as the primary factor that created the conditions essential to capital exports.

CONSUMPTION.

The total value of consumption from 1861 to 1930, allotted to the industries from which the consumed products and services were derived, is given in Table 57. The results in respect of the three groups Agriculture and Forestry, Manufacturing, Mining, and Handicrafts, and Transport and Communications, are the most satisfactory statistically, although the allotment of the gross values to consumption and other modes of utilization may sometimes be faulty. The other series are based on more or less approximate estimates. From 1926 to 1930 the three first groups represented about 50 % of the total value. As to the comparability of the figures between different periods the Reader is referred to the discussion in Paragraph 3 on p. 239.

As in the case of the total national income, the value of consumption has been calculated both exclusive and inclusive of unpaid domestic work. The two series are on the whole parallel, with but slight occasional divergencies. Only the first series, i. e. consumption exclusive of unpaid work, has therefore been used in the following, and it must suffice to call attention to the discussion in Paragraph 2 of this chapter as to the error made in excluding the unpaid work.

9. *Comparison between the Calculations of the Institute and those of the Social Board.*

The reliability of the final result — as far as its order of magnitude is concerned — can to some extent be judged

by a comparison between the figures computed here and the inquiries of the Social Board into the cost of living. The household budgets of workmen's families in towns and municipalities were investigated in 1913/14, 1922/23, and 1932/33.¹ The data obtained in the last of these inquiries have been recalculated on the 1930 prices (with the aid of the cost-of-living index of the Social Board) to give the value of the consumption in 1930. The revised figures do not agree exactly with the actual value of consumption in that year, as the changes in income for the households included may have been different to those in the cost of living, but the difference is probably not very great. The table below shows the result of such a comparison.

Consumption in kronor per consumption unit.

	According to the Social Board. ²			According to the Institute.		
	1913/14	1922/23	1930	1913/14	1922/23	1930
Total	554	1206	1282	687	1325	1419
Exclusive of costs of equipment	532	1153	1226	603	1144	1225

The following circumstances should be considered when making this comparison. The above budget inquiries of the Social Board refer to the households of working and lower middle classes in towns. The households accounted for probably belong to a group in which the standard of income is relatively high. Among the industrial workers, and above all among the agricultural and forest workers or small farmers, there are other social groups whose standard of income is lower. On the other hand, there are of course groups with larger incomes both in the working and in the middle classes and, moreover, the selection of families rendering returns is not representative with regard to the ways of living.

¹ *Statistisk årsbok för Sverige 1935*. Table 170. — *Levnadskostnaderna i Sverige 1913—1914*. — *Levnadskostnaderna i städer och industrier omkring år 1923*. (Sveriges officiella statistik.)

² The figures of the Social Board contain some savings in the form of insurance premiums, but these will hardly be considerable.

Table 57. Consumption

Year	1	2	3	4	5	6	7	8		9	10
	Agriculture and forestry	Industry and handi-crafts	Transport and communications	Commerce, etc., and professional services	Public administration	Paid domestic work	Services of dwellings and other durable consumers' goods		Total (Cols. 1-8)	Total incl. of unpaid domestic work	
1861	194	203	2	100	20	30	101	23	673	813	
62	193	201	2	101	21	30	108	25	681	826	
63	192	210	3	102	22	30	107	24	690	835	
64	184	198	4	97	23	30	108	24	668	818	
65	181	202	4	97	22	30	117	25	678	828	
66	183	198	5	97	23	30	109	27	672	822	
67	210	215	5	108	24	30	104	30	726	876	
68	204	221	5	108	25	30	102	33	728	883	
69	180	236	6	115	25	30	104	32	728	883	
70	212	240	6	125	26	30	106	32	777	937	
1871	225	261	6	130	26	30	110	35	823	988	
72	249	295	7	152	27	35	116	38	919	1114	
73	281	330	9	173	30	35	139	44	1041	1256	
74	296	401	11	195	30	35	129	49	1146	1366	
75	274	368	13	180	34	35	141	53	1098	1328	
76	314	376	14	196	39	40	154	57	1190	1435	
77	299	401	15	200	41	40	141	60	1197	1437	
78	297	330	14	175	42	35	134	59	1086	1306	
79	287	320	13	170	41	35	130	57	1053	1278	
80	288	355	15	186	41	35	130	61	1111	1346	
1881	290	396	16	196	43	35	133	67	1176	1411	
82	288	379	17	192	44	35	135	67	1157	1397	
83	303	401	18	208	44	35	141	70	1220	1460	
84	293	387	19	203	45	35	143	71	1196	1441	
85	278	404	20	204	46	35	143	71	1201	1431	
86	249	367	19	189	47	30	143	71	1115	1345	
87	236	356	20	184	47	30	139	71	1083	1313	
88	246	368	20	190	48	30	145	77	1124	1359	
89	272	408	22	215	48	35	147	85	1232	1482	
90	265	431	23	224	50	35	152	91	1271	1526	
1891	308	444	24	235	52	35	150	101	1349	1614	
92	288	465	25	236	52	35	149	104	1354	1624	
93	286	438	25	232	55	35	147	104	1322	1592	
94	278	453	27	238	56	35	141	102	1330	1605	
95	294	444	29	244	56	35	162	107	1371	1651	

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1861—1930. Mill. kronor.

Year	1	2	3	4	5	6	7	8	9	10
	Agriculture and forestry	Industry and handicrafts	Transport and communications	Commerce, etc., and professional services	Public administration	Paid domestic work	Services of			
							dwellings	other durable consumers' goods		
1896	293	470	31	251	57	35	168	110	1415	1705
97	296	519	35	268	61	35	174	119	1507	1802
98	326	585	37	302	63	35	183	133	1664	1989
99	369	636	41	335	65	40	195	150	1831	2176
1900	369	649	45	333	75	40	191	162	1864	2224
1901	369	655	46	328	77	40	181	174	1870	2225
02	367	665	47	330	79	40	189	186	1903	2273
03	387	693	52	347	83	40	213	199	2014	2399
04	400	720	58	364	87	40	208	206	2083	2473
05	373	736	62	372	91	40	225	222	2121	2516
06	413	833	67	414	93	45	233	238	2336	2756
07	498	867	75	459	102	50	258	265	2574	3034
08	527	849	77	460	111	50	248	285	2607	3082
09	552	867	76	482	117	50	256	293	2693	3183
10	536	915	83	496	119	55	266	302	2772	3277
1911	514	911	88	496	122	55	261	324	2771	3291
12	561	960	94	529	128	55	285	362	2974	3529
13	616	1038	100	586	133	70	293	381	3217	3912
14	572	1005	105	566	139	75	302	402	3166	3896
15	701	1199	116	642	161	80	312	476	3687	4492
16	797	1515	139	810	201	100	337	549	4448	5428
17	1072	1637	161	926	216	125	360	708	5205	6445
18	1824	1832	232	1212	384	175	406	1009	7074	8814
19	2057	2973	298	1811	407	205	470	1201	9422	11482
20	1775	3739	352	2174	478	235	531	1257	10541	12906
1921	1304	2443	321	1467	478	185	562	1146	7906	9791
22	982	2143	277	1272	410	150	571	939	6744	8329
23	942	2122	282	1233	367	145	575	883	6349	8034
24	985	2180	284	1275	365	145	626	908	6768	8323
25	1021	2112	300	1277	370	140	660	952	6832	8367
26	945	2222	321	1310	370	140	682	936	6926	8466
27	882	2287	337	1318	371	140	713	963	7011	8561
28	897	2317	348	1354	380	140	731	1001	7168	8733
29	897	2461	371	1426	389	140	752	1022	7458	9043
30	843	2434	386	1452	397	140	781	1020	7453	9033

In considering the representativity of the figures quoted, it is also necessary to take into account the composition of the households, as the annual income per consumption unit largely depends on the size of the family, and changes in inverse proportion to this. The household statistics available in the Population Census are hardly suitable for that purpose, and a few indications must therefore suffice.

In the 1922/23 inquiry, no less than 44.1 % of the families included had 2 or 3 children, and in the 1913/14 inquiry 46.1 % of the total number of families consisted of 4—5 members. Moreover, the inquiry did not include budgets of single persons. The composition of the households included in these inquiries is therefore hardly representative of the social group to which they belong, and still less of the population as a whole. All these circumstances make it very difficult to decide whether the consumption values of the budget inquiries are above or below the average for the whole country.

The figures of the table indicate that the average consumption value per consumption unit of the whole population, calculated by the Institute, is appreciably higher than the average value computed by the Social Board for working-class households. In 1913/14 the former value was 24 % higher than the latter, in 1922/23 10 %, and in 1930 11 %. In this connection it should be pointed out that in the national income inquiry food stuffs produced by the agricultural population (and possibly by others) for their own use, and sundry benefits in kind, such as free housing and the like, are evaluated at full market prices, which hardly is the case in budget inquiries. The two methods would therefore probably always give divergent results, even though exact calculations and complete representativity could be achieved.

Now, the estimated value of the services yielded by consumers' durable goods (exclusive of dwellings) is probably too high. If the value of such services is deducted from the Institute figures, and the cost of equipment from those of the Social Board, two series are obtained which agree very well, at least for the post-war years. The great

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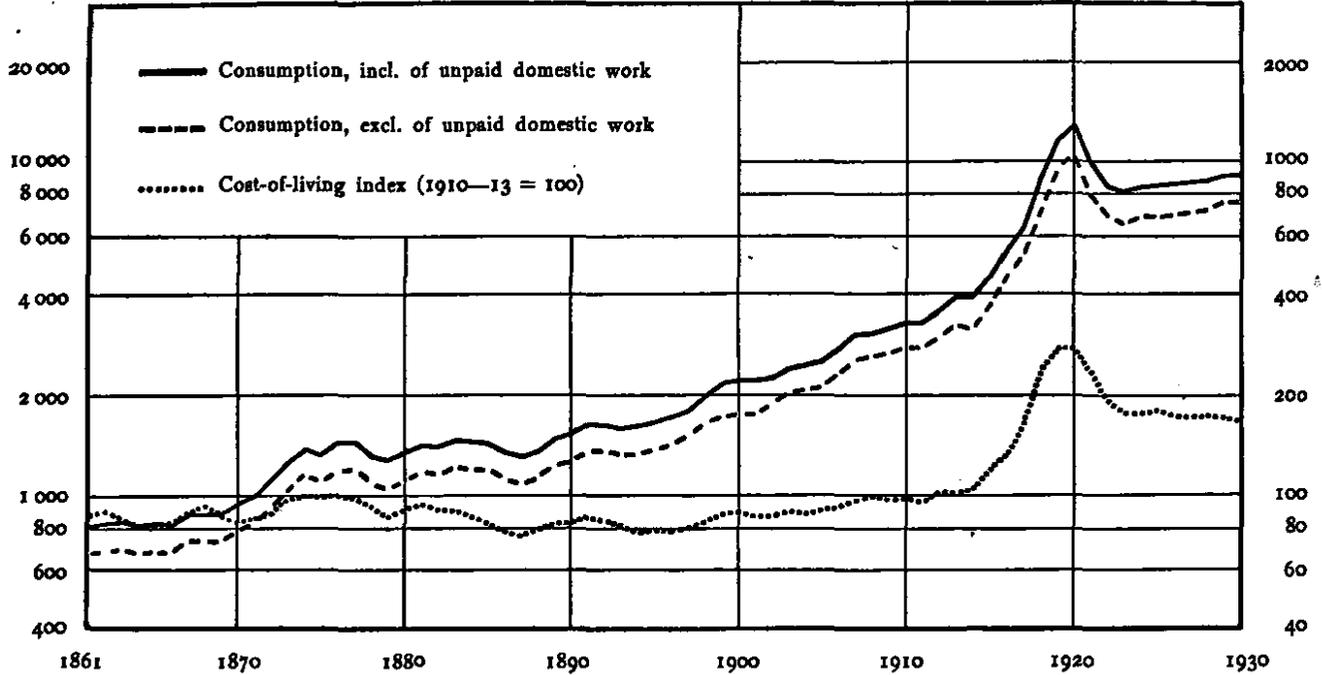
Mill. kronor

Chart 24. Consumption 1861—1930.

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similarity between the 1922/23 and the 1930 figures is clearly fortuitous. As there is reason to suppose that the estimated value of Commerce is too high (cf. Chapter III, Paragraph 26), this agreement confirms the opinion that the result of the budget inquiries is above the average for the whole population. In any case, the comparison indicates that towards the end of the period the consumption value computed here is — as far as its order of magnitude is concerned — relatively reliable.

The trend of the consumption is, however, of more interest than its absolute value. As to this, the table on p. 295 shows that the Institute figures give a good idea of the trend in the nineteen-twenties. The great divergence of the two series in 1913/14, which is of significance when estimating the trend, is difficult to explain. As a matter of fact, the 1913/14 budget inquiry was hardly as representative as those of later years. The error was due to the preponderance of material from large towns (in 1913/14, 31 % of all the household accounts considered came from Malmö and Gothenburg, none from Stockholm; in 1922/23, 22 % were from Malmö, Gothenburg, and Stockholm). As to the Institute calculations, it must be remembered that the material is so unreliable, that great caution must be observed in drawing any conclusion. All that can be said is that there is a possibility of the consumption value actually having grown more rapidly in the period discussed than is indicated by the figures computed here. The effect of this error will thus be the opposite of that resulting from the exclusion of unpaid domestic work.

10. *Consumption per Consumption Unit, and in Stable Value of Money.*

The trend of consumption cannot be judged merely by a study of the absolute figures, as the increase, indicated by Table 57 and by Chart 24, from the beginning to the end of the period is a result both of a real rise in the standard of living and of changes in population and

prices. A study of the real consumption per individual must therefore be based on figures from which the influence of the two latter factors have been eliminated. As the absolute level is of no interest, only index numbers are given below for the different series representing the consumption value reduced in respect of changes in population and value of money.

The influence on consumption of the trend of the population depends not only on the number of inhabitants, but also on their composition as to sex and age. Table 58 therefore gives the consumption per consumption unit. The series of consumption units published in Appendix A, Table 64, and computed in accordance with the American scale, has been used for this calculation. Not even that reduction is quite satisfactory, as "consumption unit" is an ambiguous conception. When the ratio of children to adults fluctuates strongly, the significance of a given number of consumption units may vary considerably, which may influence the composition and total value of the consumption. The result will also depend on the scale used.

The final result is shown in Table 58 and Chart 25. Even if the abnormal war and post-war conditions are disregarded, the curve displays considerable fluctuations, on the whole coincident with the price movements. It will be seen that the value of consumption per consumption unit was trebled from the eighteen-sixties up to the outbreak of War, no correction being made for the influence on the trend of the above-mentioned sources of error. This means an increase from 1861 to 1913 of 2.25 % per annum.

The reduction to a stable value of money has been made with the aid of the Institute's cost-of-living index from 1861 to 1913, and of the Social Board index for subsequent years, with any recalculations necessary for coupling the series together (Table 51). In calculating the national income, agricultural and industrial products have been evaluated according to producers', not retail, prices, while the values of the services of commerce and transport have, on the other hand, been calculated as certain percentages of the product values. Had material been available for a detailed computa-

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Table 58. Consumption, excl. of Unpaid Domestic Work,
per Consumption Unit and in Stable Value of Money
1861-1930. Index: 1910-1913 = 100.

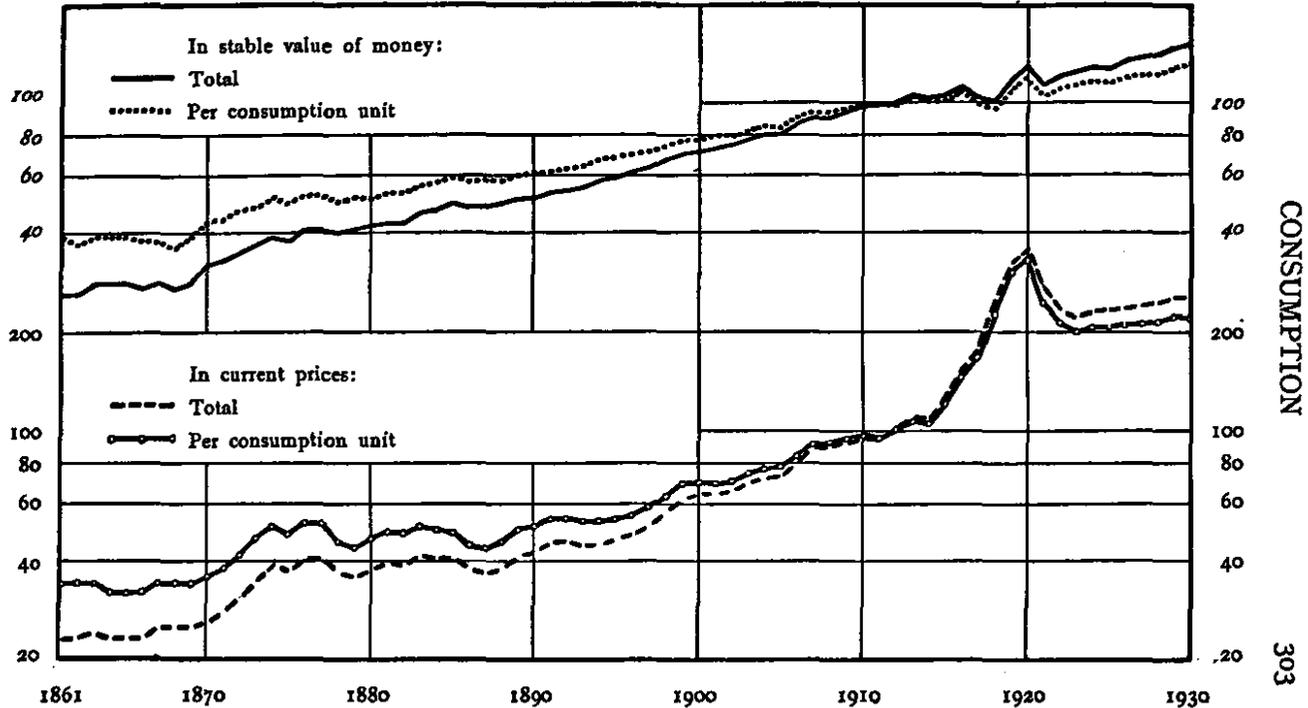
Year	1		2		Year	1		2	
	In current prices		In stable value of money			In current prices		In stable value of money	
	Total	Per consumption unit	Total	Per consumption unit		Total	Per consumption unit	Total	Per consumption unit
1861	23	34	26	39	1896	48	55	61	70
62	23	34	26	37	97	51	58	63	71
63	24	34	28	39	98	57	63	67	74
64	23	32	28	39	99	62	69	70	77
65	23	32	28	39	1900	64	69	71	77
66	23	32	27	38	1901	64	69	73	79
67	25	34	28	38	02	65	70	74	79
68	25	34	27	36	03	69	74	77	82
69	25	34	28	39	04	71	76	80	85
70	26	36	32	43	05	72	77	80	84
1871	28	38	33	44	06	80	84	86	90
72	31	42	35	47	07	88	91	90	94
73	35	47	37	48	08	89	92	90	93
74	39	51	39	51	09	92	94	94	96
75	37	48	38	49	10	94	96	97	98
76	41	52	41	52	1911	94	95	98	99
77	41	52	41	52	12	101	101	99	98
78	37	46	40	50	13	110	108	106	105
79	36	44	41	51	14	108	106	103	101
80	38	47	42	51	15	126	122	105	102
1881	40	49	43	53	16	152	146	112	108
82	39	49	43	53	17	177	169	104	99
83	42	51	46	56	18	241	228	101	96
84	41	50	47	57	19	321	302	117	110
85	41	49	49	59	20	359	334	130	121
86	38	45	48	58	1921	270	248	114	105
87	37	44	48	58	22	230	210	120	109
88	38	46	49	58	23	223	203	125	113
89	42	50	51	60	24	231	208	129	117
90	43	51	51	61	25	233	209	128	115
1891	46	54	53	62	26	236	211	135	120
92	46	54	54	63	27	239	212	138	122
93	45	53	55	64	28	244	215	140	123
94	45	53	58	67	29	254	223	147	129
95	47	54	59	68	30	254	221	152	132

Chart 25. Index of Consumption 1861—1930.

1910—13 = 100.

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tion of the merchanting charges and transport costs in respect of each commodity, this method would have given the same result as if the retail prices had been used for the valuation. Owing to the deficiencies in the material, however, the merchanting and transport charges of certain commodity groups have throughout the period had to be calculated as a constant proportion of the group value. Moreover, the allotment of the total transport costs to consumers' and other goods has necessarily been made on the basis of incomplete statistics. This means that it has been impossible to make any allowance for the characteristic changes in the retail trade margin when producers' prices are changing. The ratio of merchanting and transport charges to total product values will therefore only be affected by changes in the composition of the production; in other respects the two series will follow one another. This is of importance in a reduction to a stable value of money, as the price index is based on "semi-wholesale prices" (before 1913) or retail prices (from 1913). Allowance must also be made for the fact that the price index used covers a smaller range of commodities and services than consumption does, and that its use consequently presumes a similar development of all prices, whether included in the index or not. The services rendered by the public administration, by independent professions, and by other durable consumers' goods than dwellings, are of special importance in this respect.

These deficiencies in the material explain some of the fluctuations in the series when reduced to a stable value of money. There is thus little reason to think that the real consumption per consumption unit was actually reduced as much in 1925 as indicated by the chart.

The fluctuations recorded during and immediately after the War are also to some extent due to errors in the material. The actual consumption must obviously have fallen off a good deal during the years of the blockade, but nothing can be said of the magnitude of this reduction. A strong increase when the freedom of trade was restored in 1919 and 1920 is equally natural. Apart from the above sources of error, there is still another factor that must be reckoned with,

viz. the complete exhaustion of all stocks during the war years, and a corresponding increase of them to normal, or beyond, in the first years following the War. The rapid fall registered from 1920 to 1921 is thus partly due to these dislocations in stocks, and partly to the errors in preparing the statistical material consequent on the great price changes (cf. also Chapter III, p. 54). The depression and extensive unemployment in that year are likely, however, to have caused some reduction of consumption. In judging the post-war trend of consumption it is therefore necessary to start from 1922. The annual rate of increase in different periods is seen from the table below.

Annual rate of increase in per cent.

Consumption	1861—1913	1896—1913	1922—1930
<i>In current prices:</i>			
Total	3	5	1 ¹ / ₄
Per consumption unit . . .	2 ¹ / ₄	4 ¹ / ₈	2 ¹ / ₈
<i>In stable value of money:</i>			
Total	2 ¹ / ₄	3 ¹ / ₈	3 ¹ / ₈
Per consumption unit . . .	2	2 ¹ / ₈	2 ¹ / ₈

II. Consumption of Industrial and Agricultural Goods.

An analysis of the home consumption of industrial and agricultural consumers' goods may be of special interest. Such an analysis is justified, for one thing because the relevant statistical material is considerably better than in respect of services of various kinds, and for another because imports are of considerable importance to the supply of various products.

Consumers' goods must obviously be divided into agricultural and industrial products in accordance with the statistical method used for computing the product values. An account is given in Chapter III of the products included in the one or the other category. It follows from this account that an increased industrial processing of agricultural raw materials will be one of the factors producing a greater increase in the consumption of industrial than of agricultural products as shown in Table 59 and in Charts 26 and 27. A case in point is farm-butter, which in the

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Table 59. Non-Durable Consumer's Goods:

Year	1	2	3	4	5	6	7	8	9
	Agricultural goods			Manufactured goods			Total consumer's goods		
	Production	Imports	Total	Production less exports	Imports	Total	Production less exports	Imports	Total
1861	184	10	194	171	32	203	355	42	397
62	182	11	193	167	34	201	349	45	394
63	181	11	192	174	36	210	355	47	402
64	173	11	184	167	31	198	340	42	382
65	170	11	181	166	36	202	336	47	383
66	173	10	183	161	37	198	334	47	381
67	196	14	210	174	41	215	370	55	425
68	194	10	204	177	44	221	371	54	425
69	169	11	180	191	45	236	360	56	416
70	200	12	212	185	55	240	385	67	452
1871	209	16	225	195	66	261	404	82	486
72	233	16	249	213	82	295	446	98	544
73	255	26	281	228	102	330	483	128	611
74	275	21	296	275	126	401	550	147	697
75	250	24	274	264	104	368	514	128	642
76	289	25	314	257	119	376	546	144	690
77	276	23	299	271	130	401	547	153	700
78	276	21	297	234	96	330	510	117	627
79	267	20	287	231	89	320	498	109	607
80	267	21	288	233	122	355	500	143	643
1881	270	20	290	283	113	396	553	133	686
82	269	19	288	265	114	379	534	133	667
83	282	21	303	272	129	401	554	150	704
84	271	22	293	262	125	387	533	147	680
85	253	25	278	273	131	404	526	156	682
86	220	29	249	251	116	367	471	145	616
87	209	27	236	245	111	356	454	138	592
88	216	30	246	252	116	368	468	146	614
89	234	38	272	275	133	408	509	171	680
90	236	29	265	298	133	431	534	162	696
1891	274	34	308	317	127	444	591	161	752
92	255	33	288	349	116	465	604	149	753
93	252	34	286	337	101	438	589	135	724
94	242	36	278	349	104	453	591	140	731
95	258	36	294	342	102	444	600	138	738

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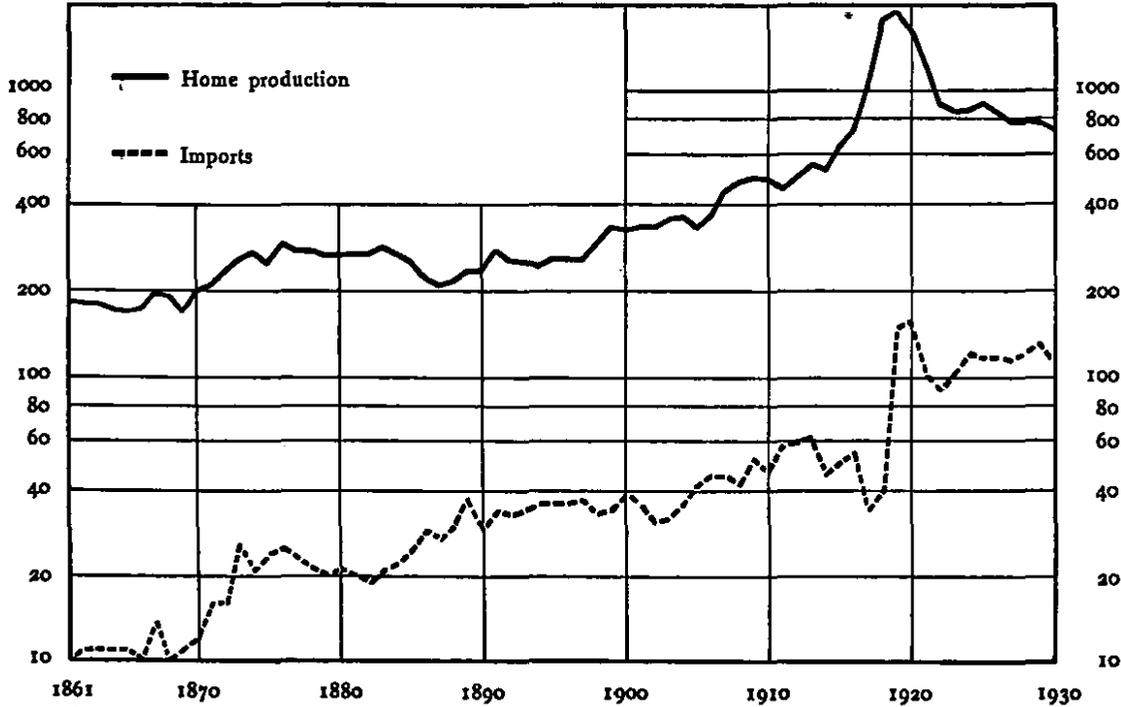
Home Production and Imports 1861—1930. Mill. *kronor*.

Year	1	2	3	4	5	6	7	8	9
	Agricultural goods			Manufactured goods			Total consumer's goods		
	Production	Imports	Total	Production less exports	Imports	Total	Production less exports	Imports	Total
1896	257	36	293	367	103	470	624	139	763
97	259	37	296	408	111	519	667	148	815
98	293	33	326	470	115	585	763	148	911
99	335	34	369	508	128	636	843	162	1005
1900	330	39	369	525	124	649	855	163	1018
1901	333	36	369	541	114	655	874	150	1024
02	336	31	367	551	114	665	887	145	1032
03	355	32	387	574	119	693	929	151	1080
04	364	36	400	606	114	720	970	150	1120
05	331	42	373	620	116	736	951	158	1109
06	368	45	413	698	135	833	1066	180	1246
07	453	45	498	720	147	867	1173	192	1365
08	485	42	527	716	133	849	1201	175	1376
09	500	52	552	732	135	867	1232	187	1419
10	489	47	536	774	141	915	1263	188	1451
1911	456	58	514	766	145	911	1222	203	1425
12	502	59	561	813	147	960	1315	206	1521
13	554	62	616	853	185	1038	1407	247	1654
14	527	45	572	848	157	1005	1375	202	1577
15	651	50	701	1008	191	1199	1659	241	1900
16	743	54	797	1285	230	1515	2028	284	2312
17	1038	34	1072	1421	216	1637	2459	250	2709
18	1784	40	1824	1547	285	1832	3331	325	3656
19	1908	149	2057	2189	784	2973	4097	933	5030
20	1618	157	1775	2835	904	3739	4453	1061	5514
1921	1202	102	1304	2081	362	2443	3283	464	3747
22	892	90	982	1810	333	2143	2702	423	3125
23	836	106	942	1796	326	2122	2632	432	3064
24	862	123	985	1847	333	2180	2709	456	3165
25	904	117	1021	1772	340	2112	2676	457	3133
26	827	118	945	1874	348	2222	2701	466	3167
27	766	116	882	1917	370	2287	2683	486	3169
28	775	122	897	1923	394	2317	2698	516	3214
29	766	131	897	2062	399	2461	2828	530	3358
30	734	109	843	2015	419	2434	2749	528	3277

Mill. kronor

Chart 26. Non-Durable Consumers' Goods: Home Production and Imports of Agricultural Goods 1861-1930.

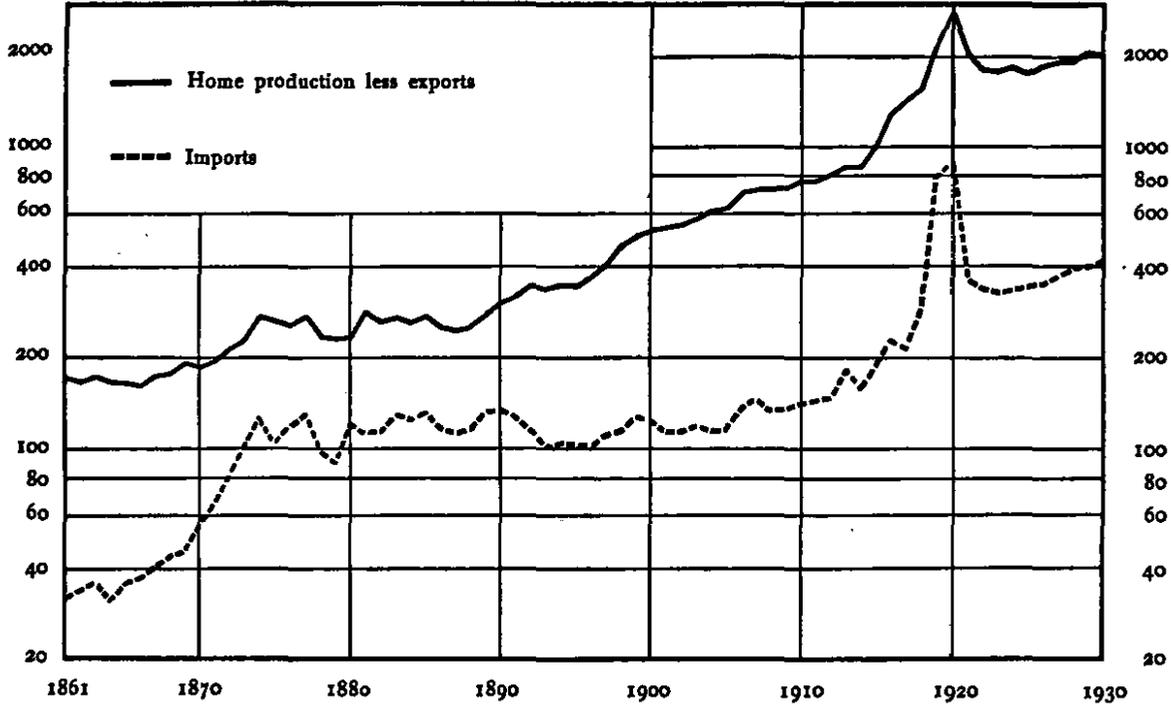
Index



Mill. *kyonor*

Chart 27. Non-Durable Consumers' Goods: Home Production less Exports, and Imports of Manufactured Goods 1861—1930.

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course of the period has been increasingly replaced by dairy-factory butter and margarine. It has already been said that this period was also characterized by an industrialization of domestic work, which was of particular significance to the value of industrial production. The quadrupling in value of the consumption of industrial products from 1861 to 1913 was therefore partly only apparent. The importance of this factor, however, cannot be even approximately estimated numerically, and all that can be done is therefore to call attention to it.

In order to ascertain the effect of price changes on values, two index series for the period 1861—1913 (Table 60) have been prepared on the basis of the price material in "Cost of Living"¹. The commodities quoted there have been divided into two groups, coinciding as far as possible with the industrial and agricultural product divisions. The weights from "Cost of Living" have also been used in the construction of this price index.² Table 60 shows quite distinctly the difference in the trend of the two groups. The prices of agricultural products rose in relation to those of industrial products, which were higher at the beginning than at the end of the period. Even if the trend of the industrial-product index was too strongly marked owing to the fall in the price of petroleum in the early part of the period, it nevertheless probably corresponds to what actually happened, as technical progress and the gradual change-over to mass production of consumers' goods would reduce costs of production and depress prices of finished products. In the course of so long a period, however, this was counteracted by changes in quality, but the first tendency was probably the most pronounced. When comparing prices and product values, it must also be remembered that the latter are computed from producers' prices, while the price-index series are based on "semi-wholesale prices", and that consequently

¹ The Cost of Living in Sweden 1830—1930.

² The weights 55, 40, and 5 respectively were used for weighting "foodstuffs", "clothing" and "lighting" in the price index of industrial products, and the weights 9 and 1 for "foodstuffs" and "fuel" respectively in the price index of agricultural products. The same weights are used throughout the period. No allowance has been made for any changes in the composition of the budget taking place during the period.

Table 60. Price Index for Consumers' Goods 1861—1913.
1910—1913 = 100.

Year	1	2	Year	1	2
	Agricultural produce	Industrial produce		Agricultural produce	Industrial produce
1861	79.7	.	1888	74.3	89.8
62	80.2	.	89	78.6	94.3
63	75.9	.	90	80.1	95.3
64	72.6	.			
65	71.5	109.3	1891	83.7	98.2
66	74.9	113.3	92	82.7	96.5
67	79.0	118.2	93	81.8	89.8
68	81.5	122.0	94	78.3	85.7
69	82.1	109.1	95	77.1	86.4
70	79.5	104.0	96	73.7	87.5
			97	77.0	88.2
1871	79.9	105.4	98	83.4	89.8
72	82.0	110.5	99	88.9	91.4
73	87.6	115.6	1900	92.7	91.9
74	94.0	119.4			
75	95.1	115.2	1901	90.4	89.6
76	95.3	113.3	02	91.4	89.4
77	96.1	114.5	03	91.4	89.5
78	89.6	108.5	04	89.8	89.9
79	83.4	100.9	05	90.3	91.3
80	86.6	106.6	06	92.6	92.4
			07	98.0	93.8
1881	88.0	109.6	08	100.3	99.0
82	88.9	104.3	09	97.8	98.0
83	90.5	99.9	10	98.2	98.0
84	85.3	97.6			
85	81.6	92.5	1911	95.6	97.5
86	76.5	88.6	12	102.2	102.0
87	71.8	87.8	13	104.0	102.7

the two may to some extent have developed differently, especially during brief periods.

Considering these several factors, and the trend of the population, the conclusion might be drawn from the available material that the actual consumption of industrial and agricultural products rose considerably in the early 'seventies, to an appreciably higher level than before, and continued to rise slowly for the next ten or twenty years. A

new, strong period of advance began in 1887 and lasted up to the end of 1913, during which the rate of increase only decreased slightly in times of depression.

Owing to the strong price fluctuations it is hardly possible to draw any conclusion regarding the period 1914—1921.¹ In the following years the value of the total consumption of industrial and agricultural products rose relatively little, but in view of the fall in prices the real rise was considerably greater than the increase in values. There was a real increase in consumption, even if allowance is made for the trend of the population.

The divergent trends of industrial and agricultural products during the post-war period are of special interest after 1924. Although the share of the industrial products may have grown during previous periods of industrial advance, the curves have only very rarely actually moved in opposite directions, as they did in the nineteen-twenties. The most likely explanation is that prices developed differently. Price-index series like those from 1861 to 1913 have not been constructed. Retail and producers' prices differed so much in this brief period that the cost-of-living index cannot be used for reducing values based on the latter. Moreover, the work involved in constructing a new index based on producers' prices would be too great in comparison with the result, certain comparisons between prices and values being possible in any case.

The value of a number of the more important agricultural products can thus be compared with their prices. Such a comparison shows that the increase in 1925, and the subsequent fall, were practically entirely due to price changes that were only partly compensated by changes in consumption. The quantities consumed are hardly likely to have diminished, except possibly in respect of wood fuel, where there was a continuous structural reduction, due to the change-over to industrially produced fuels.

As to the industrial product value it is found to have increased in all the commodity groups. The most important factor in this increase is the strong rise in textiles (+ 26 %),

¹ For the 1921 product values, see p. 54.

while the provisions group expanded considerably less (+ 9 %). Of the total increase in the value, 254 mill. *kronor* (1925—1930), no less than 150 mill. *kronor* came on the textiles. The difference can be partly explained by a greater fall in foodstuff prices than in textile prices. Judging by the trend of the retail prices, prices have been falling since 1925. The quantitative increase of consumption must therefore have been larger than the values indicate, and — disregarding services — it has been confined mainly to the industrial group. As the structural factors that affected the relation of the output of industrial to that of agricultural products before the War were hardly of any importance in the nineteen-twenties, the nature of the demand must obviously have altered.

12. *Home Production and Imports of Consumers' Goods.*

Table 59 and Charts 26 and 27 show the distribution to home production and imported goods. As far as agricultural products are concerned, it should be noted that the home produced goods include a small amount of imported goods. The methods used make it impossible to differentiate between goods produced in the country and the imported agricultural products specified in Appendix B. The latter were probably insignificant, however, and their inclusion among the home-produced goods will hardly affect the distribution to imports and home production. In other respects this distribution may be considered reliable. As to the calculations of the home-production and the imports of industrial products the Reader is referred to Chapter III, Paragraph 9.

In view of the very pronounced variations in the ratio of imported to home-produced consumers' goods in Sweden from 1861 to 1930, an analysis of the factors at work, i.e. changes in relative prices, in incomes, and in demand schedules, would be very interesting. For this purpose, however, much more detailed information than is collected for this investigation would be necessary. It is, moreover, doubtful whether it would be at all possible to obtain the

requisite statistical data, especially for the period before 1913. In the following it will therefore only be possible to account for the main features of the process.

During the first period, from the end of 1861 up to 1875, the imports of industrial products increased much more than the home production. This was probably not to any great extent the result of a substitution, but of a direct increase in the demand for imported goods due to the rapid expansion of purchasing power in the country, which in the then undeveloped state of the Swedish industries necessarily had to turn towards imported goods. After a decade of approximately unchanged ratio of imports to home production, a change occurred about 1890. From that time the production in the country grew practically uninterrupted up to the outbreak of the War. Depressions were only marked by a temporary slowing down of the rate of increase. The imports, on the other hand, showed much greater sensitivity to cyclical changes. The margin between the curves widened throughout the period which indicates that a decrease took place in the ratio of imports to home production.

The change from 1889 to 1893, resulting from the tariff reforms of 1888 and 1892, is of particular interest. The short-time effects of the new duties on the demand for imported and home-produced goods can be observed in reduced imports of flour and sugar, of certain textiles, and of wines and spirits, etc. The structural change in agriculture at this time was expressed in the substitution of home-produced for imported pork.

It has been pointed out above (cf. p. 281) that in the early eighteen-nineties Swedish industry was in the initial stages of a greater differentiation of production. The rapid growth of income and purchasing power characterizing the twenty years preceding the outbreak of War in 1914 could therefore much more easily be directed on home produce than was possible during the eighteen-seventies. Even though other factors simultaneously affected the industrial development in the same direction, the protectionist policy had presumably in the long run contributed

to this trend by favouring, at the expense of the imports, certain homemarket industries for finished consumers' goods. The growing margin between home-produced and imported manufactured goods is thus an illustration of the industrialization process in Sweden. The effects of this process on the imports were not restricted to finished consumers' goods, however, but also caused increased imports of the raw materials largely used by the home-market industries. The relative decrease in the value of imported finished consumers' goods thus corresponds to an increase in the imports of raw materials and semi-finished products (and machinery) for the home-market industries and in the value added by these industries, other indirect effects being disregarded.

In the nineteen-twenties the tendency was the opposite. The import value rose relatively more than the product value. As this brief period began by a depression and ended by a boom, it is impossible to say in how far this was a cyclical phenomenon or a structural change in the nature of the demand.

In Chapter III, Paragraph 9, the relation of imports of manufactured consumers' goods to production and internal supply has been analysed in connection with an analysis of the total production of and foreign trade in manufactured products. It is seen from Table 27 that the ratio of imports to internal supply rose from 16.7 % in 1861/65 to 31.3 % in 1876/80—1886/90. After that time the ratio dropped to 16.5 % in 1926/30, i.e. the same ratio as that obtaining in the beginning of the period.

While the home-produced and imported finished products of industry largely compete with one another, those of Agriculture and its subsidiary occupations, or of Forestry, can hardly be said to do so. The principal products produced in the country are potatoes, milk, and meat¹, of which very little is imported. Imports of horticultural produce, fruit, and fish, include such articles as are not indigenous to

¹ Imported meat and pork are included in industrial products; the production figures include live-stock less net imports, which latter were as a rule very slight.

this country, and which are therefore, at least to some extent, demanded by the consumers irrespective of the home production. There is of course a certain competition in this branch, and variations of the imports with, for instance, the size and quality of the Swedish fruit harvest are conceivable. The fruit imports were of most importance in the nineteen-twenties, when they maintained the import value at a relatively high level. Firewood — another important article of consumption — competes chiefly with an imported industrial product, coal fuel. Colonial goods also constitute a not inconsiderable portion of the imports, although but little of the most important of them, coffee, is ready for consumption, and most of it therefore is included in the industrial raw materials.

The direct interdependence of the fluctuations in the product and import values of agricultural produce is thus very slight. The import value, moreover, is relatively insignificant, and the fairly considerable percentile variations from one year to another observable before the War were probably frequently due to mere occasional fluctuations in the imports of some more important commodity.

13. *Consumption and Savings.*

A measure of the total income of the population will be obtained by adding to the national income, computed according to the second alternative, the surplus income of the inlanders from investments abroad.¹ The consumption of foreigners in Sweden and of Swedes abroad may either be disregarded, or the two items may be assumed to cancel out. The import of this assumption is that consumption in the country is identical with the inlanders' consumption. If this is compared with the total income figure, the following percentages are obtained.

¹ The item "Interest" in Table 174; this should also include gifts from abroad, which are accounted for under the heading "Remittances from America" in the same table. Cf. Chapter I, Paragraph 16.

*Consumption in per cent of the total income of the population
1896—1930.*

1896 . . . 92	1905 . . . 96	1914 . . . 88	1923 . . . 94
1897 . . . 93	1906 . . . 93	1915 . . . 88	1924 . . . 94
1898 . . . 93	1907 . . . 93	1916 . . . 85	1925 . . . 93
1899 . . . 98	1908 . . . 94	1917 . . . 80	1926 . . . 92
1900 . . . 94	1909 . . . 100	1918 . . . 85	1927 . . . 91
1901 . . . 99	1910 . . . 93	1919 . . . 98	1928 . . . 90
1902 . . . 98	1911 . . . 92	1920 . . . 93	1929 . . . 88
1903 . . . 94	1912 . . . 92	1921 . . . 103	1930 . . . 89
1904 . . . 99	1913 . . . 93	1922 . . . 100	

If the abnormal years from 1916 to 1921 are excepted, the margin between total income and consumption has varied from 0 % to 12 %. The fact that the two groups of services, commerce and the utilization of consumers' durable goods, that were above said to be overestimated, constitute a considerably larger proportion of the consumption than of the national income will obviously affect the relation between these. A comparison between Charts 18 and 24 indicates that fluctuations in investments affect the variations in the percentages more than do fluctuations in the consumption, as might, for theoretical reasons, be expected. The margin will thus diminish in times of depression and increase during booms.

NOTE.

14. *The National Income 1930—1934.*

An estimate of the national income from 1930 to 1934 has been made in the Department of Finance¹, mainly by the same methods as employed by the Institute. The methods differ on one or two points, and this has caused a difference of about 700 mill. *kronor*, or 8 %, between the two estimates for 1930, but the two series, before and after 1930, may nevertheless be considered comparable. Index series of national income and consumption have therefore been computed, with 1930 as base year, expressed in current

¹ DAHLGREN, E., *Produktionsstatistisk uppskattning av Sveriges nationalinkomst åren 1930—1934. Bilaga I till Undersökningar rörande det samlade skattestrycket i Sverige och utlandet av inom finansdepartementet tillhållade sakkunniga. (Statens offentliga utredningar 1936:18.)*

Table 61. National Income by Industrial Divisions
1930—1934. Mill. kronor.

Industries	1930	1931	1932	1933	1934
<i>Agriculture and its subsidiary occupations</i>					
Gross income	1441	1293	1171	1244	1271
Net income	679	618	575	596	633
<i>Forestry</i>					
Gross income	429	320	252	277	363
Net income	429	320	252	277	363
<i>Manufacturing, mining, and handicrafts</i>					
Gross income	5922	5248	4758	4899	5880
Net income	3382	3020	2740	2806	3289
<i>Building and constructions</i>					
Gross income	980	895	739	644	895
Net income	454	414	340	298	414
<i>Transport and communications</i>					
Gross income	998	924	880	873	930
Net income	584	541	510	509	546
<i>Commerce; hotels and restaurants; professional services; domestic work</i>					
Gross income	1158	1031	976	968	1045
Net income	894	786	751	745	795
<i>Banking and insurance</i>					
Gross income	186	188	177	185	191
Net income	144	145	137	143	147
<i>Services rendered by durable consumers' goods</i>					
Gross income	1945	1959	1961	1952	1953
Net income	990	1001	1002	996	996
<i>Public administration</i>					
Gross income	686	696	699	702	710
Net income	515	526	531	528	530
<i>Joint debit items</i>					
Goods and services	441	445	438	444	451
Total: Gross income	13 745	12 554	11 613	11 744	13 238
Debit items	6 115	5 628	5 213	5 290	5 976
National income	7 630	6 926	6 400	6 454	7 262

Table 6a. National Income and Consumption 1925—1934.
Index: 1930 = 100.

Year	In current prices		In stable value of money	
	Income	Consumption	Income	Consumption
<i>Institute</i>				
1925	88	92	82	85
1926	90	93	86	89
1927	92	94	89	91
1928	95	96	90	91
1929	101	100	98	97
1930	100	100	100	100
<i>Finance Department</i>				
1930	100	100	100	100
1931	91	96	94	100
1932	84	93	88	97
1933	85	91	91	98
1934	95	96	102	101

prices and reduced to a stable value of money with the aid of the cost-of-living index. These are given in Table 6a.

The table illustrates the strong fall in incomes, and the relatively moderate reduction of consumption, in 1931 and 1932, as well as the ensuing upward trend, which had already in 1934 brought the real income and the consumption up to slightly above the 1929—1930 level. Allowance must be made, however, for the meantime increase of the population, which from 1930 to 1934 was 1.5 % of the 1930 average population.

Table 6b gives the result of the calculations of the gross and net income, by industries.

In considering these figures, allowance must be made for the net contribution of certain industries having, in this calculation, been assumed to be constant throughout the period. Nor has in this calculation, or in that of the Institute, any allowance been made for changes in the stocks, which in some industries were of importance during these years.

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