

TRENDS AND CYCLES IN NORWEGIAN
INCOME SHARES

by Odd Aukrust

I

1. *Distribution theory and national income statistics*

Classical economists, as will be remembered, approached the problem of distribution from the functional point of view. Their prime interest was to study the laws governing the long-term trend of distribution in an expanding economy. They took as their starting point the social structure of early industrialized England, and so quite naturally selected wages, profits and rents as the chief distribution categories to be studied. Their research programme was formulated very clearly by Ricardo in the following statement: 'The produce of earth . . . is divided among three classes of the community, namely, the proprietor of the land, the owners of the stock of capital necessary for its cultivation, and the labourers by whose industry it is cultivated. But in different stages of society, the proportions of the whole produce of the earth which will be allotted to each of these classes, under the names of rent, profit and wages, will be essentially different. . . . To determine the laws which regulate this distribution, is the principle problem in Political Economy'.¹ This setting of the problem has come to dominate income distribution theory ever since. Later generations have done much in the way of refining analytical tools, but they have left the object of study almost completely unchanged. As before, the reasoning in traditional textbooks is on the distribution of income between labour, capital and land, in a strict functional sense. Unfortunately, this does not help much towards a realistic analysis of the distribution problems of a modern western society.

In the meantime, national income data on wages, profits, etc., have become available for a large number of countries. In some countries such data are already attracting the interest of the general public, and play an important role in discussions of

¹David Ricardo: *On the Principles of Political Economy and Taxation*, Preface.

current economic issues. However, the factor shares specified in the national accounts are usually very different from those treated in standard textbooks, even when they carry identical names. There is a serious gap, therefore, between economic theory and available statistics. On one hand, we have a theory of functional distribution running in terms of income shares that can hardly ever be measured, with the consequence that the theory is beyond the reach of empirical verification. On the other hand, national accountants are increasingly accumulating statistics that are being used and misused for political purposes, without any sound theory being available for their correct interpretation.

This state of affairs is unfortunate. A theory, explicitly tailored to facilitate the interpretation of national income statistics on distribution, seems to be much needed. Such a theory will have to be explained in terms of income shares which are measurable, and which reflect distinctions that are of real significance in a modern society. It will have to deal with cyclical fluctuations as much as with secular movements. With respect to the latter, it must bring out what the consequences are likely to be of important structural trends such as improving production techniques, inter-industrial shifts, the tendency towards larger economic units and shifts from unincorporated to incorporated enterprises.

Steps towards a theory of this kind have been taken by M. Kalecki¹ and, quite recently, by Ashok Mitra.² However, before an empirically founded theory can finally be formulated, it is necessary that the statistical facts be closely analysed. The ultimate purpose of the present paper is to add to the information already available for some countries³ on actual behaviour of distributive shares, and thus to broaden the empirical foundation

¹ See, e.g. M. Kalecki: *Theory of Economic Dynamics*, London, 1952. His ideas were first published in an article 'The Determinants of Distribution of the National Income', in *Econometrica*, Vol. 6, No. 2, April 1938.

² Ashok Mitra: *The Share of Wages in National Income*, Rotterdam, 1954.

³ See, e.g., the following studies: Pøul Milhøj, *Lønudviklingen i Danmark 1914-1950* (The Development of Wages in Denmark 1914-1950), København 1954, p. 110 ff., Phelps Brown, E. H., and Hart, P. E.: 'The Share of Wages in National Income', *Economic Journal*, No. 246, Vol. LXII, June 1952, Ragnar Bentzel: *Inkomstfordelingen i Sverige* (The Distribution of Incomes in Sweden), Stockholm, 1952, p. 28 ff., Edward F. Denison: 'Distribution of National Income. Pattern of Income Shares since 1929', *Survey of Current Business*, June 1952.—Of these, only Denison's study for the U.S. recognizes the need, clearly indicated by Kalecki, for going behind the national aggregates and down to industry groups. The present study is, in many respects, a Norwegian parallel to his.

on which a modern theory of functional distribution will have to build.

2. Scope and method of the present study

Our intention is to analyse the behaviour of national income shares in Norway over the period 1930-55. The figures used in the study are based on official Norwegian national accounting statistics¹ and some unpublished material. It should be born in mind that all income shares are measured before direct taxes, so that the study is limited to the distribution of originating (as distinct from disposable) income.

Our attention will be concentrated mainly on the relative share of income flowing to wage and salary earners, as distinct from entrepreneurial (non-wage) income. Our first concern (Section II) will be with long-term changes and the relation of these changes to changes in the economic structure of the economy. In particular we are interested in studying the effects of inter-industrial shifts and the relative decrease in the number of self-employed persons. In Section III we turn to the problem of cyclical fluctuations in the share of wages. For this purpose a number of reclassifications of the original statistics have been made (see the Appendix Table) and the cyclical patterns of various industrial groups are studied. A short summary of findings is given in Section IV. Some of our results are rather surprising and contrary, perhaps, to what one would expect. In general, one of the main impressions left by the study is that conclusions as to relative movements of distributive shares based on national aggregates alone, may be seriously misleading.

Throughout, our analysis is almost entirely of a statistical nature. What few hints there are towards 'explanation' are put forward very tentatively.

A few remarks on statistics and concept may be needed at the outset. The aggregate whose composition is studied, is in Norwegian national accounting practice called 'factor income'. This aggregate broadly corresponds to what is termed domestic income in OEEC's Standardized System. The factor income originating in an industry equals the net product (net value added), less net indirect taxes, of that industry. Data on aggre-

¹ The main source has been tables 19-21 and 23 of *National Accounts 1930-36 and 1946-1951*, (Nos. XI. 109) and *National Accounts 1938 and 1948-1953*, (Nos. XI. 185) both published by the Central Bureau of Statistics of Norway.

gate factor income is available in the national accounts for the periods 1930–39 and 1946–55. Two alternative classifications are supplied. One is a breakdown by industry of origin, where at the same time a distinction is made for each industry between the amount paid out as wages (including salaries) and a residual, called entrepreneurial income. The second classification is by receiving sectors, giving also some information on the composition by type of non-wage incomes. The proportion of wages to factor income, expressed as a percentage, will be referred to in this paper as ‘the wage fraction’, whether for one single industry, or a group of industries, or for the economy as a whole.

In what follows most use will be made of the classification of income into wages and non-wage incomes by industry of origin. However, we shall start by examining the second classification referred to above, since this will provide a necessary background for a correct interpretation of the wage-fraction series available from the first classification.

II

1. *Main changes in the distribution pattern since 1930*

Over the twenty-five years covered by our study considerable changes have taken place in the structure of national income shares, as is seen from Table I.

The most striking feature is, perhaps, a very strong downward trend in *net interest income of households* and *net income from dwellings*. A number of causes have co-operated to bring this result. Most important has been the combination of continuously rising prices (prices increased by 10 per cent during the 1930s and nearly trebled from 1938 to 1955) and the policy of low interest rates and strict rent control pursued since the war. As a result the aggregate of factor income increased from 3,600 million kr. in 1930 to 19,900 million kr. in 1955, whereas at the same time interest payments remained more or less constant, and net rents as computed in the national accounts even decreased.¹ This is reflected in the percentage figures. Thus, the share of aggregate factor income flowing to households as

¹ Gross rents are computed on the basis of contract rental values, which since 1938 have been kept virtually unchanged through rent control. At the same time operating costs, which include depreciation charges and are calculated at current prices, have increased, so that net rents have decreased.

net interest and net income from dwellings was only 1.5 per cent in 1951-55 as against 10.3 per cent in 1930-34.

TABLE I
*Factor Income of Norway by Receiving Sectors;
Percentage Distribution*
(5-year averages of annual percentages)

| | 1930-34 | 1935-39 | 1946-50 | 1951-55 |
|--|---------|---------|---------|---------|
| Wages and salaries | 49.5 | 48.1 | 53.5 | 53.9 |
| Net interest income of households ¹ | 3.8 | 2.6 | 1.2 | 1.0 |
| Income of self-employed persons from agriculture, forestry and fishing ² | 7.2 | 8.6 | 10.4 | 10.1 |
| Net income from dwellings ³ | 6.5 | 4.8 | 0.6 | 0.5 |
| Other private income from labour and capital, including savings of private corporations ⁴ | 32.4 | 35.2 | 33.7 | 34.1 |
| Total private income from labour and capital (net) | 99.4 | 99.3 | 99.4 | 99.6 |
| Government net income from capital ⁵ | -1.8 | -0.9 | 0.1 | — |
| Net income of foreigners from investments in Norway ⁶ | 2.4 | 1.6 | 0.5 | 0.4 |
| Total factor income | 100.0 | 100.0 | 100.0 | 100.0 |

The decline in the shares just mentioned implies an upward movement in remaining private shares, since the small shares accruing to government and foreigners have remained fairly constant in total. The biggest relative gain is shown by *income of self-employed persons from agriculture, forestry and fishing*, which has averaged 10.2 per cent in post-war years as against 7.9 per cent in the 1930s. A similar, although less pronounced, upward trend is found in the share of *wages*. Whereas the wage fraction, according to the statistics, averaged 48.8 per cent over the decade 1930-39, with limits 46.6 per cent and 50.3 per cent, the corresponding average for the ten years 1946-55 was up to

¹ Actual interest receipts (net), including interest accruing through life insurance companies, but excluding imputed bank interest.

² Net value added, less (net) indirect taxes, less debt interest.

³ The gross income is estimated on basis of prevailing rents, while depreciation is estimated on replacements cost. Interest on mortgages is deducted.

⁴ Income (net of interest payments) of independents outside agriculture, forestry, fishing and ownership of dwellings; dividends; undistributed profits of private corporations before tax; and imputed bank interest.

⁵ Distributed and undistributed surplus of government enterprises, plus interest receipts of government, less interest on government debt.

⁶ Interest and dividends paid abroad less interest and dividends received from abroad.

53.7 per cent. In the entire post-war period there is only one year (namely 1951 with 49.6 per cent) showing a wage fraction within the ranges found for the 1930s.

The gains of wage earners and agriculture have been so large as to leave little or no room for a relative increase in remaining private shares. If anything, it seems from the table that these shares, which include corporate profits, have been slightly lower in the post-war period than during the five latest years of the 1930s.

It would thus appear from Table I that the long-term development has, on the whole, been favourable to labour. However, on closer examination one will find that this is not necessarily so, as the following sections will show.

2. The overall wage fraction in ordinary business shows no strong upward trend

It is clear from what has been said already that the upward movement of the overall wage fraction is largely attributable to trends outside the ordinary business economy. Thus we have found that the relative lowering of rents has had the effect of very considerably lowering aggregate entrepreneurial income, as calculated in the national accounts, without having had any corresponding influence on total wages. This, however, is not the only factor that has been at play. Equally important must have been the strong upward trend in the number of persons engaged in the civil service. Since the wage fraction of the civil service industries is, by definition, 100 per cent, any relative increase of them must tend to increase the overall wage fraction.¹ In Norway, this tendency has been strong enough to definitely outweigh the opposite tendency caused by the relative decline of domestic services.

What has been said in the last paragraph is clearly illustrated by Chart A. Here, the national economy has been classified into 'ordinary business' and a 'non-business group'.² For each of the groups the wage fraction has been calculated and plotted against the wage fraction for the entire economy. The graph shows that

¹ This is shown by Denison (*op. cit.*) to have been the case for the United States, and the suspicion is that the same tendency will be found in most countries.

² This group has been taken to include all branches of civil service (but not government enterprises), ownership of dwellings, domestic services, hunting, construction and repair work on own dwellings, etc. The justification for including house ownership in this group is the fact that in Norway, most dwellings are owned by their occupants, either directly or through housing co-operatives.

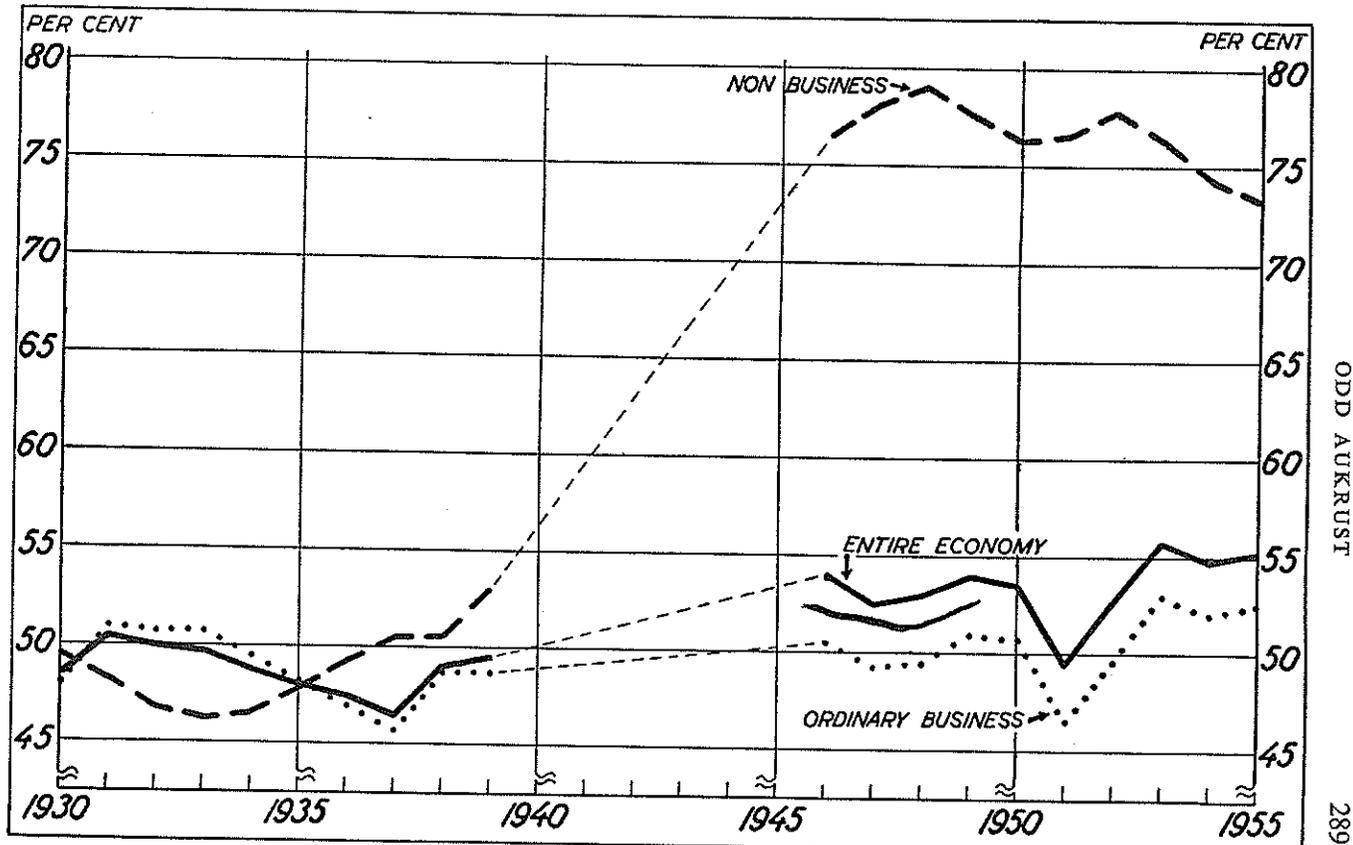


CHART A. Wage fractions for ordinary business and non-business activities (Civil service, households and dwellings)

the upward shift of the wage fraction, so clearly marked for the economy as a whole, more or less disappears when ordinary business is studied in isolation. For ordinary business the wage fraction averaged 48.9 per cent in the 1930s as compared with 50.4 per cent in the post-war period. However, this difference, small as it may seem, has some significance. We shall see later that the wage fraction shows a typical counter-cyclical movement, so that for this reason a decline rather than an increase in the post-war average as compared with that of the pre-war period would have had to be expected.

3. The share of wages and inter-industrial shifts

We turn now to a closer examination of the factors accounting for the upward trend of the wage fraction. In particular, we are interested in isolating the effect that inter-industrial shifts may have had in this development.

The wage fraction varies considerably among industries. Main factors causing differences are, apart from the bargaining position of employees, (i) the varying proportion of the number of self-employed persons, as compared with the number of employees, in different industries, (ii) the varying degree to which industries use other factors of production besides labour, (iii) variations in the general prosperity of different industries. At one extreme, the Norwegian fishing industry, where the overwhelming proportion of the labour force are self-employed persons, typically has a wage fraction of only 2-3 per cent. At the other extreme there are a number of public utility industries, such as railroad and gas, traditionally running at a loss, where the wage fraction considerably exceeds 100 per cent. In general, the wage fraction is much lower in agriculture, forestry and fishing than in other commodity production and transport.

If industries with high wage fractions expand faster than industries with low wage fractions, there will be an increase in the overall wage fraction even if the wage fraction of individual industries remain constant. Therefore, changes in the overall wage fraction are the combined effects of two sets of causes: (i) changes in the wage fractions within individual industries, for whatever reasons; and (ii) changing weights of industries, whether caused by shifts in the labour force or other factors. The effect of each of these sets of causes, over a given period, can be isolated if we compare the actual wage fraction with a

hypothetical one, computed on the assumption that the wage fraction of each individual industry would have remained constant over the period in question. Such computations have been carried out for some post-war years, using as weights the average wage fractions of individual industries in the years 1935-39. The results are summarized for the economy as a whole in Table II.

TABLE II
Changes in the Wage Fraction from 1935-39 to Post-War Years, Decomposed to Isolate the Effect of Inter-Industrial Shifts: Entire Economy

| | Actual change in the Wage Fractions (Percentage Points) | Of Which Due to: | |
|------------------|---|----------------------------|---|
| | | Inter-industrial Shifts | Changing Wage Fractions With- in Individual Industries |
| | (1) | (2) | (3) |
| From 1935-39 to: | | | |
| 1946 | +6.0 | +3.5 | +2.5 |
| 1947 | +4.5 | +5.3 | -0.8 |
| 1948 | +4.8 | +5.4 | -0.6 |
| 1949 | +5.9 | +4.9 | +1.0 |
| 1950 | +5.6 | +5.1 | +0.5 |
| 1951 | +1.5 | +4.9 | -3.4 |
| 1952 | +4.7 | +5.1 | -0.4 |
| 1953 | +9.5 | +5.6 | +3.9 |

The main finding is that the observed higher level of the over-all wage fraction in post-war years is simply an effect of the relative expansion of industries with high wage fractions. Thus, for 1947 the observed wage fraction was 52.6 per cent, which is 4.5 percentage points higher (Col. 1) than the average for the five years 1935-39. However, this was 0.8 percentage points less (Col. 3) than the wage fraction should have been that year, had the wage fractions of all individual industries remained at their 1935-39 level. Thus, a change of +5.3 percentage points (Col. 2), must have been due to inter-industrial shifts. It will be noticed that the effect of inter-industrial shifts was about the same size in all years, according to the computations, whereas the effect of changes in the wage fractions of individual industries fluctuated considerably.

It is interesting to note that changes in the wage fraction of individual industries have been particularly unfavourable to labour in manufacturing. This is clear from Table III. Even within manufacturing the disproportionate expansion of industries has been in the direction of tending to increase the wage

TABLE III
*Changes in the Wage Fraction from 1935-39 to Post-War
ears, Decomposed to Isolate the Effect of Inter-Industrial
Shifts: Manufacturing*

| | Actual Change in the Wage Fraction (Percentage Points) | Of Which Due to: | |
|------------------|--|----------------------------|---|
| | | Inter-industrial Shifts | Changing Wage Fractions With- in Individual Industries |
| From 1935-39 to: | (1) | (2) | (3) |
| 1946 . . . | -5.5 | +1.4 | -6.9 |
| 1947 . . . | -4.5 | +3.1 | -7.6 |
| 1948 . . . | -5.1 | +3.0 | -8.1 |
| 1949 . . . | -1.4 | +2.9 | -4.3 |
| 1950 . . . | -1.2 | +3.5 | -4.7 |
| 1951 . . . | -3.2 | +4.0 | -7.2 |
| 1952 . . . | -0.7 | +3.5 | -4.2 |
| 1953 . . . | -0.2 | +3.3 | -3.5 |

fraction (Col. 2), although less so than for the economy as a whole. Nevertheless, the actual wage fraction in all years was much below pre-war level (Col. 1). This was due to the fact, that, on the whole, the wage fraction of individual manufacturing industries deteriorated considerably, as is seen from Col. 3. (A deterioration of 7.2 percentage points, as in 1951, means that wage and salary earners that year received 350 million kr. less than they would have got on the 1935-39 distribution pattern, which compares with their actual share of 2,543 million kr.)

A note of warning must be given as to the interpretation of the above results. The analysis leaves no doubt that the wage fraction within most industries has been definitely lower after the war than during the period 1935-39. It does not necessarily follow from this, however, that the income distribution after the war has been less favourable to wage and salary earners than in the 1930s. This is an entirely different question. To answer it, a

number of other factors – such as the number of employed relative to self-employed persons, the size of the labour force compared to that of other factors of production, and the effect of direct taxation – will have to be analysed. This, in general, is outside the scope of the present paper. However, our treatment of the long-term development of the wage fraction would be incomplete unless a note is added concerning the significance of changes within the labour force.

4. *Effects of the relative increase in the number of employees*

Over the period in question the number of employees has been constantly increasing relatively to that of self-employed and employers. This has been partly due to inter-industrial shifts, in particular the relative decline of agriculture and fishing; and perhaps the importance of incorporated business has also been increasing. Whatever the causes may be, the relative growth of the number of wage and salary earners must by itself have tended to raise the share of wages in national income.

The extent to which this has been the case may be examined by means of a graphic presentation used for the first time by Phelps Brown and Hart in their recent study of the English wage fraction.¹ A Phelps Brown-Hart diagram for Norway, for the economy as a whole, is shown in Chart B.

In the diagram is measured, along the vertical axes, the share p of wages in total factor income, that is, the wage fraction, and along the horizontal axes the proportion t of wage earners to all occupied persons. Thus, any year will be represented in the diagram by a point corresponding to the actual combination (t, p) of that year. When these points are connected year by year, they will form a time-path through the Chart, the direction of which it is interesting to study. If the path is a horizontal line over a certain span of time, it means that the share of wages remained constant while the proportion of wage earners changed. If the path is vertical, it means that the wage fraction changed even though the proportion of wage earners to total labour force remained constant.

In such a diagram the slope of the path will indicate whether average wage earnings have risen or fallen relatively to other incomes. According to Brown and Hart, two criteria may be

¹ *Loc. cit.*

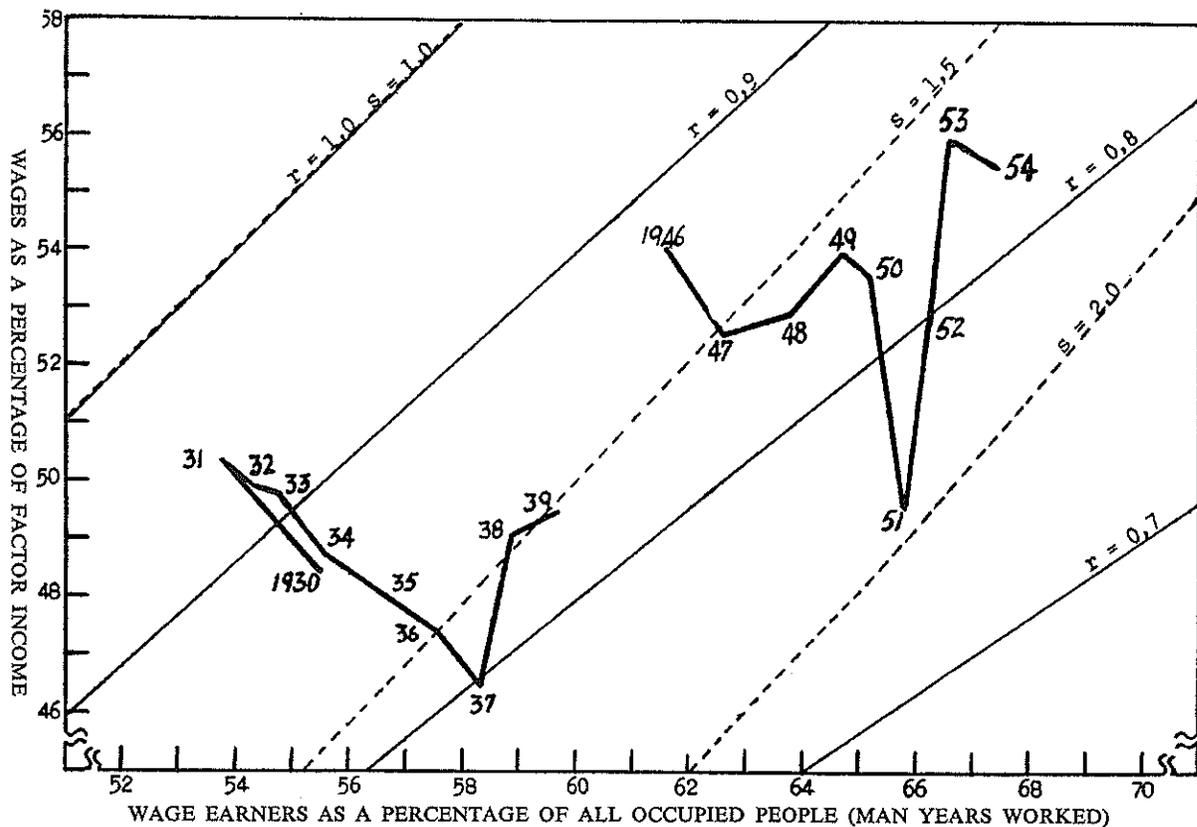


CHART B. Brown-Hart diagram for Norway. All industries including non-business. For explanation see text

used to form a judgment on this. First, we may ask whether average wage earnings have born a steady ratio, r , to the average income of all occupied persons, this will be the case if the path forms a straight line through origin (a radian). Secondly, we may ask whether the development has been such as to keep the average income of 'other people' a constant multiple, s , of average wage earnings, in which case the path will, in general, be a curved line.

Some constant- r lines and constant- s curves, for various values of r and s , are shown in Chart B. We can now read from the graph on both criteria what has happened to the relative position of the average wage earner. Thus, using the s -curves we find that the average earnings of 'other people' in the beginning of the 1930s was 1.2–1.3 times that of the average wage-earner ($s=1.2-1.3$). Towards the end of the decade this proportion changed against the wage earners, s now being about 1.5. In post-war years the value of s has been even higher than this. Thus we have to conclude that, since 1930, average wage earnings have not kept pace with the average income of 'other people'. This is true irrespective of the fact that the overall wage fraction has increased. The overall wage fraction, therefore, is an unreliable guide to problems of income distribution as far as long-term changes are concerned.

III

1. *Business cycle pattern of the wage fraction*

We now turn our interest to the movements of the wage fraction over the business cycle. A priori, one would, of course, expect that interest and rent, since they are largely contractual, will behave slightly contra-cyclically but not very strongly so, and that the effects of the business cycle will show up mainly in the shares flowing to wage earners and entrepreneurs. Within these groups, one would expect entrepreneurial incomes to fluctuate more violently than wages, and for this reason to behave cyclically, whereas wages ought to show a counter-cyclical pattern.

These hypothesis are confirmed by the statistics. With respect to wages this is clear already from Chart A. In particular, when the ordinary business sector is considered in isolation from non-

business activity, the counter-cyclical movement of the wage fraction stands out quite clearly. The wage fraction reaches extremely low levels in the peak economic years 1930, 1937 and 1951. The corresponding drop in 1947 shows up less distinctly, but even for this year a drop is to be observed. In periods where the general economic situation slackens as in 1931-33, 1938, 1949-50, 1953 the wage fraction rises again, to reach its highest levels when economic activity is at a low point.

It seems that the troughs are less prolonged than the peaks, and show up much less sharply the latter. If this is so, it means that the effects of booms on the wage fraction are sudden and violent, whereas the downward swings of the business cycle work out their influence more gradually.

A classification of the ordinary business industries into three groups: trade and other service industries, excluding transport; agriculture, forestry and fishing; and other commodity production and transport (Chart C), shows some interesting features.

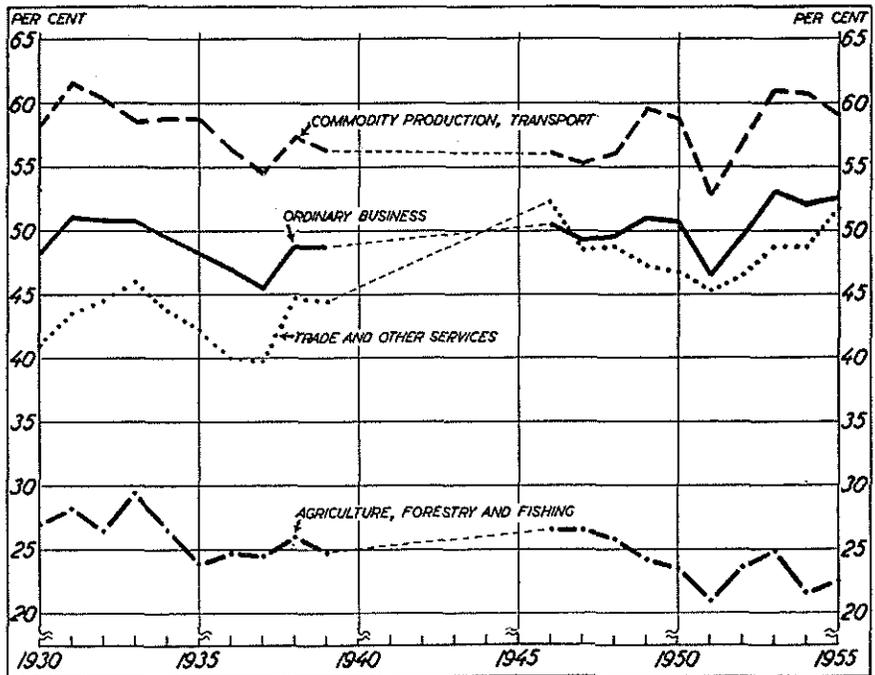


CHART C. Wage fractions for special groups of industries (non-business excluded)

The counter-cyclical pattern can be traced in all three components. It is least marked in agriculture, forestry and fishing, as might be expected. The surprising feature is that the cyclical swings show up with about the same strength in the two remaining series, in particular during the 1930s, although with some difference in timing. This is unexpected, since the greater relative importance of fixed capital costs and other factors would have led one to expect more violent fluctuations within the commodity production and transport group than within the services group (which is dominated by the distribution trade). One explanation may be, though, that the service industries are less likely than other industries to cut wage expenses in depression years by cutting the number of employees. However, in the case of the service industries the statistics used are so weak that the findings on this point are not conclusive.

2. *Cyclical movements originate in export industries*

Can any explanation of the cyclical pattern of wages and entrepreneurial incomes be found? A glance at the basic statistics of the national accounts leaves us with an extremely heterogeneous picture of the way in which the wage fraction behaves. In fact, variations amongst individual industries are so great, both as regards cyclical movements and trends, as to make it seem very doubtful whether any simple explanation of the behaviour of the wage fraction can be found.

However, it turns out that a simple reclassification of the original material brings order out of chaos. In Chart D the forty-seven industries distinguished in the national accounts have been classified into 'export industries' and 'home market industries' (again non-business activity has been left out), and the wage fraction has been computed for each group separately. It then becomes apparent that *six export industries¹ account for*

¹ The industries classified as export industries are whaling, metal mining, metal extracting, chemicals, pulp and paper, and shipping. Each of these industries in most years export 75 per cent or more of their output. The weights of these industries in the export total were:

| | 1935 | 1950 |
|----------------------------|-------|-------|
| Whaling | 9.1 | 7.9 |
| Metal mining | 5.2 | 4.0 |
| Metal extracting | 9.4 | 10.6 |
| Chemicals | 12.5 | 16.9 |
| Pulp and paper | 18.2 | 18.9 |
| Shipping | 45.6 | 41.7 |
| | 100.0 | 100.0 |

the greater part of the anti-cyclical behaviour of the allover wage fraction. For the export group the drop of the wage fraction is very distinct in all peak years (1930, 1937, 1947, 1951 and 1955). They are much less noticeable, if noticeable at all, in industries classified as home market industries.

One further point: the suggestion made earlier, that years with extremely low values of the wage fraction are fewer than years with high values, are confirmed by Chart D. That is, judging

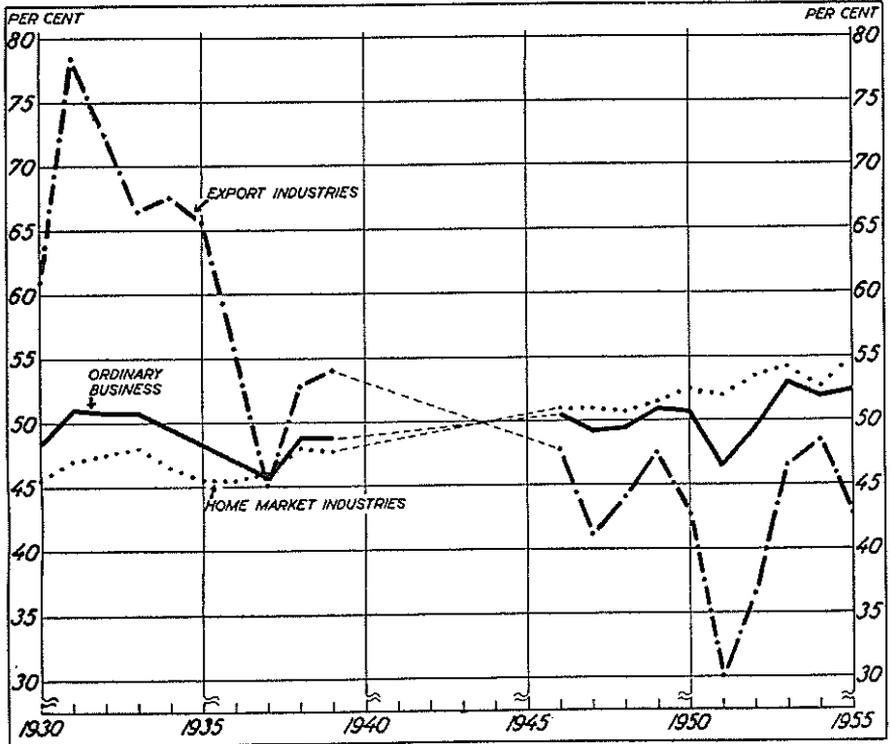


CHART D. Wage fractions for export and home market industries (non-business excluded)

from the statistics on income shares, periods of extreme prosperity are of a shorter duration than the intermediate periods of depression or recession.

Even among the export industries the movement of the wage fraction is by no means uniform. Individual variations are, in

fact, very great. This applies as well to the location of turning points as to amplitudes and trends. With the exception of whaling, however, they all fit in fairly well with the pattern conveyed by Chart D. As will be clear from the weights of the individual industries, shipping is the industry contributing most to the general picture.

The very marked counter-cyclical movement of the wage fraction within the export industries, with heavy but short-lived falls in boom years, are obviously a consequence of the structure of the market for their products. To generalize, the outstanding feature of this structure (which also accounts for the very considerable improvement of Norway's terms of trade usually taking place in years of high international activity), seems to be that the short-term world supply curves of the goods and services in question (e.g. pulp and shipping services) becomes very inelastic as production reaches a certain point. Thus, when world demand expands above certain limits, prices are likely to rise steeply. Profits rise with prices, and as a consequence the wage fraction goes down.

3. Export industries and home market industries are different also with respect to trend

Apart from showing that the short-term movements of the overall wage fraction are dominated by the export industries, Chart D also brings out an interesting contrast with respect to the trends of the two series. It has been pointed out above that the overall wage fraction has increased only insignificantly from pre-war to post-war years if the non-business sectors are omitted from the analysis. It can now be seen that this relative constancy is the net effect of strong, but opposite trends in home market industries and export industries.

Within the home market industries (non-business sectors excluded) the trend of the wage fraction has been clearly upwards. The wage fraction averaged 52.6 per cent in the post-war period against only 46.7 per cent in the 1930s.

In contrast to this, the trend within the export industries has been downwards, and the wage fraction has been on a very much lower level after the war than before the war. The reasons for this may be many. Part of the explanation probably is that export industries have gradually become more capital intensive, so that for this reason capital gets a larger share. Even more

decisive has been the fact that the market situation for these industries has been much improved after the war. It is certainly also of importance that the products of the export industries have not, in general, been subject to price control, as have most products of the home market industries in the post-war period.

4. *The different cyclical pattern of the wage share in home market industries and export industries within commodity production and transport*

All industries treated as export industries in the above analysis are within the group that in Chart C was classified as 'commodity production and transport' (except agriculture). For this group, as a whole, it has been found that the wage fraction behaved clearly counter-cyclically. The findings of the last section suggest that this may be largely an effect of the export industries, and that it may pay to look into the matter once more.

Chart E has been prepared in order to isolate the movement of the wage fraction for home market industries within the commodity production and transport group, excluding agriculture. The results brought to light are rather astonishing. Not only do we find repeated the picture, seen also from Chart D, of the opposite trends of the wage fraction within exporting and home market industries, but within the latter group the wage fraction is now seen, by and large, to move in the same direction as the trade cycle, that is, cyclically rather than counter-cyclically. Within this important group of industries, therefore, which account for something between one-third and one-half of all factor income originating within ordinary business, the general assumption of the counter-cyclical movement of the wage fraction does not seem to hold.

Another interesting point is that the curve representing home market industries appears to lag slightly behind that of the export industries. That is to say, within industries producing commodities or transport services for the home market, the wage fraction stays at a maximum some time after the wage fraction of the export industries has reached a minimum. A possible explanation of this could be that, as the profit of export industries reaches extreme heights, and import prices and the cost of living index move upwards (as is usually the case during an international boom), wage-earners will in general press for,

and receive, higher wages. Since higher wages cannot be expected to be reflected immediately in higher prices, the effect will be a temporary reduction in entrepreneurial income and a

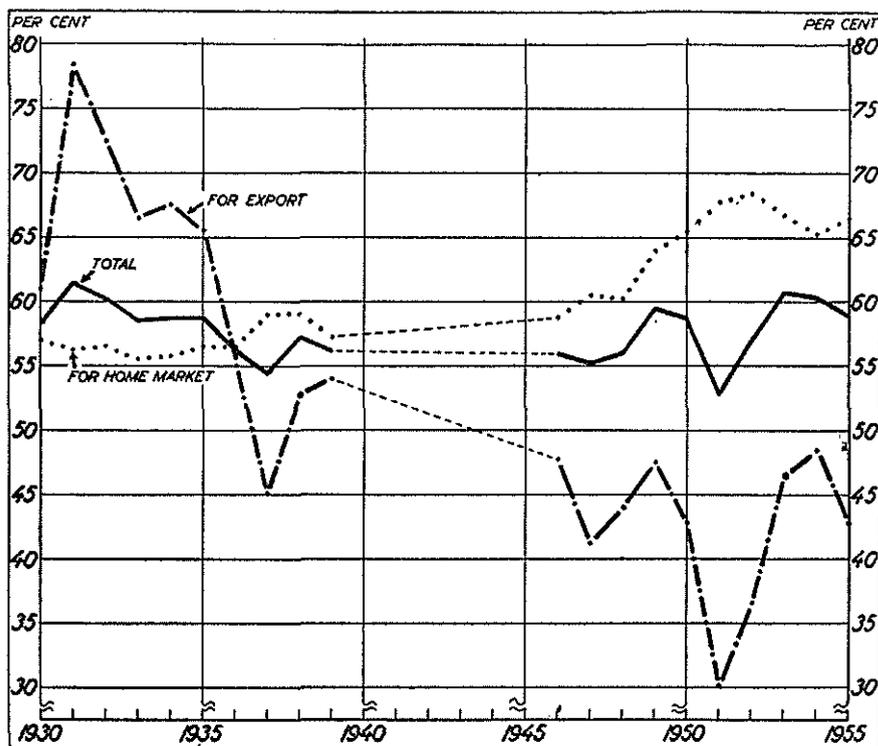


CHART E. Wage fractions for commodity production (except agriculture) and transport, separately for home market and export (non-business excluded)

corresponding rise in the wage fraction in all industries. It must be stressed, however, that what has just been said is nothing more than a crude hypothesis, which needs much closer study if it is to be verified.¹

¹ Compare, however, the following observation by Dunlop: 'Changes in the terms of trade may effect the relative movements of real and money wage rates in two ways. (a) A change in export prices may influence money wage rates through employer or trade union pressure. Thus increased export prices may induce trade unions to push up wage rates. (b) A change in import prices affects the cost of living, and thereby wage rates.' John T. Dunlop, 'The Movement of Real and Money Wage Rates', *Economic Journal*, Vol. XLVIII, p. 415, September 1938.

IV

Main findings

Our chief findings may be briefly summarized as follows :

- (1) Considerable changes have taken place in the relative size of different national income shares since 1930. Net interest and net income from dwellings have been steadily declining in relative magnitude. The greatest relative gain has been in earnings of self-employed persons in agriculture, forestry and fishing. Other entrepreneurial incomes have shown no definite trend. The share of wages has gone up from 48.8 per cent of total factor income in average over the 1930s to 53.7 per cent on the average for the post-war years.
- (2) However, although the wage fraction has been rising, the proportion of wage and salary earners to all occupied people has risen even faster: thus average wage earnings have tended to decrease relatively to the average earnings of 'other people'.
- (3) The increase of the overall wage fraction is due to inter-industrial shifts, rather than to increasing wage fractions of individual industries. Most of the increase is accounted for by trends outside the ordinary business sector, such as the growth of civil service industries.
- (4) The observed relative constancy of the wage fraction in ordinary business is the combined effect of opposite trends within the two groups, export industries and home market industries. Within export industries the wage fraction has shown a strong downward tendency, whereas it has been slightly increasing in industries working for the home market.
- (5) Over the period studied the overall wage fraction has behaved in a clearly counter-cyclical manner, reaching its lowest values in peak years. It seems that the troughs are less prolonged than the peaks and show up less sharply than the latter.

- (6) Export industries behave differently from home market industries with respect, also, to the cyclical pattern. In fact, the counter-cyclical behaviour of the overall wage fraction is almost completely accounted for by six export industries, shipping being the most important single industry within this group. Within home market industries as a whole cyclical movements are rather weak. However, there are important differences within this group. Thus, for commodity production and transport industries, selling on the home market, the wage fraction appears to have behaved cyclically rather than counter-cyclically.

TABLE IV
Factor Income and Wages by Industry: Norway 1935-39 and 1946-55
 (Thousands of millions of kroner)

| | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <i>Factor income</i> | | | | | | | | | | | | | | | | | | | | |
| Entire economy | 3.58 | 3.07 | 3.09 | 3.08 | 3.25 | 3.50 | 3.92 | 4.50 | 4.68 | 5.03 | 8.65 | 10.28 | 11.36 | 11.90 | 12.94 | 15.95 | 17.14 | 17.32 | 18.93 | 19.87 |
| Non-business | .72 | .71 | .69 | .68 | .68 | .71 | .73 | .75 | .79 | .86 | 1.23 | 1.20 | 1.28 | 1.40 | 1.48 | 1.69 | 1.90 | 2.16 | 2.39 | 2.59 |
| Ordinary business | 2.86 | 2.36 | 2.40 | 2.40 | 2.57 | 2.79 | 3.19 | 3.75 | 3.89 | 4.17 | 7.42 | 9.08 | 10.08 | 10.50 | 11.46 | 14.26 | 15.24 | 15.16 | 16.54 | 17.28 |
| <i>Ordinary business:</i> | | | | | | | | | | | | | | | | | | | | |
| Agriculture forestry, fishing | .78 | .36 | .35 | .34 | .40 | .46 | .47 | .58 | .64 | .57 | 1.21 | 1.42 | 1.64 | 1.80 | 1.76 | 2.12 | 2.41 | 2.29 | 2.58 | 2.47 |
| Commodity production, transport | 1.59 | 1.29 | 1.35 | 1.38 | 1.44 | 1.54 | 1.83 | 2.15 | 2.21 | 2.44 | 4.70 | 5.78 | 6.37 | 6.45 | 7.21 | 9.19 | 9.60 | 9.55 | 10.33 | 11.12 |
| Of which for home market | 1.10 | .98 | 1.04 | 1.03 | 1.09 | 1.16 | 1.33 | 1.43 | 1.57 | 1.76 | 3.54 | 4.20 | 4.69 | 4.71 | 5.03 | 5.52 | 6.19 | 6.87 | 7.57 | 7.79 |
| Trade and other services | .79 | .71 | .70 | .68 | .73 | .79 | .89 | 1.02 | 1.04 | 1.16 | 1.51 | 1.88 | 2.07 | 2.25 | 2.49 | 2.95 | 3.23 | 3.32 | 3.63 | 3.69 |
| Home market industries | 2.37 | 2.05 | 2.09 | 2.05 | 2.22 | 2.41 | 2.69 | 3.03 | 3.25 | 3.49 | 6.26 | 7.50 | 8.40 | 8.76 | 9.28 | 10.59 | 11.83 | 12.48 | 13.78 | 13.95 |
| Export industries | .79 | .31 | .31 | .35 | .35 | .38 | .50 | .72 | .64 | .68 | 1.16 | 1.58 | 1.68 | 1.74 | 2.18 | 3.67 | 3.41 | 2.68 | 2.76 | 3.33 |
| <i>Wages and salaries</i> | | | | | | | | | | | | | | | | | | | | |
| Entire economy | 1.73 | 1.55 | 1.54 | 1.54 | 1.59 | 1.69 | 1.86 | 2.09 | 2.30 | 2.49 | 4.68 | 5.41 | 6.01 | 6.43 | 6.94 | 7.91 | 9.04 | 9.67 | 10.36 | 10.97 |
| Non-business | .35 | .34 | .32 | .32 | .32 | .34 | .36 | .38 | .40 | .46 | .94 | .93 | 1.01 | 1.09 | 1.13 | 1.29 | 1.48 | 1.65 | 1.77 | 1.89 |
| Ordinary business | 1.38 | 1.21 | 1.21 | 1.22 | 1.27 | 1.35 | 1.50 | 1.71 | 1.90 | 2.03 | 3.74 | 4.48 | 5.00 | 5.34 | 5.81 | 6.62 | 7.56 | 8.02 | 8.59 | 9.08 |
| <i>Ordinary business:</i> | | | | | | | | | | | | | | | | | | | | |
| Agriculture, forestry, fishing | .13 | .10 | .10 | .10 | .11 | .11 | .12 | .12 | .17 | .14 | .32 | .38 | .42 | .44 | .42 | .44 | .57 | .57 | .55 | .56 |
| Commodity production, transport | .93 | .80 | .81 | .81 | .84 | .91 | 1.03 | 1.17 | 1.26 | 1.37 | 2.63 | 3.19 | 3.54 | 3.84 | 4.23 | 4.84 | 5.49 | 5.84 | 6.27 | 6.62 |
| Of which for home market | .63 | .56 | .59 | .58 | .60 | .66 | .75 | .85 | .92 | 1.00 | 2.07 | 2.54 | 2.83 | 3.02 | 3.30 | 3.74 | 4.24 | 4.59 | 4.93 | 5.19 |
| Trade and other services | .32 | .31 | .31 | .31 | .32 | .33 | .35 | .40 | .47 | .52 | .79 | .91 | 1.01 | 1.06 | 1.16 | 1.34 | 1.50 | 1.61 | 1.77 | 1.90 |
| Home market industries | 1.08 | .97 | .99 | .99 | 1.03 | 1.10 | 1.22 | 1.39 | 1.56 | 1.66 | 3.18 | 3.83 | 4.26 | 4.52 | 4.88 | 5.52 | 6.31 | 6.77 | 7.25 | 7.65 |
| Export industries | .30 | .24 | .22 | .23 | .24 | .25 | .28 | .32 | .34 | .37 | .56 | .65 | .74 | .82 | .93 | 1.10 | 1.25 | 1.25 | 1.34 | 1.43 |

TABLE IV (continued)
Wages and salaries as percentage of factor income

| | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <i>Wage fractions</i> | | | | | | | | | | | | | | | | | | | | |
| Entire economy . | 48.5 | 50.4 | 49.9 | 49.8 | 48.8 | 48.1 | 47.5 | 46.5 | 49.1 | 49.5 | 54.1 | 52.6 | 52.9 | 54.0 | 53.6 | 49.6 | 52.7 | 55.8 | 54.7 | 55.2 |
| Non-business . | 49.5 | 48.3 | 46.8 | 46.3 | 46.6 | 47.7 | 49.3 | 50.4 | 50.6 | 53.1 | 76.6 | 77.9 | 78.9 | 77.5 | 76.2 | 76.6 | 77.8 | 76.2 | 73.9 | 72.9 |
| Ordinary business . | 48.2 | 51.0 | 50.7 | 50.8 | 49.5 | 48.2 | 47.1 | 45.8 | 48.7 | 48.7 | 50.4 | 49.3 | 49.6 | 50.9 | 50.7 | 46.4 | 49.6 | 52.9 | 52.0 | 52.6 |
| Ordinary business: | | | | | | | | | | | | | | | | | | | | |
| Agriculture, forestry, fishing . | 27.0 | 28.2 | 26.5 | 29.4 | 26.6 | 23.7 | 24.7 | 24.4 | 25.9 | 24.8 | 26.5 | 26.5 | 25.7 | 24.3 | 23.6 | 20.9 | 23.6 | 24.8 | 21.5 | 22.6 |
| Commodity production, transport | 58.3 | 61.6 | 60.2 | 58.4 | 58.7 | 58.7 | 56.2 | 54.4 | 57.3 | 56.3 | 56.0 | 55.2 | 56.0 | 59.5 | 58.7 | 52.7 | 57.1 | 61.1 | 60.7 | 59.1 |
| Of which for home market . | 57.0 | 56.3 | 56.5 | 55.5 | 55.8 | 56.4 | 56.4 | 59.0 | 59.1 | 57.2 | 58.7 | 60.5 | 60.3 | 64.0 | 65.6 | 67.8 | 68.5 | 66.8 | 65.2 | 66.6 |
| Trade and other services . | 40.9 | 43.5 | 44.6 | 46.1 | 43.8 | 42.3 | 40.1 | 39.7 | 44.7 | 44.6 | 52.3 | 48.5 | 48.8 | 47.2 | 46.7 | 45.2 | 46.6 | 48.7 | 48.7 | 51.7 |
| Home market industries . | 45.6 | 46.9 | 47.5 | 48.1 | 46.6 | 45.5 | 45.4 | 45.9 | 47.9 | 47.7 | 50.9 | 51.0 | 50.7 | 51.5 | 52.6 | 52.1 | 53.4 | 54.3 | 52.7 | 54.9 |
| Export industries . | 61.0 | 78.4 | 72.4 | 66.6 | 67.5 | 65.4 | 55.7 | 45.1 | 52.8 | 54.0 | 47.8 | 41.2 | 44.0 | 47.5 | 42.8 | 30.0 | 36.6 | 46.6 | 48.5 | 72.8 |