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To determine the relationship between wage structure and employment patterns available evidence on changes in relative earnings and in relative numbers employed were surveyed for periods up to 15 years in 10 countries: Belgium, Canada, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom, and the United States. Some findings were: (1) Industrial, occupational, regional wage rankings and wage differentials have been quite stable over relatively long periods of time, (2) Job turnover rates tend to be high where pay is low, and vice versa, and (3) Industry earnings averages appear to be related to the degree of concentration and profitability. Some implications were: (1) Wages should not be interpreted as having a causal relationship with a changing pattern of employment, (2) A period of rising wages puts pressure on declining industries and occupations to release workers, and (3) Substantial wage raises are necessary to remedy the position of workers who are recognized as underpaid in their occupation. Changes in relative earnings may improve allocative efficiency in (1) attracting labor to remote regions, (2) reducing labor turnover, (3) preventing attrition of employees for which long training periods are required, and (4) attracting qualified people in newly emerging professional occupations. (DM)

WAGES AND LABOUR MOBILITY

a report by a group of independent experts
on the relation between changes in wage differentials
and the pattern of employment
with a foreword on
the implications of the study for incomes policy . .

by Pieter de Wolff
Professor of Econometrics
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of the Economic Policy Committee of OECD

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

PARIS JULY 1965

The Organisation for Economic Co-operation and Development was set up under a Convention signed in Paris on 14th December 1960 by the Member countries of the Organisation for European Economic Co-operation and by Canada and the United States. This Convention provides that the OECD shall promote policies designed :

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- *to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development ;*
- *to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.*

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The members of OECD are Austria, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

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FOREWORD

by

Professor P. DE WOLFF

THE IMPLICATIONS OF THE STUDY FOR INCOMES POLICY

This study was commissioned by Working Party No. 4 of the Economic Policy Committee of OECD. The Working Party has functioned since 1962 under the following terms of reference: " within the framework of the general objectives of the OECD, to exchange experience on the means of ensuring overall stability of costs of production and prices. " The following paragraphs set forth the main burden of the Working Party's discussions on the policy implications of the Experts' factual findings.

The most important finding of the Expert Group's report is that in the labour markets and periods studied, large short-term changes in relative earnings do not seem to have been necessary to bring about substantial changes in the pattern of employment. It is true that in a number of countries there has been a tendency, when industries are studied in fairly aggregative groupings, for wages to rise faster in branches which were increasing their share of the labour force. But the experts feel that this should not generally be interpreted as a causal relationship, and their study, in particular their examination of the process of job changing in Chapters IV and V, clarifies the way in which expanding industries have in fact generally been able to increase numbers as required through the attractive force of new job vacancies opening up within the framework of the existing wage structure. But while tending to give a low weight to the role of changing wage differentials in channelling the supply of labour (page 17), the report also notes that the rather small differentiation of earnings observed during the period studied has had effects on the demand for labour: it has put pressure on declining industries and occupations to release labour which might have been retained if wages had risen less, and vice versa (page 18).

The Working Party's first report on *Policies for Price Stability*[1] noted that exceptions to the general guideline that earnings should rise in line with the national trend rate of productivity growth might be called for " on the grounds that changes in relative wages have a function in re-allocating labour between different industries and occupations," (paragraph 33). The evidence in the Expert Group's report that labour deployment has on the whole been rather insensitive to changes in relative wages suggests that it would be easy to exaggerate the need for exceptions on these grounds.

A number of comments should be made on this general conclusion. In the first place, as has emerged from previous discussions in the Working Party, " substantial deviations from the norm may sometimes be required, in the

1. OECD, Paris 1963.

interest of equity, to remedy the position of workers who are generally recognised to be underpaid in relation to workers in similar occupations elsewhere" (*Policies for Price Stability*, paragraph 35). The present report is confined to the study of the economic role of changes in the wage structure. It has not attempted to identify cases where changes in existing differentials are dictated by considerations of equity or social justice.

Secondly, a great deal of the available statistical material relates to the manufacturing sector, and within this sector, to production workers. The experts themselves draw attention to the paucity of data on the occupational structure of employment, and to the fact that their material did not enable them to go down to the lowest level of decision taking, namely, the individual enterprise; they were also unable to give much consideration to employment movements within branches of activity as distinct from movements between branches. But it should also be noted that the experts did not confine themselves solely to statistical analysis. In making their study, they were also able to draw on the results of the many investigations which have been made into specific aspects of labour markets, and on their own knowledge of how these markets work in practice. For this reason, they felt able to reach conclusions on some issues on which comprehensive statistical material was not available, although these conclusions are clearly more tentative.

In the third place, a significant part of the data examined relates to North America. Both in North America and the European countries studied, there is some tendency for a stronger relation between employment and earnings changes to be observed during periods of cyclically high economic activity than in periods of above-average unemployment, although the relation is still not particularly close. But in contrast to the general European experience, neither the United States nor the Canadian economies were operating at full employment levels during the period studied, and in the case of Canada, the strengthening of the relationship was more marked than elsewhere. This, in conjunction with certain other aspects of the Canadian labour market, (its big land surface, geographical compartmentalisation, and decentralised wage determination) suggests that some of the data for Canada could be interpreted as showing a higher degree of wage-oriented employment flexibility there than elsewhere.

More generally, the Experts' studies enabled them to identify a number of situations in which a change in relative earnings might be necessary in the interests of allocative efficiency. These are listed below:

a) The findings suggest that an increase in relative earnings may be necessary to attract labour to remote regions with insufficient labour reserves. (pages 19 and 142).

b) The report shows that industries standing low in the wage structure generally have high rates of labour turnover. If such an industry needs to increase its labour force rapidly, and at the same time is badly placed to intercept the flow of new entrants and job changers, an increase in relative earnings may be required to enable it to reduce its labour turnover, thus retaining a higher proportion of its recruits, or where necessary to expand the supply of recruits. (pages 19 and 117).

c) A similar finding applies to certain occupational categories typified by teachers, nurses, etc. Many of these occupations call for relatively long training periods, and to this extent supply is not responsive to short-term changes in demand. While they may be easily recognisable as a social group, they often tend to fall outside the mainstream of

collectively bargained wage determination, and earnings in such occupations have quite frequently lagged well behind the general average. The evidence suggests that beyond a certain critical point, deterioration of relative earnings has had a substantial, and sometimes sudden, impact on numbers in the particular occupation, due both to withdrawals from employment and falling off of recruitment. (pages 16 and 130).

d) A special problem may also arise in the case of some newly emerging professional activities which require specialised educational qualifications. There is some evidence that university students are influenced by probable future earnings in choosing their field of specialisation. In cases where demand is increasing very rapidly, it may therefore be necessary to offer unusually attractive salaries to secure adequate recruitment.

This list of course cannot be regarded as definitive. The nature and importance of the cases calling for special treatment will vary from country to country, and from time to time within the same country. But the general impression given by the material in the report is that, viewed in the context of labour markets as a whole, these cases may be of rather limited quantitative significance.

Public acceptance of incomes policy requires that it be expressed in the most clear and simple language possible. The less the need to provide for special situations, the easier this should be. It follows, given the limited importance of the exceptions, that it should be possible, when formulating the guidelines, to concentrate on the general rule without going into too much detail concerning special cases. At the same time, it is obviously essential that those responsible for the implementation of policy have a clear view of the circumstances justifying departures from the standards set by the guidelines.

Two other points arise from the Working Party's discussion of the Expert Group's report.

a) The report lays much stress on the many imperfections of the labour market—ignorance of potential employment opportunities, geographical immobility, inadequate educational levels or professional training, institutional restrictions on access to certain activities, etc.—all of which operate to hamper the smooth redistribution of labour called for by economic and technological advance. These imperfections are one of the main reasons why the wage mechanism appears to play a more limited role than one might expect. By the same token, the very importance of these imperfections focusses attention on how much could be done to foster a more efficient allocation of labour by direct action on structural and institutional rigidities in labour markets.

b) During the preparation of its second report, the Working Party had several discussions on the role of profits in the process of cost inflation. It concluded that "While it is difficult to disentangle the role of different elements in total costs, it seems probable that the failure of cost reductions to be reflected fully or immediately in prices is an important feature of the process by which costs and prices are levered up under conditions of cost inflation." As a result of the work of the Experts, the Working Party feels that it should have been rather more positive about the role of profits. In this connection, the evidence presented in Chapter VI of the Report suggesting a quite strong relationship

between profits and changes in profits, and wage movements, is both interesting and significant. While this evidence is open to alternative interpretations, it seems to provide further support for the view that a successful incomes policy must cover prices, profits and other non-wage incomes as well as income from employment.

P. DE WOLFF
Chairman of Working Party No. 4
of the Economic Policy Committee of OECD

INTRODUCTION BY THE AUTHORS OF THE REPORT

We were instructed to enquire into the relationship between changes in wage differentials and the distribution of employment. We met as a group on four occasions between April 1963 and July 1964. The composition of the group was

Prof. P. de Wolff (Netherlands) (Chairman)
M. R. Deroo (Belgium)
M. A. Liorzou (France)
Frau Professor S. Münke (Germany)
Mr. C.-E. Odhner (Sweden)
Prof. H. Phelps Brown (United Kingdom)
Mr. G. Saunders (Canada)
Prof. L. Ulman (United States)
Dr. Prof. C. Vannutelli (Italy)

In this report, we have concentrated our attention on the facts about changes in wage structures and in employment patterns, and the relationship between these changes. We have also looked at the non-wage influences acting on labour flows, and, with the aim of a more complete understanding of the working of the labour market, at the factors other than employment which could have had an effect in producing (or preventing) modifications in the structure of earnings. Throughout it has been borne in mind that the nature and importance of the different relationships may differ as between the long and short run, and that the relationships themselves may hold to different degrees according to the economic conditions prevailing during the period over which they are measured.

Numerous points of contact exist between these matters and other more general aspects of economic policy and theory. In order to keep this report of reasonable size, we have limited ourselves as far as possible to the specific issues outlined above, i.e. the effect of wage differentials on labour mobility and the other factors relevant to either or to both in conjunction. In particular we devote rather limited space to other aspects of labour mobility, which, although closely linked to this problem are under study in other bodies of the OECD. For the same reason, neither the fairly complete set of abstracts which we have compiled from the relevant literature, nor the considerable volume of statistical data which were analysed in the course of our research have been reproduced here[1].

We would like to record here our appreciation of the valuable and efficient services rendered by the Secretariat. Mr. Stephen Marris has been associated with the Group's work throughout, and a considerable debt is also owed to the late Mr. Jack Downie for his contributions to the Group's discussions.

1. This material is being made available separately. For details see Statistical Annex.

The report itself was drafted by Mr. Bevan Stein, who was also responsible for supervising the immense volume of statistical analysis undertaken on the Group's behalf by the OECD Statistics Division, in particular by M. Jean Littaye.

I

SUMMARY AND CONCLUSIONS

The present chapter brings together the findings presented in more detail in the body of the report.

A. THE SCOPE AND COVERAGE OF THE DATA

The available evidence on changes in relative earnings[1] and the associated changes in relative numbers employed has been surveyed for periods of up to fifteen years in ten countries—Belgium, Canada, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom and the United States of America, a significant part of the material relating to the last named country. For many of these countries, it was also possible to study additional relevant variables, such as profits, production, concentration and labour mobility. On the other hand there were areas in which the absence of documentation proved a handicap. Thus the Group was unable to examine as thoroughly as it would have liked the behaviour of occupational labour markets, and of industrial labour markets other than manual workers in manufacturing; nor was it possible to go down to the lowest level of decision-taking, i.e., individual enterprises.

The periods studied fall mostly within the years of prevailing high levels of employment since the Second World War. We have consulted a number of studies already published of the forces bearing upon changes in earnings in particular employments, and especially of how far these changes may be connected with changes in numbers employed. The Secretariat has carried through extensive correlations of the association revealed by the statistical record between changes in relative earnings and changes in numbers employed, and other variables that may be associated with the behaviour of either or both together.

B. EARNINGS, CHANGES IN EARNINGS, AND CHANGES IN EMPLOYMENT: FINDINGS OF FACT

Industrial, occupational, and regional wage rankings have generally been quite stable over relatively long periods of time and in the period since World

1. For a definition of earnings see pages 21 and 91.

War II as well. Wage differentials have also exhibited considerable stability over time, although occupational (skill) differentials have tended to narrow markedly over the past half-century (but not in the postwar period). At the same time, a number of industries have persistently experienced either above- or below-average earnings increases.

The relative stability of wage structures stands in contrast to employment experience. Relative changes in net numbers employed have generally been large in comparison with contemporary changes in relative earnings.

Job turnover rates tend to be high where pay is low, and vice versa. Industry earnings averages, in turn, appear to be related to the degree of concentration and profitability.

Some evidence of a positive association between changes in earnings and in relative employment was observed in the following cases:

i) Among broad economic sectors in the US and Canada there is some evidence of a lagged response of earnings to changes in employment. In these countries employment tended to rise most rapidly in the low-wage sectors outside agriculture;

ii) Among broad industry groupings within the manufacturing sector an excess of positive over negative relations appears, but in general the association is weak and it tends to weaken further when the same material is studied in more detailed industry breakdowns;

iii) In some countries, relative wages have fallen in industries experiencing exceptionally great reductions in their shares of total employment over the postwar period;

iv) In the US and Canada, where salaried employment increased greatly relative to non-salaried employment, salaries have risen more rapidly than wages in recent years[1];

v) Certain professional and other occupational groups whose earnings have lagged behind compensation in alternative employment have experienced shortages of labour. In this connection it may also be noted that salary rankings among different industries were less stable than wage rankings;

vi) In some of the countries and for certain groups of workers, there is a rather pronounced association between differential changes in regional earnings and employment, particularly in the longer term.

In general, however, it is our main finding that there is no evidence of a strong systematic statistical relationship between changes in earnings among individual industries and variations in relative employment. This finding applies equally to the shorter and longer term relationships studied and to periods when unemployment was relatively low and/or falling, although it may be that there is some tendency for a higher relationship to be observed as countries move from periods of higher to lower unemployment. Moreover, in most instances where the data provide evidence of a statistically significant relationship, it is clear that the explanatory role of relative wages is over-shadowed by the influence of other factors.

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1. On the other hand, salary rates rose considerably less rapidly in Germany after 1950 than did wage rates, although in this country as elsewhere, employment of salary earners rose more rapidly than employment of wage earners.

C. INTERPRETATION OF THE RESULTS IN THE LIGHT OF ADDITIONAL EVIDENCE

The most obvious interpretation of these findings is that changes in wages have not in practice played an important role in the allocation of labour between different employments. On this view, the movements of labour have been preponderantly wage-insensitive. Opposed to this are our everyday knowledge of employers sometimes raising wages to attract or retain labour, and the widely accepted view that changes in relative pay have an important and sometimes indispensable part to play in drawing labour towards expanding employments and diverting it from others. Neither view is uniquely imposed by our findings. The first view is evidently consistent with them. But so also is the second, because the same findings might be held to show that the wage mechanism is so sensitive and powerful that only slight and temporary variations are required to effect substantial re-allocation of labour.

We have therefore tried to discriminate between the two views by considering our findings in conjunction with additional evidence. This has led us to believe that, with some important exceptions, it is the wage-insensitive explanation that applies, for the additional evidence strongly suggests that (i) the observed changes in the allocation of labour are often brought about by mechanisms other than changes in the wage structure, and (ii) the observed changes in the wage structure are often brought about by forces other than those that allocate labour.

I. Alternative Allocational Mechanisms

The hypothesis that expanding industries can often increase their shares of the labour force (if they so desire) without raising their wages relative to other employment is rendered plausible by the fact that gross mobility rates have been from ten to forty times changes in net employment. This means that large changes in net numbers employed can be generated by only minor variations in either accessions or separations. That some variation in accessions and separations can be effected without changes in relative wages is suggested by evidence concerning the motivation of wage earners with respect to job choice, much of which appears to be non-financial. Financially motivated mobility is indeed of great importance; but to the extent that it reflects such factors as opportunity for more rapid advancement or greater economic security, it need not be in the direction of higher wage levels. Finally, even where movement is purposefully in the direction of higher-wage jobs, (whether or not it reflects full maximisation of net advantage) it may be made in response to differences in wages in the existing structure as distinct from changes in them. These considerations apply to existing job holders in the labour force—most of whom are quite immobile, while some others appear to be chronic job changers—and most of them appear to apply *a fortiori* to the unemployed and also to new entrants to the labour force.

Some expanding industries are in an excellent position to profit from such mobility and thus to raise their accession rates or lower their separation rates at their present rates of pay. Three important conditions for success in this regard are (1) extensive recourse to promotion from within and hiring only at the bottom of the occupational ladder and at certain " key " maintenance and white-collar levels; (2) relatively high existing levels of compensation; and

(3) contraction in other lines of employment. The presence of the first condition facilitates maximum recourse to untrained and inexperienced labour; the presence of the second and third gives the expanding activity greater access to experienced wage earners.

The relatively small differentiation in earnings which we have found may also act as an allocational mechanism. If earnings do not in fact rise significantly more in the expanding than in the contracting employments, firms in the declining sectors will be put under greater economic pressure to shed labour, just as firms in the expanding sectors will find it more profitable to take labour on. Differentiating the rise in earnings bears on the supply of labour at different points in the labour market; maintaining a uniform rise bears on the demand.

II. Influences on the Wage Structure

Wage decisions taken in other labour markets (often in industries with high profits reflecting large productivity gains or strong and price-inelastic demand for their output) are a pervasive influence making for uniformity of earnings changes. Our results have also shown that earnings levels appear to vary with the degree of product market concentration and profit levels. To the extent that earnings differentiation has occurred, it has tended to be in the same direction as changes in profits, and it has also been related to the share of labour costs in total cost. These relationships, considered in conjunction with the observed associations between changes in earnings and in employment on the one hand and changes in profits, output and employment on the other, admit of two different interpretations.

On the one hand, in the situations marked by a relative rise of fall in all three of employment, profits and earnings, the change in earnings is " in the right direction, " and to the extent that labour supplies are sensitive to it, it will function efficiently as an allocative mechanism. (It must be recognised, however, that changes in earnings induced by variables which are not directly correlated with employment—such as labour-cost ratios, concentration rates or key wage bargains elsewhere in the economy—might exert a perverse allocational influence).

On the other hand, the relation between profits and both relative wage changes and changes in employment is also consistent with what may be termed the " prosperity " or " ability-to-pay " thesis. It suggests that the observed differential movements of earnings can be interpreted as a response to an advantageous profit situation by both employers and labour in expanding industries, rather than as a necessary means of attracting additional labour; the employment/earnings correlation then follows as an " echo " of an output-profits-employment relationship. The statistically significant relationships observed between regional earnings and employment may be a case in point; many of the studies which we have consulted reveal a strong positive association between migration and *levels* of income; the more prosperous regions have provided both higher pay and more jobs because they were more prosperous, and pay was not raised solely because there were more jobs to be filled. More generally, it was found that when the influence of changes in profits is held constant, the earnings-employment relationship becomes attenuated.

Both the prosperity thesis and the tendency of wage-changes to be influenced by wage decisions taken elsewhere, especially within the same

2-digit group of industries, are helpful in explaining the contrast between a weak association between changes in wages and in employment among industries (at the 3-digit level) and the somewhat stronger association when broader industry groupings are compared. It is to the association between greater profitability and the rise of relative earnings that we are inclined to ascribe the employment/earnings relationship that appears among groups of industries. Within such groups however, industries with varying employment and profit experience but in the same orbit of wage determination may experience very similar wage movements.

III. The Importance of Differential Changes in Earnings

For the most part, however, we find that the associations between changes in relative employment and relative earnings in the situations summarised in page 16 above are of economic as well as statistical significance. One of these deserves further comment: it concerns cases in which earnings in a given employment have fallen behind those generally available elsewhere to the grades of labour concerned. The fact that a fall in relative earnings has reduced the supply of labour does not seem to us inconsistent with our other findings, that a rise in relative earnings is not generally indispensable if the supply is to be raised: the stimulus to leave a given employment is evidently greater when earnings there are exceptionally low relative to those in most alternative employments than when earnings in only one or a few other employments are exceptionally high.

We have indicated above that the existence of relatively high *levels* of pay in expanding industries facilitates redeployment of labour without *changes* in relative earnings. (It does not, however, constitute a sufficient condition of success in this respect). In certain cases employment has indeed tended to grow most rapidly in high-wage industries (and in such cases, the relationships between changes in earnings and changes in employment are weakened when the influence of levels of pay is held constant). However, in other instances, the tendency has been for employment in low-wage sectors (especially some service industries) to expand more rapidly than employment elsewhere. If such situations are associated with shortages of labour, above-average increases in wages could well be a condition of an expansion of numbers employed. A similar situation may occur in the case of expanding industries in remote areas, in which there are labour shortages, and to which there is some reluctance to move.

We also note the possibility that the supply of labour to *occupations* requiring specific qualifications will vary with prospective earnings. It is a limitation of the materials we have studied that few of them concern the occupational as distinct from the industrial deployment of labour; and it is in any case difficult to trace the long-run relations that are involved in the adjustment of the supply of labour to occupations requiring extensive periods of preparation, in particular the professions.

But there are indications that the supply of entrants and trainees to a qualified occupation varies with the earnings which the occupation is from time to time expected to afford. This may be of particular importance in the case of certain occupations which emerge as a result of technical and economic change, particularly if such change is proceeding at a rapid rate. High earnings may be a necessary condition to help overcome the labour shortages which are characteristic of these occupations in the short run.

IV. The Importance of Existing Earnings Differentials

The generally weak relationship observed between changes in earnings and in employment in conjunction with the relative stability of inter-activity earnings relationships calls attention to the importance of the existing earnings structure as an independent influence on employment flows. This influence may be felt in a number of ways. Reference has already been made to the effect of the maintenance of the existing structure in inducing firms in declining activities to shed labour more rapidly than they might otherwise have done. The same is true of intra-industrial labour allocation. The stability of earnings relativities is a factor making for the elimination of the least efficient firms because they are unable to pay the going rate.

The allocative function of the existing structure must be seen in the light of (1) the relationship between pay levels and separation rates, (2) the opening of job vacancies in various activities. Through these agencies the existing structure serves both to maintain a certain allocation of labour between employments, and to promote changes in that allocation by promoting the movement of labour to expanding employments. Much of our evidence suggests that it may be possible to find applicants for jobs which offer relatively low pay; but it can be inferred from the association between low pay and high separation rates that, if sufficiently attractive job alternatives were available, difficulty would be experienced in maintaining the numbers in such employment, and that the labour retained would tend to be qualitatively less suitable than the labour which had moved to another activity. Relatively high pay, on the other hand, both enables management to retain labour of the requisite quality and (save in some cases where particular qualifications are in short supply) to expand employment as vacancies open up. We have seen that if vacancies open up in an industry that stands low in the wage structure, it may well have to raise its relative pay; but we also note that in other cases an expanding industry which offers no higher earnings grade for grade than others can still offer any one worker higher earnings at a given stage in his working career because his transfer in effect provides more rapid advancement. We conclude that much of the movement of labour in the presence of relatively stable earnings differentials can be accounted for by shifts from step to step of the existing structure.

II

CHANGES IN WAGE STRUCTURES

The discussion in the present chapter relates to the development of wage structures with a view to assessing their variability over time and from country to country. A similar analysis of employment structures, and a comparison of their variability with that of wage structures, is made in Chapter III.

Different types of labour and labour markets can be classified in many different ways. A full specification, for example, might refer to a man or woman in a particular occupation, in a particular industry, in a particular region, in a firm of given size, and so on. From the point of view of the problems connected with incomes policy, the industrial structure of earnings is perhaps the most significant. Modern collective bargaining is predominantly conducted on an industry or firm, rather than on an occupational basis—although some important occupational sectors are covered by craft unions—and the extent to which the inter-industry allocation of labour is responsive to changes in industry earnings levels is a major policy preoccupation. But the *occupational* structure is clearly of great importance. To a large extent, the problems of assuring balanced occupational employment coincide with those met in connection with the by-industry distribution of employment. But from an efficiency point of view, there is the further problem that the time taken to train for certain occupations means that there can be lags before adequate supplies of needed grades become available. From time to time, specific wage increases resulting from shortages of this type have had a role to play in rationing demand and in promoting general wage increases. Finally, the relation between *regional* wage structures and the geographical distribution of labour presents policy problems which overlap those raised by the occupational and industrial wage structures. These problems are also related to more general questions of manpower and social policy, and certain special aspects of regional earnings and employment relationships are dealt with separately in Chapter VIII.

In general, increases in earnings have not been broken down into their different components. This would be relevant in a study of how earnings changes have come about; it is less so in a discussion of the impact of these changes on the allocation of labour. Nevertheless, mention must be made of one particular component of earnings which has received considerable attention in recent years, namely wage drift. Drift may be shortly defined as those pay supplements whose effect is to raise total earnings more rapidly than the strict application of general collective bargaining provisions would otherwise have

implied[1]. From time to time, drift has been a symptom of excess demand for labour, where employers have competed for labour in the same bargaining area, or have been reluctant to incorporate additional payments into basic rates lest the increases thus granted spread to less scarce groups. It has been observed in situations of generally excess demand, but also in situations of overall balance and even moderate unemployment. In practice the modifications of the wage structure which would have resulted from such drift have often tended to be offset by the negotiation in collective bargains of greater increases for those who were not in a position to benefit from drift. In other cases, drift has operated in favour of groups for whom below-average pay increases had been arranged in negotiated settlements in an attempt to alter wage differentials. Either way, the outcome of the interplay of drift and collective bargaining, given the pressures to maintain traditional wage relationships, has been a levering up of the general level of earnings, in most cases without any considerable changes in existing industrial or occupational earnings relativities. Attention is therefore focussed in this report on the total earnings of the categories of employees studied, with reference where appropriate to the role played by drift as an influence on wage structures.

Our own studies and those of other observers relating to different countries and periods of time have in general yielded very similar results. These may be summarised as follows:

i) There tend to be quite big differences between average earnings in different occupations, industries or regions.

ii) Variations about the average rate of increase of earnings have tended to be small relative to changes in net numbers employed, whatever the classification adopted.

iii) Differences in average earnings between occupations, industries or regions have tended to change only slowly, although in particular cases the cumulative effect has been substantial. At the same time, the *ranking* with respect to average earnings of individual industries, occupations or regions within the relevant wage structure has tended to be quite stable.

THE INDUSTRIAL WAGE STRUCTURE

Long Term Trend

The impression gained from a survey of the studies which have been made of the changes in the industrial wage structure over periods of up to 50 years is one of very considerable stability. Unfortunately, the country coverage of these studies is limited; the available material relates only to the United States, Sweden, Canada and the United Kingdom. For these countries, the correlation coefficients between the beginning- and end-period industry earnings structures derived by different authors are set forth in Table 1. Stability in ranking is found whether average earnings of all workers, or of specific groups of workers, are studied.

1. Wage drift can be generated in many ways: shop floor pay-setting "filling in" decisions at national level, overtime allowances, up-grading, productivity bonuses, etc. The definition of drift is partly a statistical matter relating to the way figures are reported. More fundamentally, its components and their contribution to total vary according to the prevailing institutional organisation of wage decisions.

TABLE 1. COEFFICIENTS
OF RANK CORRELATION BETWEEN EARNINGS STRUCTURES

COUNTRY	YEARS	NO. OF YEARS	NO. OF INDUSTRIES	WORKERS	CORRELATION COEFFICIENT		SOURCE
					VALUE	TYPE	
Sweden	1938, 1948	10	56	Men	.69	Spearman	(1)
	1948, 1962	14	43	Men	.77	Spearman	(2)
	1938, 1962	24	43	"	.70	Spearman	(2)
USA	1899, 1947	48	84	All	.73	Not identified	(3)
	1899, 1950	51	76	"	.66	Not identified	(3)
	1939, 1951	12	28	All	.82	Not identified	(4)
	1923, 1946	23	20	Unskilled	.73	Spearman	(5)
	1929, 1939	10	20	"	.89	Spearman	(5)
UK	1938, 1946	8	28	All	.90	Not identified	(4)
	1938, 1951	13	28	"	.88	Not identified	(4)
Canada	1921, 1956	35	88	Men	.65	Spearman	(6)

Sources :

1. Sveriges Officiella Statistik: *Lönestatistik för Sverige 1938*, Stockholm 1940, and *1948*, Stockholm 1950.
2. Statistika Centralbyrån: *Statistika Meddelanden*, 1963, 44, Stockholm 1963.
3. D. E. Cullen, " The Interindustry Wage Structure 1899-1950, " *American Economic Review*, June 1956.
4. P. Haddy and N. A. Tolles, " British and American Changes in Interindustry Wage Structure, " *Review of Economics and Statistics*, November 1957.
5. S. H. Slichter, " Notes on the Structure of Wages " *Review of Economics and Statistics*, February 1950. Slichter also finds that where industries paid semi-skilled and skilled workers high wages, they also paid unskilled workers higher wages.
6. H. D. Woods and S. Ostry, " Labour Policy and Labour Economics in Canada " *MacMillan of Canada*. Toronto, 1963.

NOTE. Newly formed industries and those undergoing significant transformation or disappearing during the periods studied cannot, given the nature of the calculation, be taken into account in comparisons of this kind.

A separate study of Denmark, Sweden, the United States and the United Kingdom covering approximately 10-year periods in the 1950s which was made for the Group confirms these findings. Industries which had above-average earnings in any one country tended to have above average earnings in all four countries and at either end of the period studied. Similarly, the group of industries with below-average earnings tended to be the same across countries and over time[1]. It may also be noted that there appears to be a rather strong similarity between the industrial wage structure in different regions of the same country[2].

POST-WAR TRENDS

The available studies in general suggest that this relative stability of the industrial wage structure has continued during the post-war period. As this is a matter of central importance to our study, we asked the Secretariat to carry out a detailed analysis of the available material. The results of this analysis are discussed in the following paragraphs.

1. See also Dunlop and Rothbaum, (" International Comparisons of Wage Structures ", International Labour Review, April 1955), who note the similarity among the industrial wage structures of Italy, France and the United States.
2. For example, Lebergott (" Wage Structure ", *Review of Economics and Statistics*, November 1947) observes that the United States inter-industry wage structure of the mid-1940s was highly correlated with the wage structure of the major geographic regions of that country. It was also similar to the structures of Canada, the United Kingdom, Switzerland and Sweden.

The earnings statistics reviewed cover 10 Member countries[1]. Two main approaches have been used. In the first place, industry rankings have been compared over the period studied. After appraisal of the stability of these rankings, the extent to which the wage structure has expanded or contracted is examined. In parallel with this, and as part of the study of the relation between earnings and employment changes, average rates of wage increase over the relevant range of activities have been compiled, together with a measure summarising the variability of individual increases about the average rate of change observed[2]. Similar techniques were used for study of occupational and geographical earnings structures and changes, and for the study of employment movements. Interpretation of the figures calls for great care. The availability of data varies sharply from country to country, and there are major variations in coverage: data relate to hourly, daily, weekly or annual earnings; to male wage earners, all employees, or salaried employees only; and to differently classified industry groups which are more or less exhaustive of the total to whose average they are referred.

It may also be noted that industry groups have been studied at different levels of aggregation. For convenience the terminology of the Standard International Industrial Classification (SIIC) has been adopted, but in practice, the correspondence of the groupings studied here and the SIIC is only very rough due to differences in country nomenclatures and the way in which figures were available[3].

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1. Belgium, Canada, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom and the United States of America, For certain specific aspects of the study, data for other Member countries were also taken into consideration.

2. The statistical methods adopted are as follows:

Comparison of Rankings. (a) Product moment or rank correlation coefficient for selected pairs of years, always including the terminal pairs of years. Where product-moment coefficients based on absolute earnings were available as a by-product of the general statistical analysis, calculation of rank coefficients was deemed superfluous. Product moment measures are of course heavily influenced by the continued presence of extreme observations at either end of the earnings structure. From our point of view, this is appropriate, since changes in average earnings reflecting the influence of weighting shifts may in certain cases be greater than movements reflecting increased grade-for-grade differentials, and this is most likely to affect comparisons in the middle of the structure, where earnings averages are near each other. (b) Coefficient of concordance of rankings over all years. This measure is a form of multiple rank correlation coefficient.

Expansion or Contraction of the Wage Structure. Standard deviation of the percentage by which earnings of the individual groups studied exceed or fall below the average for all groups. Calculated for initial, terminal and selected intermediate years. It may be noted that the use of this measure is reasonable only when there is a fair degree of consistency of ranking, particularly at the extremes.

Rate of Increase. Annual average percentage change over the periods studied: total and for each activity.

Variations about average rate of increase. Standard deviation (unweighted) of the percentage by which the rate of increase in individual activities exceeds or falls below the average rate of change.

3. In the subsequent discussion the term " sector " will be used for the most aggregate groupings, e.g. all manufacturing industries, all service industries, etc. " Two-digit " is used to refer to broad industry groups within a sector whose output would tend to be grouped together in a product classification and which on the whole use roughly similar production techniques. Most national statistical systems recognise from 15 to 20 two-digit industries within the manufacturing sector. Individual component industries of a two-digit group are referred to as " three digit. " Thus, in the British classification, " engineering " corresponds to a two-digit group, covering both engineering and electrical goods industries, such as machine tool manufacture, machinery manufacture, radio manufacture, etc. When these last industries are studied individually rather than as a group, they are referred to as " three-digit " industries.

Table 2 below summarises the comparisons made of industry earnings rankings for selected postwar periods. The data suggest an impressive degree of stability in inter-industry wage structures. Further, in conjunction with the rather slight increase in the dispersion of the earnings structure (shown in Table 3) for all countries except the United States and Canada, (where the structure widened continuously) the high values of the product-moment coefficients of correlation observed suggest that each industry not only tended to maintain its rank but also, to a considerable extent, the percentage by which its earnings exceed (or fall below) the average—although this is somewhat less true for salaried employees than for wage earners[1]. Over short periods (e.g. from year to year), the coefficients are even higher than those shown in Table 2, i.e. individual industries' short-term variations about the average rate of increase did not produce significant short term changes in the earnings structure. The slight lowering of some of the correlation coefficients observed as longer periods are studied reflects the persistence of a slowly operating but cumulative differential trend of earnings in a rather limited number of industries, typically those which were either very high or very low in the earnings structure[2].

Within this general stability inter-industry percentage differentials have more often widened or stayed constant than narrowed, at least until 1958 (Table 3). However, there are a number of important country exceptions to this (Netherlands, Germany). So far as absolute differentials are concerned, the rate of increase of earnings has been such that they have opened even in those cases where some narrowing of percentage differentials occurred.

A number of other points relevant to the interpretation of Table 3 are the following:

a) The more homogeneous the labour force studied, the lower the apparent inter-industry dispersion of earnings. Thus, the inter-industry spread of salaries on their own is lower than the spread in respect of all employees' earnings (United States, Canada). Similarly, data relating to male and female workers combined appear to display higher earnings dispersion than where male workers only are considered (Canada, Germany). In particular, the apparently greater spread of the United States industry earnings structure may in part reflect the fact that the data relate to all employees, whereas the majority of the European figures cover men only.

b) Some observed differences in industries' average earnings are due to differences in occupational or sex mix, and there is also a contribution from earnings differences within occupations, depending on such factors as personal qualities, seniority, whether the job is in a high or low wage region, etc. All these factors obscure the "real" differences between industries' earnings levels, i.e. the extent to which a given industry tends to pay higher wages for work of equivalent

1. Data on salary rankings are available only for Canada, United States, Sweden and Norway. The variability in the early years may reflect changes in occupational composition arising from the progressive shift of the employment structure away from its war-time pattern. At the same time, the inter-industry dispersion of salaries is much lower than of wages (see Table 3), so that smaller differential movements in average salaries have more effect in lowering the observed correlations than in the case of wages.

2. This would not appear with the use of rank correlation coefficients. At the same time, any changes in ranking of mid-range industries with roughly equal earnings levels would reduce the numerical value of a rank correlation coefficient. Such changes, of course, have no great significance from our point of view.

TABLE 2. RANKING STABILITY: COEFFICIENTS OF CORRELATION OF INDUSTRIAL EARNINGS STRUCTURES IN SELECTED COUNTRIES AND YEARS FROM 1948

SERIES CODE REFERENCE[1]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[2] TOTAL	INDUSTRIES EXAMINED[2] OF WHICH MANUF.	EARNINGS EXAMINED	COEFFICIENTS OF CORRELATION TERMINAL PERIODS[3]	COEFFICIENTS OF CORRELATION FIRST 5-YEAR PERIOD	COEFFICIENTS OF CORRELATION LAST 5-YEAR PERIOD
					SECTORS			
					a) *Wage-earners*			
11100	Belgium	1949-62	11	1[a]	Daily, Men	.97*	.99[7]	.98[8]
					b) *Wage-earners and Salaried Employees Combined*			
02140	USA	1948-61	10	1	Yrly, Both sexes	.99**	.99	.99
01140	Canada	1950-61	10	1	Weekly, Both sexes ...	.98	.98	.98
					APPROXIMATELY 2-DIGIT INDUSTRY LEVEL			
					a) *Wage-earners*			
02100	USA	1948-61	21	21	Hrly, Both sexes	.92	.97	.99
02120	USA	1948-60	21	21	Yrly, Both sexes	.95	.96	.99
02100	USA	1948-61	11	1[a]	Hrly, Both sexes	.98	.99	.99
02100	USA	1948-61	31	21	Hrly, Both sexes	.93*	.98	.99
15120	France	1955-60	25	14	Yrly, Men	.89*		
25100	Sweden	1954-59	11[4]	10	Hrly, Men	.99*		
25120	Sweden	1952-60	10	10	Yrly, Both sexes	.96*	.96	.97
22100	Norway	1955-59	25	20	Hrly, Men	.90*		
22120	Norway	1950-59	20	20	Yrly, Men	.72*	.81	.82
11100	Belgium	1949-62	23	23	Daily, Men	.72*	.94[7]	.86[8]
					b) *Salaried Employees*			
02130	USA	1948-60	21	21	Yrly, Both sexes	.61	.68	.79
01105	Canada	1949-60	17	17	Weekly, Men.....	.77	.81	.98
01106	Canada	1951-57	17	17	Office and Clerical, Men, weekly	.84*		
01107	Canada	1951-57	17	17	Managerial and prof., Men, weekly	.65*		
01185	Montreal	1949-60	16	16	Weekly, Men.....	.94	.92	.95
01195	Toronto	1949-60	13	13	Weekly, Men.....	.57	.36	.79
25130	Sweden	1952-60	10	10	Yrly, Both sexes	.93*	.93	.90
22130	Norway	1950-59	20	20	Yrly, Both sexes	.80*	.81	.92
					c) *Wage-earners and Salaried Employees Combined*			
02140	USA	1948-61	21	21	Yrly, Both sexes	.97**	.97	.99
02140	USA	1948-61	36[5]	0	Yrly, Both sexes	.97**	.97	.99
02140	USA	1948-61	60	21	Yrly, Both sexes	.97**	.97	.99
01140	Canada	1950-61	17	17	Weekly, Both sexes ...	.99	.99	.99
01140	Canada	1950-61	21[5]	0	Weekly, Both sexes ...	.98	.98	.99
01140	Canada	1950-61	38	17	Weekly, Both sexes ...	.98	.98	.99
					MORE DETAILED INDUSTRY CLASSIFICATIONS			
					a) *Wage-earners*			
16100	Germany	1950-60	27[6]	26	Hrly, Both sexes	.98*[10]	.98	.99
16110	Germany	1951-62	32[6]	29	Skill group 1, Men, hrly	.87*[11]	.91[12]	.91
16120	Germany	1951-62	32[6]	29	Skill group 2, Men, hrly	.85*[11]	.87[12]	.92
16130	Germany	1951-62	32[6]	29	Skill group 3, Men, hrly	.80*[11]	.86[12]	.91
28100	UK	1954-58	79	79	Hrly, Men	.94*		
25100	Sweden	1952-61	30	30	Hrly, Men	.96*	.97	.98
25120	Sweden	1952-60	88	88	Yrly, Both sexes	.94*	.93	.96

TABLE 2. RANKING STABILITY; COEFFICIENTS OF CORRELATION OF INDUSTRY EARNINGS STRUCTURES *(concluded)*

SERIES CODE REFERENCE[1]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[2] TOTAL	INDUSTRIES EXAMINED[2] OF WHICH MANUF.	EARNINGS EXAMINED	COEFFICIENTS OF CORRELATION TERMINAL PERIODS*	COEFFICIENTS OF CORRELATION FIRST 5-YEAR PERIOD	COEFFICIENTS OF CORRELATION LAST 5-YEAR PERIOD
					b) *Salaried Employees*			
25130	Sweden	1952-60	88	88	Yrly, Both sexes	.65*	.74	.71
					c) *Wage-earners and Salaried Employees Combined*			
01140	Canada	1950-60	53	53	Weekly, Both sexes ...	.96*	.98	.99

NOTE.* The coefficients for terminal periods have been calculated for the average structure of the first and last three terminal years, except those marked *, where figures relate to the terminal years themselves.

1. For a listing of series codes, see Table 27. For the detailed results of which this table is an extract, see Annex I.
2. For a limited number of classifications and periods, estimates were calculated using one or two fewer observations than the number indicated.
3. Manufacturing Sector.
4. Manufacturing Industries and Mining.
5. Service Industries.
6. Manufacturing Industries and the Branches " Mining, " " Energy " and " Building. "
7. 1949 to 1955.
8. 1955 to 1962.
9. 1950 to 1960.
10. Average 1951-53 to average 1958-60.
11. 1951 to 1962, calculated for 19 branches only (18 Manufacturing industries and Energy).
12. 1951 to 1957, calculated for 19 branches only (18 Manufacturing industries and Energy).

quality performed in similar conditions by employees of similar status and qualifications. Observed changes in inter-industry differentials may correspondingly reflect the influence of the above factors as well as changes in " real " differentials[1].

c) The spread of earnings in industries within a sector may be widening at the same time as inter-sectoral differentials narrow or stay constant, (United States, Canada). Statements should indicate clearly which wage structure is being discussed: a country's structure may appear to be widening when studied at one level of aggregation, but may be found to be narrowing or unchanged when either broader or more detailed groupings are examined.

DIFFERENTIAL RATES OF EARNINGS CHANGE

Summarising, the broad picture of the postwar industrial earnings structure at roughly two digit level is on the whole one of stable industry rankings with some slight expansion of inter-industry differentials. This implies that the majority of industries have experienced rather similar rates of earnings change. Examination of the statistical evidence supports this conclusion, although clearly there have been certain industries which have consistently had above-average or below-average earnings increases through all or a large part of the periods studied for the different countries.

1. For interesting attempts to isolate the effects of particular factors on average earnings, see P. G. Keat, " Long Run Changes in the Occupational Wage Structure 1900-1956, " *Journal of Political Economy*, Dec. 1960; K. M. McCaffee, " The Earnings Differentials between White Collar and Manual Occupations, " *Review of Economics and Statistics*, February 1953.

TABLE 3. THE POST-WAR DISPERSION OF THE INDUSTRIAL EARNINGS STRUCTURE IN SELECTED COUNTRIES AND YEARS

Unit: 100 σ/x̄ i.e. the spread about average earnings, measured by the standard deviation, as a percentage of average (unweighted) earnings.

SERIES CODE REFERENCE[1]	COUNTRY	INDUSTRIES EXAMINED[2] TOTAL	INDUSTRIES EXAMINED[2] OF WHICH MANUF.	EARNINGS EXAMINED	1948	'50	'52	'54	'56	'58	'60	'61	'62
				SECTORS									
				a) *Wage-earners*									
11100	Belgium	11	1[3]	Daily, Men		14[4]			13[5]				14
				b) *Wage-earners and Salaried Employees Combined*									
02140	USA	10	1[3]	Yrly, both sexes.....	24	25	26	27	29	29	29	29	
01140	Canada	10	1[3]	Weekly, both sexes		15	16	16	16	16	16	16	
				APPROXIMATELY 2-DIGIT INDUSTRY LEVEL									
				a) *Wage-earners*									
02100	USA	21	21	Hrly, both sexes	14	14	15	16	17	18	18	19	
02120	USA	21	21	Yrly, both sexes.....	17	17	19	20	20	21	21		
02100	USA	11	1[3]	Hrly, both sexes	17	17	17	17	17	17	18	17	
02100	USA	31	21	Hrly, both sexes	16	16	17	18	18	19	20	20	
01100	Canada	17	17	Hrly, Men		12	13	14	15	15			
01110	Canada	17	17	Weekly, Men		11	12	13	13	14			
01180	Montreal	16	16	Hrly, Men		14	15	15	15	16			
01181	Montreal	16	16	Weekly, Men		11	12	15	13	14			
01190	Toronto	13	13	Hrly, Men		13	14	13	13	12			
01191	Toronto	13	13	Weekly, Men		10	11	10	11	10			
28100	UK	17[3]	14	Hrly, Men		7	7	7	8	8			
15120	France	25	14	Yrly, Men.....					19		19		
25100	Sweden	11[3]	10	Hrly, Men					11	12			
25120	Sweden	10	10	Yrly, both sexes.....			12	11	12	11	11		
22100	Norway	25	20	Hrly, Men					13	13			
22120	Norway	20	20	Yrly, Men.....		6	6	6	6	6			
11100	Belgium	23	23	Daily, Men		10[3]			11[3]				16
21120	Netherlands	20	20	Semi-skilled men, hrly .				8			6		
21121	Netherlands	20	20	Semi-skilled men, weekly				5			4		
21130	Netherlands	20	20	Unskilled men, hrly				5			4		
21131	Netherlands	20	20	Unskilled men, weekly ..				4			3		
				b) *Salaried Employees*									
02130	USA	21	21	Yrly, both sexes.....	7	8	8	7	9	10	11		
01105	Canada	17	17	Weekly, Men		7	11	10	11	11	12		
01106	Canada	17	17	Office and Clerical, men, weekly		8[10]		9		9[11]	10		
01107	Canada	17	17	Managerial and prof., men, weekly		9[10]		11		12[11]	13		
01185	Montreal	16	16	Weekly, men		11	10	11	12	11	11		
01195	Toronto	13	13	Weekly, men		7	8	6	7	7	8		
25130	Sweden	10	10	Yrly, both sexes.....			6	6	6	5	6		
22130	Norway	20	20	Yrly, both sexes.....		9	8	8	9	8			
				c) *Wage-earners and Salaried Employees Combined*									
02140	USA	21	21	Yrly, both sexes.....	18	18	21	22	22	24	24	25	
02140	USA	36[3]	0	Yrly, both sexes.....	25	27	28	29	29	29	29	30	
02140	USA	60	21	Yrly, both sexes.....	24	25	27	28	28	29	29	30	
01140	Canada	17	17	Weekly, both sexes		16	18	18	19	19	20	20	
01140	Canada	21[3]	0	Weekly, both sexes		17	19	18	22	23	23	23	
01140	Canada	38	17	Weekly, both sexes		17	19	18	21	22	22	22	
				MORE DETAILED INDUSTRY CLASSIFICATIONS									
				a) *Wage-earners*									
16100	Germany	27[3]	26	Hrly, both sexes.....		14	16	17	17	17	15		
16140	Germany	32[7]	29	Hrly, Men						9	8	8	
16110	Germany	32[7]	29	Skill group 1, men, hrly.		9[12]				8	8	8	8
16120	Germany	32[7]	29	Skill group 2, men, hrly.		11[12]				10	9	10	9
16130	Germany	32[7]	29	Skill group 3, men, hrly.		10[12]				13	11	11	11
28100	UK	109	109	Hrly, Men		10	10	10	11	11			
25100	Sweden	30	30	Hrly, Men			11	11	11	11	11	11	
25120	Sweden	88	88	Yrly, both sexes.....			18	17	17	16	17		

TABLE 3. THE POST-WAR DISPERSION OF THE INDUSTRIAL EARNINGS STRUCTURE *(concluded)*

SERIES CODE REFERENCE[1]	COUNTRY	INDUSTRIES EXAMINED: TOTAL	INDUSTRIES EXAMINED: OF WHICH MANUF.	EARNINGS EXAMINED	1948	'50	'52	'54	'56	'58	'60	'61	'62
				b) *Salaried Employees*									
25130	Sweden	88	88	Yrly, both sexes.....			12	11	12	12	13		
				c) *Wage-earners and Salaried Employees Combined*									
01140	Canada	53	53	Weekly, both sexes		16	18	18	19	20	21	21	

1. For a listing of series codes see Table 27. For the detailed results of which this table is an extract, see Annex I.
2. For a limited number of classifications and periods, estimates were calculated using one or two fewer observations than the number shown.
3. Manufacturing Sector.
4. Manufacturing Industries and the branches "Building and Contracting," "Gas, Electricity and Water" and "Transportation and Communication."
5. Manufacturing Industries and Mining.
6. Service Industries.
7. Manufacturing Industries and the branches "Mining," "Energy", and "Building."
8. 1949.
9. 1955.
10. 1951.
11. 1957.
12. 1951, calculated for 19 branches only (18 Manufacturing Industries and Energy).

A condensed summary of the data is presented in Table 4[1]. There have been significant differences in the average rate of wage increase over the period as a whole in different countries, and from year to year in each country. But differential movements in earnings about the average in each country and in each period have been comparatively small. First, if the different sections of the table are examined, it can be seen that over comparable periods in the same country, average earnings of the different groups of the labour force have risen at roughly the same pace. In the second place, when industries are considered at approximately the 2-digit level of aggregation, the long-term standard deviation of earnings increases (whether wage earners, salaried employees, both combined, or other special groups are considered) is rather less than 10 per cent of the average rate of earnings increase for the great majority of the European breakdowns studied, and below 20 per cent in the United States and Canada. Broadly speaking, a range of plus or minus twice the standard deviation covers the great majority of the individual dispersions observed. In other words, in all but a limited number of 2-digit industries, the long term rate of earnings increase was well within 20 per cent of the average for most European countries ands within 40 per cent of the average in North America.

While the correlation between beginning and end-period earnings structures tends to weaken slightly as longer spans are taken under study, variability about the average rate of change is much less when longer periods are considered than when measurements are made over shorter spans. This fall may occur for either or both of two reasons. First there is the statistical phenomenon of cancellation of variations due to particular non-recurrent circumstances as

1. The average rate of earnings increase shown is that observed for the whole period studied. The extent to which earnings changes in each industry differed from this average has been calculated for the period as a whole. In addition, the dispersion of earnings changes about the average has been calculated for each successive sub-period of 1, 3, and 5 years. Table 4 gives the average of the results obtained for the 1, 3, and 5 year periods, as well as for the whole period.

TABLE 4. THE VARIABILITY (MEASURED BY THE STANDARD DEVIATION OF EARNINGS CHANGES) OF INDUSTRIES' EARNINGS CHANGES ABOUT THE (UNWEIGHTED) AVERAGE RATE OF INCREASE, SELECTED COUNTRIES AND PERIODS

Unit[1]: σ

SERIES CODE REFERENCE[9]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[9] TOTAL	INDUSTRIES EXAMINED[9] OF WHICH MANUF.	EARNINGS EXAMINED	ANNUAL AVERAGE INCREASE IN EARNINGS (PERCENT)	VARIABILITY ABOUT AVERAGE[1] 1 YR.	3 YRS.	5 YRS.	WHOLE PERIOD
					SECTORS					
					a) *Wage-Earners*					
11100	Belgium	1949-62	11	1[4]	Daily, Men	4.0*				0.3*
					b) *Wage-Earners and Salaried Employees combined*					
02140	USA	1948-61	10	1[4]	Yrly, both sexes	4.7	1.7	1.1	1.0	0.8**
01140	Canada	1950-61	10	1[4]	Weekly, both sexes ...	4.8	1.6	0.9	0.6	0.5
					APPROXIMATELY 2-DIGIT INDUSTRY LEVEL					
					a) *Wage-Earners*					
02100	USA	1948-61	21	21	Hrly, both sexes	4.6	1.3	1.0	0.9	0.8
02120	USA	1948-60	21	21	Yrly, both sexes	4.8	2.3	1.3	1.0	0.8
02100	USA	1948-61	11	1[4]	Hrly, both sexes	4.6	1.2	0.6	0.5	0.3
02100	USA	1948-61	31	21	Hrly, both sexes	4.6	1.4	0.9	0.8	0.7*
01100	Canada	1949-60	17	17	Hrly, Men	5.3	1.7	0.9	0.8	0.8
01110	Canada	1949-60	17	17	Weekly, Men	4.7	2.7	1.0	0.8	0.6
01180	Montreal	1949-60	16	16	Hrly, Men	5.3	2.8	1.4	1.2	1.0
01181	Montreal	1949-60	16	16	Weekly, Men	4.8	4.2	1.5	1.1	0.6
01190	Toronto	1949-60	13	13	Hrly, Men	5.0	2.1	1.1	0.9	0.6
01191	Toronto	1949-60	13	13	Weekly, Men	4.7	2.8	1.2	0.8	0.5
28100	UK	1949-59	17[5]	14	Hrly, Men	6.6	1.3	0.7	0.5	0.4
15100	France	1946-62	20	15	Hrly, both sexes	12.1	1.5	0.8	0.6	0.3
15120	France	1955-60	25	14	Yrly, Men	9.4*	3.8	1.7	1.5	
25100	Sweden	1954-59	11[4]	10	Hrly, Men	6.7*	0.7	0.4	0.2	
25120	Sweden	1952-60	10	10	Yrly, both sexes	5.5	1.6	0.9	0.5	0.5*
22100	Norway	1955-59	25	20	Hrly. Men	7.1*	3.3	1.8	1.1[10]	
22120	Norway	1950-59	20	20	Yrly, Men	6.6	2.4	1.1	0.7	0.6*
11100	Belgium	1949-62	23	23	Daily, Men	4.0*				0.8*
21120	Netherlands	1954-60	20	20	Semi-skilled men, hrly.	6.4*[11]				0.6*
21121	Netherlands	1954-60	20	20	Semi-skilled men, weekly	6.5*[11]				0.6*
21130	Netherlands	1954-60	20	20	Unskilled men, hrly ..	6.4*[11]				0.8*
21131	Netherlands	1954-60	20	20	Unskilled men, weekly	6.4*[11]				0.8*
					b) *Salaried Employees*					
02130	USA	1948-60	21	21	Yrly, both sexes	4.4	3.8	1.7	1.2	0.9
01105	Canada	1949-60	17	17	Weekly, Men	5.3	2.3	1.3	0.9	0.8
01106	Canada	1951-57	17	17	Office and Clerical, men, weekly	5.0*		1.5[11]		0.8*
01107	Canada	1951-57	17	17	Managerial and prof., men, weekly	4.0*		1.9[11]		1.5*
01185	Montreal	1949-60	16	16	Weekly, Men	5.4	3.5	1.3	0.9	0.5
01195	Toronto	1949-60	13	13	Weekly, Men	5.7	3.4	1.6	1.2	0.8
25130	Sweden	1952-60	10	10	Yrly, both sexes	5.8	1.4	0.8	0.6	0.3*
22130	Norway	1950-59	20	20	Yrly, both sexes	6.9	3.6	1.5	1.0	0.7*
					c) *Wage-Earners and Salaried Employees combined*					
02140	USA	1948-61	21	21	Yrly, both sexes	5.4	1.9	1.2	1.0	0.9**
02140	USA	1948-61	36[7]	0	Yrly, both sexes	4.4	2.6	1.5	1.2	1.0**
02140	USA	1948-61	60	21	Yrly, both sexes	4.7	2.5	1.4	1.2	1.0**
01140	Canada	1950-61	17	17	Weekly, both sexes ...	4.8	1.2	0.7	0.6	0.5
01140	Canada	1950-61	21[7]	0	Weekly, both sexes ...	4.8	1.9	1.1	0.8	0.6
01140	Canada	1950-61	38	17	Weekly, both sexes ...	4.8	1.6	0.9	0.8	0.6

TABLE 4. THE VARIABILITY OF INDUSTRIES EARNINGS CHANGES ABOUT THE AVERAGE RATE OF INCREASE *(continued)*

SERIES CODE REFERENCE[2]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[3] TOTAL	INDUSTRIES EXAMINED[3] OF WHICH MANUF.	EARNINGS EXAMINED	ANNUAL AVERAGE INCREASE IN EARNINGS (PERCENT)	VARIABILITY ABOUT AVERAGE[1] 1 YR.	3 YRS.	5 YRS.	WHOLE PERIOD
					MORE DETAILED INDUSTRY CLASSIFICATIONS					
					a) *Wage-Earners*					
02100	USA	1951-61	61	61	Hrly, both sexes	3.9	1.6	1.2	1.0	0.9*
16100	Germany	1950-60	27[4]	26	Hrly, both sexes	7.2	1.4	0.9	0.7	0.5[10]
16140	Germany	1957-62	32[4]	29	Hrly. Men	8.3*	2.7	1.2	0.8	
16110	Germany	1957-62	32[4]	29	Skill group 1 men, hrly	8.1*	2.7	1.2	0.8	
16120	Germany	1957-62	32[4]	29	Skill group 2 men, hrly	8.1*	3.1	1.4	0.9	
16130	Germany	1957-62	32[4]	29	Skill group 3 men, hrly	8.5*	3.1	1.7	1.1	
28100	UK	1949-58	109	109	Hrly. Men	6.9	2.0	0.9	0.7	0.5*
25100	Sweden	1952-61	30	30	Hrly. Men	6.4	1.3	0.7	0.5	0.4*
25120	Sweden	1952-60	88	88	Yrly, both sexes	5.5	4.7	1.8	1.2	0.9*
					b) *Salaried Employees*					
25130	Sweden	1952-60	88	88	Hrly, both sexes	5.8	5.6	2.5	1.8	1.4
					c) *Wage-Earners and Salaried Employees combined*					
01140	Canada	1950-61	53	53	Weekly, both sexes ...	4.8	1.7	1.0	0.8	0.7*

NOTE. Whole-period estimates relate to the average change in earnings, and the variability about the average change between the terminal three-year spans of the period studied, except for those marked *, which relate to the change, and the variability about it, in the terminal years themselves.

1. The standard deviation was calculated about the unweighted average rate of increase in each span of 1, 3 and 5 years; the figures shown in the table are the average of the observations for all spans of the relevant length. The long term average rates of increase shown are however weighted averages.
2. For a listing of series codes see Table 27. For the detailed results which this table summarises, see Appendix I.
3. For a limited number of classifications and periods, estimates were calculated using one or two fewer observations than the number shown.
4. Manufacturing Sector.
5. Manufacturing industries and the branches " Building and Contracting, " " Gas, Electricity and Water " and " Transportation and Communication. "
6. Manufacturing industries and Mining.
7. Service industries.
8. Manufacturing industries and the branches " Mining, " " Energy " and " Building. "
9. 1950 to 1960.
10. 1955 to 1959.
11. Unweighted.
12. 1951 to 1954 and 1954 to 1957 only.
13. Average 1951-53 to average 1958-60.

longer periods are taken into consideration. Secondly, there is the economic phenomenon of catch-up increases. To the extent that these processes are at work one might expect much of the shorter run variability to be evened out over about three year periods. For many countries this seems, in fact, to be the case. Over periods of this length the majority of industries in most countries had wage increases within 20 per cent of the going average. Thus, for example, if the annual average rate of increase of earnings over a three year period was, say 5 per cent, most individual industries could be expected to register rates of increase within the range 4 per cent to 6 per cent.

In a special study of earnings and employment changes in selected 2-digit industries which was made for Denmark, Sweden, the United States and the United Kingdom, the industries which experienced above-average (or below-average) earnings increases were the same in the great majority of cases. The evidence is summarised in Table 5 which should be interpreted with some caution because of differences in the national industrial classifications used. The most striking feature of the Table is that in all four countries the textile,

TABLE 5. CHANGES IN EARNINGS AND EMPLOYMENT IN SELECTED BRANCHES IN RELATION TO THE AVERAGE[1] CHANGE FOR INDUSTRY AS A WHOLE: FOUR COUNTRIES OVER VARIOUS PERIODS IN THE 1950s

EARNINGS RISE—ABOVE AVERAGE EMPLOYMENT RISE—BELOW AVERAGE RISE OR A FALL	EARNINGS RISE—ABOVE AVERAGE EMPLOYMENT RISE—ABOVE AVERAGE
Beverages (Denmark)	Food processing (Sweden)
Beverages and tobacco (Sweden)	Food (Denmark)
Tobacco manufactures (USA)	Food and kindred products (USA)
Wood (Sweden) including furniture	Food, drink and tobacco (UK)
Chemicals and allied products (USA)	Paper and allied products (USA)
Quarrying and allied (Sweden)	Paper and printing (UK)
Products of petroleum and coal (USA)	Rubber products (USA)
Ordnance and accessories (USA)	Building (Denmark)
Primary metal industries (USA)	Chemicals and allied (UK)
Metal manufacture (UK)	Chemicals (Denmark)
Machinery except electrical (USA)	Stone, clay and glass products (USA)
Transportation equipment (USA)	Electrical machinery (USA)
	Fabricated metal products except ordnance
	Machinery and transportation equipment (USA)
	Vehicles (UK)
	Instruments and related products (USA)
on average: Engineering, shipbuilding and electrical goods (UK)	
EARNINGS RISE—BELOW AVERAGE EMPLOYMENT CHANGE—BELOW AVERAGE RISE OR A FALL	EARNINGS RISE—BELOW AVERAGE EMPLOYMENT RISE—ABOVE AVERAGE
Tobacco (Denmark)	Apparel and other finished textile products (USA)
Textiles (Denmark)	Wood and furniture (Denmark)
Textile mill products (USA)	Lumber and wood products except furniture (USA)
Textiles (UK)	Furniture and fixtures (USA)
Textiles, leather, clothing and footwear (Sweden)	Pulp and paper (Sweden)
Clothing and footwear (Denmark)	Printing and allied (Sweden)
Clothing (UK)	Leather and leather products (USA)
Manufactures of wood and cork (UK)	Chemicals (Sweden)
Leather, leather goods and fur (UK)	Stone, clay and glass (Denmark)
Leather and leatherware (Denmark)	Metal and engineering (Sweden)
Treatment of non-metalliferous mining products (UK)	Iron and metal (Denmark)
Metal goods, n.e.s. (UK)	Precision instruments, jewellery, etc. (UK)
Clothing (Sweden)	Other manufacturing industries (UK)

1. Unweighted average for Denmark.

clothing, and shoe and leather industries fall in the bottom left hand square, and the food processing and paper and printing industries in the top right hand square. (The only exceptions are the clothing and shoe and leather industries in the United States and the pulp and paper industry in Sweden, which all fall in the bottom right hand square). The available evidence suggests that the experience of these industries has been similar in many other Member countries. On the other hand, the stone, clay and glass industry ("treatment of non-metalliferous mining products" in the United Kingdom) falls in a different

square for each of the four countries. The iron and steel and metal-using industries also show rather varying experience. In part this is due to the fact that because of their size, the changes in earnings and employment in these industries generally fall rather near the average for industry as a whole.

While Table 5 shows some significant inter-industry differences in employment experience, consideration of the relationship between earnings and employment changes is postponed to Chapter VI. The main point to be made at present is that while the amount of wage differentiation is small when expressed at annual rates, it can nevertheless become quite substantial when cumulated over a period of time: the relative position of an industry which consistently gets an annual wage increase say half of one percentage point below the average will have deteriorated seriously at the end of seven or ten years. And in general, one of the most pervasive influences has been the relative decline of the textile, leather and clothing industries[1]. When they are excluded from the analysis, average earnings over the remainder of the manufacturing sector not only rose more quickly, but displayed less variability. For example, if these industries are excluded at 3-digit level in the United States, the average annual increase in earnings rises from 3.9 to 4.2 per cent, while the standard deviation of the individual increases about the average rise falls from 0.9 to 0.7 per cent. At the other end of the earnings scale, the oil and chemical industries have consistently registered above average rates of earnings advance in the majority of the countries studied.

OCCUPATIONAL WAGE STRUCTURES

For the period studied, much less information was available about occupational earnings than is the case for industrial earnings, although there have recently been important and welcome improvements in this field; the inadequacy of the statistics has hampered rational discussion of the subject.

The scattered material available usually relates to basic rates for more or less well defined specific occupations rather than earnings. These figures rarely represent the level of earnings in a given occupation adequately[2], and to the extent that wage drift compensates for the failure of basic rates to move in line with earnings, they may also be poor indicators of the movement of earnings over time[3]. Inevitably, therefore, the picture of the development of the occupation structure is a rather impressionistic one. Broadly speaking, there has been a quite considerable narrowing of occupational wage structures over the first half of this century, but countries' experiences have varied since the immediate post-war years. In some, the narrowing has continued; in others, the process appears to have stopped or even been reversed.

LONG-TERM TRENDS

Available data on the long-term movements of occupational wage differentials relate mainly to the United States, Canada, the United Kingdom and

1. Germany is an exception.
2. In particular, differences arise from the effect of piece-work arrangements, and in the case of time-rated workers from overtime and other supplementary payments.
3. There is no way of knowing whether the occupational rates retained for study are " key " rates for jobs into which hiring actually takes place, or merely satellite rates. In the latter case, they are far less likely adequately to represent earnings movements.

TABLE 6. LONG TERM OCCUPATIONAL DIFFERENTIALS IN THE UNITED STATES, CANADA, UNITED KINGDOM AND FRANCE: RATIOS OF SKILLED TO LESS-SKILLED RATES

	USA		CANADA		UK		FRANCE	
	a)	*b)*	*c)*	*d)*	*e)*	*f)*	*g)*	*h)*
1900					150		145	
1907	184	205			154		133[10]	
1912-14	198				150[8]	171[9]	119[11]	
1920-22	169	175[1]	229[5]	165[5]	127	133	108[12]	
1928-30	178	180[2]	235[6]	171[6]	134	140	103	144
1938-40	170	165[3]			130	132	107	138
1945-47	148	155	207[7]	126[7]	125	119	117	143
1951-53	137	137[4]	203	120	116	116	128[13]	145
1959-61	127		161	134	113			153[14]

a) Ratio of Building Trades Journeymen's to Labourer's Union Hourly Rates.
b) Ratio of skilled workers to common labourer's rate (manufacture).
c) Ratio of Bricklayer's and Mason's to labourer's rate (building, Toronto).
d) Ratio of Machinist Maintenance to labourer's rate (Time workers in " Motor vehicles Parts and Accessories, " Ontario).
e) Ratio of Craftsmen's to labourer's rate (Building).
f) Ratio of Fitter's to labourer's rate (Engineering).
g) Ratio of Mason's to Navvy's rate (Paris region).
h) Ratio of Fitter's to labourer's rate (Time workers in metal industries, Paris region).

1. 1918-19.
2. 1930-32.
3. 1937-40.
4. 1952-53.
5. 1923-29.
6. 1930-33.
7. 1947.
8. 1913-14.
9. 1914.
10. 1906.
11. 1911.
12. 1921.
13. 1951-52.
14. 1960-61.

NOTE. Although these series refer to apparently homogeneous occupations, there is no doubt that their job content has varied considerably over time.

Sources : USA : US Department of Labour, Bureau of Labour, Statistics; H. Ober (" Occupational Wage Differentials 1907-1947 " *Monthly Labour Review*, August 1948); P. Kanninen (" Occupational Wage Relationships in Manufacturing 1952-53, " *Monthly Labour Review*, November 1953).

Canada : H. D. Woods and S. Ostry, *Labour Policy and Labour Economics* in Canada, MacMillan, 1963: " Wage rates, salaries and hours of labour, " (Department of Labour).

UK : Knowles and Robertson, " Differences between the Wages of Skilled and Unskilled Workers 1880-1950, " (*Bulletin of the Oxford University Institute of Statistics*, April 1951); Ministry of Labour Gazette.

France : Annuaire Statistique de la France, Bulletin Mensuel de Statistique.

France. Selected figures for these countries are presented in Table 6. In general, they display a marked narrowing of the occupational wage differentials studied by comparison with the position at the beginning of the century[1]. In 1907, skilled rates in the United States were nearly double those of unskilled workers[2]. By 1947, they were only about 50 per cent higher, a narrowing of spread which was experienced in all regions of the country, though in some more than others. This appears to have continued throughout the whole post-war period. The decline has not been steady. The periods of greatest decline were from 1907 to 1919, and from 1940 to 1947; there was some widening of the structure in 1931-34. Additional data on wage rates in the building trade also exhibit a long-run decline in skill differentials from an index of 184 in 1907 to 143 in 1947. For the other countries studied, the data indicate similar

1. Some of the long-term tendency to contraction of the inter-*industry* wage structure may be attributed to this narrowing of the wage gap between higher and lower paid *occupations*. At the same time, the constancy of inter-industrial earnings rankings to which we have already drawn attention can be regarded as consistent with persistent inter-industrial differences of skill mix.

2. Ozanne holds that 1907 was a year of peak extension of the differential structure, and presents data showing that the ratio of skilled to common labour wages averaged 160 to 175 per cent between 1865 and 1890. (R. Ozanne, " A Century of Occupational Differentials in Manufacturing " *Review of Economics and Statistics*, August, 1962).

long-term trends, although the greatest contraction of the French structure was registered in the 1930s, and differentials appear to have been re-opening since—and during—the 1939-45 war.

Most studies draw conclusions about the long term movements of occupational rates by examining figures for a small sample of occupations, which may or may not be representative. Only one study has been found in which a wide range of occupations is analysed. It refers to the United States, and confirms the findings for that country of other studies based on less extensive material. Thus, analysing earnings in a sample of 141 occupations in 17 industries between 1903 and 1956, Keat[1] finds that the coefficient of inter-occupation variation of earnings fell from .50 to .33 with little change in rankings.

In the same study, salaries in selected academic occupations are compared with average earnings in manufacturing, with the following results:

Ratio to Average Earnings in Manufacturing of Salaries of:

	1904	1953		1904	1953
Professors	361	173	High School Principals[1]	641	226
Assistant Professors	235	114	Teachers[1]	288	136
Instructors	144	91	Elementary School Teachers[1]	158	119

1. In cities over 500,000.

These figures are indicative of the contraction and even reversal of differentials (a) as between blue collar and academic workers, (b) within academic professions.

Post-war Trends

It is less easy to see whether occupational differentials have continued to contract in recent years. For the *United States,* study of occupational wage rate statistics suggests that skilled workers there have continued to lose ground, but at a slower rate (Table 7); there is also a good deal of evidence that increased attention has been paid to the problem of skill differentials in collective bargaining negotiations[2]. As between wages and salaries, there was a slightly more rapid increase in wages between 1948 and 1961 (see Table 4, sections (*a*) and (*b*)). During this period, production worker employment declined while salaried employment increased by well over one half. On the other hand, this narrowing of the relevant occupational differential was concentrated in the earlier period 1948-53, during which span there was no contraction of production worker employment. In a Department of Commerce sample of 21 manufacturing industries, there were 16 in which wages rose more rapidly than salaries in 1948-53, 10 in 1953-60.

In Europe, the rather scattered material available indicates a universal narrowing of occupational differentials during the 1940s and up to the early 1950s. For example, in a study made by the ILO in 1955, it was found that in 15 countries, earnings of unskilled labourers had risen more rapidly than those of skilled workers between 1938 and 1954 in 40 out of 54 cases studied,

1. P. G. Keat, *op. cit.*
2. See for example the tables on "Number of Collective Bargains Maintaining or Widening Differentials" in *Current Wage Developments,* (BLS).

TABLE 7. UNITED STATES: ANNUAL RATE OF INCREASE IN WAGE RATES, SKILLED AND UNSKILLED WORKERS OVER VARIOUS SPANS BETWEEN JANUARY 1946 AND JANUARY 1962

SITUATION	JAN. 1946 OR 1947 TO JAN. 1962	JAN. 1946 OR 1947 TO JAN. 1953	JAN. 1953 TO JAN. 1962	JAN. 1957 TO JAN. 1962
ESTABLISHMENTS:				
Berkshire-Hathaway (Northern Cotton Textile Association):				
Machinist	2.7	3.4	2.2	2.3
Minimum plant rate	3.1	4.0	2.4	2.3
Bethlehem Atlantic Shipyards				
Standard skilled mechanic	5.0	5.7	4.5	4.2
Laborer	5.7	6.0	5.5	5.0
Pacific Coast Shipbuilding				
Blacksmith	3.7	5.7	2.2	3.5
Laborer, production	5.3	6.5	4.4	4.5
Sinclair Oil Companies, Corpus Christi, Tex.				
Boilermaker	3.8	5.9	2.2	3.8
Laborer, entrance	6.7	8.3	4.0	3.5
East Chicago, Ind.				
Boilermaker	3.8	5.9	2.2	3.0
Laborer, entrance	5.8	8.3	3.9	3.3
Sinclair, Wyo.				
Boilermaker	3.9	6.2	2.2	3.0
Laborer, entrance	5.7	8.2	3.8	3.5
United States Steel				
Highest basic rate	5.4	7.5	3.8	2.6
Lowest basic rate	5.9	6.7	5.3	2.8
INDUSTRIES:				
Building Trades				
Journeymen	5.5	7.5	4.2	4.5
Laborers	6.6	8.6	5.1	5.2
Local trucking				
Drivers	6.4[1]	8.3	5.0[1]	4.7
Helpers	6.9[1]	8.9	5.4[1]	4.7
Machinery				
Tool and die maker	4.5[2]	4.7	4.4[2]	3.5[3]
Laborer, material handling	5.3[2]	6.1	4.5[2]	3.5[3]

1. Revised.
2. Increase to 1961.
3. Increase from 1958.

Source : Bureau of Labour Statistics, Wage Chronologies, Union Wage Scales, Industry Wage Studies and Community Wage Surveys.

in some cases by substantial margins[1]. The subsequent movement of occupational-type differentials in individual countries is summarised in the following paragraphs.

Germany. Differentials closed further after 1950, rather slowly as between different skill levels of the production work force, or between production labour and salary earners in commercial activities, but quite sharply as between production workers and certain technical salaried employees[1], particularly lower-graded persons. Most of the narrowing of these salaries/earnings differentials occurred before 1957; between 1957 and 1962, the rate of differentiation was much less marked and the persons to lose ground were the higher, rather than the lower-paid technical salaried employees.

1. *International Labour Review*, ILO Geneva, March 1965.
2. Data relate to male workers only.

Germany: Earnings Movements for Selected Occupational Categories

	SALARY EARNERS (MONTHLY)				PRODUCTION WORKERS (WEEKLY)			
	TECHNICAL EMPLOYEES			COMMERCIAL EMPLOYEES	GROUP			TOTAL
	GROUP		TOTAL	TOTAL	1	2	3	
	2	5						
1951 Earnings (DM)	640	326	536	414	87	80	69	82
Index 1962 (1951 = 100) ...	191	173	180	194	196	196	199	196
Index 1962 (1957 = 100) ...	139	145	141	142	143	143	147	145

Sources : Die Verdienste der Arbeiter und der Angestellten in der Gewerblichen Wirtschaft, November 1951. (*Statistisches Bundesamt*, 1954) and Preise, Löhne und Wirtschaftsrechnungen, Reihe 15, (Statistisches Bundesamt, Quarterly).

Denmark. Skilled men seem to have done about as well as their unskilled counterparts over the period 1952-54—1959-61, continuing the trend observed from 1948. For the latest period, summary data on the average rate of increase and variability about the average for 58 skilled and 57 unskilled occupations are as follows:

	PER CENT INCREASE IN EARNINGS ANNUAL RATE	MEAN VARIATION	80 PER CENT OF OCCUPATIONS HAD INCREASES WITHIN THE RANGE
Skilled	5.8	0.8	4.7 to 7.1 per cent
Unskilled	5.9	0.6	5.2 to 6.6 per cent

A major feature of union policy in the centralised collective bargaining negotiations has been to narrow differentials between higher and lower paid workers. Conventional rates statistics would therefore have shown an important narrowing of differentials. This can be seen from the column " negotiated" in the table below taken from the Report of the Expert Group on Rising Prices[1].

MALE WORKERS ON TIME RATES	EARNINGS INCREASE 1948-1958 PER CENT	OF WHICH	
		NEGOTIATED	DRIFT
Skilled in Copenhagen	73	43	30
Unskilled in Copenhagen	71	57	14
Skilled outside Copenhagen	69	56	14
Unskilled outside Copenhagen	64	61	3

Lower negotiated increases for skilled workers have thus in general been offset by a higher rate of wage drift.

Netherlands. Stable *rates* differentials to 1960 reflect arrangements made under central wage determination in that country . Within manufacturing, data for 1954-60 indicate that earnings of unskilled and semi-skilled workers rose at the same rate (6.4 per cent per annum), with variability in individual

1. *The Problem of Rising Prices*, OEEC, Paris 1961.

industries typically within 0.7 per cent of this figure. But since 1959, and more particularly since 1961, legislative provision has been made to permit differentiation of the rate of wage increase by industry, without any very significant effect up to time of writing.

France. The wages of time-paid fitters in the metal industry were 9.14 times higher in 1962 than in 1946, while labourers' wages were only 8.35 times higher. This apparent opening of differentials is noted in all sub-periods and also holds for piece-rate workers, but it is uncertain to what extent there was a corresponding opening of total earnings differentials in view of the different availability of overtime opportunities for each category. It may be noted that in terms of total income, differentials may have opened less widely. Family and related allowances, which are higher in France than in most countries, are paid as an absolute cash sum, and therefore represent a greater percentage of low-graded than of skilled workers' total resources.

Italy. Wage rate differentials appear to have reopened. Skilled workers' rates, which in 1938 were 54 per cent above those paid to unskilled workers, were only 10 per cent higher in 1948 as a result of cost of living indexation. Successive collective bargains have attempted to reestablish this differential, and by 1962, it had widened to 32 per cent. However, the data, like those used for France, many not fully reflect movements in total earnings.

United Kingdom. As in the Danish case, wage drift appears to have operated to maintain differentials in cases where rates movements would have implied a deterioration of position, i.e. there has been a tendency for payments above nationally negotiated rates to be highest in occupations where standard rates have lagged. As between salaries and wages, national accounts data for manufacturing show a regular and consistent narrowing of the differential from 1948 to 1956. Salary earners regained some ground in 1957 and again in 1962, but not enough to recover their 1948 position. Thus while the average annual salary was 70 per cent above average wages in 1948, this figure had dropped to 47 per cent in 1956; by 1962, the ratio had come back to 54 per cent.

SUMMARY

This chapter has largely been devoted to setting forth the facts about the movement of industrial and occupational wage structures. The material reviewed indicates that:

1. Over the 1950s, industrial earnings structures in general displayed marked stability. There have of course been changes in the extension of the structure (particularly in North America) or in rankings within the structure. But on the whole, the variability of earnings increases has been small, particularly by comparison with the amplitude of employment fluctuations. Such changes in the earnings structure as have occurred have tended to do so very slowly.
2. In general, while a number of cases of slow but persistent change have resulted in modifications of relative position, the structure of earnings does not differ greatly in ranking or dispersion from what it was, say 10 or 15 years ago, and is similar across countries. The United States and Canada are exceptions to the extent that ranking stability has been accompanied by slow but steady widening of the earnings differentials in most of the breakdowns studied. There is also a certain degree of stability over the still longer term, although it is less

marked due to (*a*) the cumulation of small changes as longer time spans are covered, (*b*) the effect of major upheavals such as wars and prolonged periods of depression.

3. When the first half of the century is taken as a whole, there has been some long term tendency to closure of differentials between high wage and low wage activities. This has been much more marked for occupations than for industries. Part of the observed compression of the industrial wage structure of the United Kingdom and the United States can in fact be interpreted as a reflection of what was happening to occupational differentials.
4. In recent years there has been no consistency in differential movements in occupational earnings of the various countries studied. In some, differentials have continued to narrow. In others, forces have emerged which have frustrated attempts to upset existing relativities. In some cases, wage drift has been a vehicle for "catch-up" increases for lagging groups. At other times collective bargaining provisions have resulted in the offset of differential changes initiated earlier through wage drift.

III

CHANGES IN THE STRUCTURE OF EMPLOYMENT

Big changes in the structure of employment are an integral part of modern economic development. The largest and best known of these changes have been the movement of workers out of agriculture, the more recent movement into the service trades, and the shift from blue to white collar work. The amplitude of these structural changes, however, often goes unrecognised. Data on them are presented in Table 8 below for selected Member countries covering periods of up to 12 years since 1950. The figures given cover average numbers employed[1]; as will be seen in Chapter IV, the movements of labour which have been associated with these large structural changes have been many times greater still.

With the exception of Turkey and possibly of Greece[2], the number of persons occupied in agriculture has declined in all countries, usually quite rapidly. This, in conjunction with the growth in total employment, has resulted in a very significant fall in the share of total employed engaged in agricultural activities. In the period studied the additional supplies of manpower have been absorbed by the secondary and tertiary sectors in variable proportions. The highest income countries have typically registered a more rapid increase in employment in tertiary than in secondary activities (Switzerland and Germany are exceptions), and in a few cases (United States, Canada, Belgium and possibly Sweden), the percentage share of employment in secondary activities has actually declined. In the two North American countries, this may be a reflection of the degree of under-employment of the economy as a whole. On the other hand, the lower income countries included in the table generally show a tendency for a more rapid growth of employment in the industrial sector than in other activities.

Table 8 also contains data on the distribution of employment between the " blue collar " and " white-collar " labour force, but these are available only for a limited number of countries and usually only for manufacturing. They show a general tendency to greater use of salaried manpower, which accounted for 17 to 26 per cent of total manufacturing employment after 1960 against a figure of between 14 and 18 per cent some 10 years earlier, in those countries for which statistics are available. The German figures, relating to the economy as a whole (excluding civil servants), show a growth of salaried employment from 24 per cent to 33 per cent over eleven years.

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1. Including the self-employed.
2. Due to different data collecting methods in the two years, the Greek figures for 1951 and 1962 are not strictly comparable.

TABLE 8. THE STRUCTURE OF EMPLOYMENT SINCE 1950[1]

COUNTRY[2]	YEAR	TOTAL MANPOWER (THOUSANDS)	PER CENT PRIMARY[3]	PER CENT SECONDARY[4]	PER CENT TERTIARY[5]	YEAR	MANUFACTURING	
							WAGE EARNERS	SALARY EARNERS
United States of America ..	1950	59,748	13.5	34.1	52.4	1950	82.2	17.8
	1962	67,846	8.5	32.9	58.6	1962	74.1	25.9
Canada	1950	4,976	22.9	35.5	41.6	1950	81.5	18.5
	1962	6,217	12.1	34.7	53.2	1960	75.6	24.4
The Netherlands	1950	3,727	14.3	41.4	44.3			
	1961	4,289	9.9	42.1	48.0			
United Kingdom	1950	22,539	5.6	(47.7)	(46.7)	1950[7]	83.5	16.5
	1962	24,638	4.0	48.0	47.9	1962[7]	77.4	22.6
Sweden[6]	1950	(3,105)	(20.3)	(40.8)	(38.4)	1950	81.8	18.2
	1962	3,713	13.2	40.1	46.7	1960	77.8	22.2
Belgium	1950	3,306	11.1	46.9	42.0	1950	86.1	13.9
	1962	3,499	6.9	46.6	46.6	1960	83.0	17.0
Norway	1950	1,418	30.5	34.1	35.4	1950	85.0	15.0
	1962	1,460	21.6	36.3	42.1	1962	82.1	17.9
Denmark	1955	2,025	24.9	35.8	39.3			
	1962	2,220	19.1	39.2	41.7			
Switzerland	1950	2,147	16.5	46.4	37.1			
	1960	2,512	11.1	49.3	39.6			
Japan	1953	39,360	42.4	24.4	33.2			
	1962	45,740	29.9	30.9	39.2			
France	1954	18,524	28.2	37.1	34.7			
	1962	18,715	20.7	40.1	39.1			
Germany	1950	20,365	24.7	42.9	32.5	1950	76.1[8]	23.9[8]
	1962	25,680	13.5	49.0	37.5	1960	67.4[8]	32.6[8]
Italy	1954	17,052	39.9	32.8	27.3			
	1962	19,734	28.0	41.1	31.0			
Portugal	1950	3,155	49.7	24.8	25.5			
	1960	3,272	44.2	29.3	26.5	1960	73.7	26.3
Greece[6]	1951	2,839	48.2	19.4	32.4			
	1962	3,665	53.4	18.8	27.8			
Turkey	1955	12,205	77.4	8.2	14.4			
	1960	12,993	74.9	9.8	15.3			
Austria	1951	3,270	33.0	36.8	30.2			
	1961	3,372	23.2	..	..			

Source: *Manpower Statistics* 1950-1962, OECD, Paris, 1963.

1. Civilian employment i.e. including self-employed, wage-earners, salaried employees and unpaid family workers who work for at least 1/3 of the normal working time.
2. Countries ordered by share of tertiary sector in total employment in last year studied.
3. ISIC 0: Agriculture, forestry, hunting and fishing.
4. ISIC 1-5: Industry i.e. mining and quarrying, manufacturing, construction, electricity, gas, water, sanitary services.
5. ISIC 6-9: commerce, transport, storage, communication, services, others and not specified.
6. Data for the two years shown are not fully comparable. The 1950 Swedish figures are taken from the census and are not adjustable to OECD definitions.
7. October.
8. Whole economy excluding civil servants.

Within these major shifts, there have also been big differences in the employment experience of different industries, occupations and regions. These are studied in Table 9 below for the various classifications. Table 9 has been constructed so as to facilitate cross reference to Table 4, and the same method of summarisation of the data on variability of changes has been adopted as in that table (see note to page 29). As is the case for earnings, the variability of changes in employment falls as longer periods are taken into consideration.

When Tables 4 and 9 are compared, it is clear that differential movements in employment have been very much bigger than differential movements in earnings over periods of the same length. The comparison between the size

TABLE 9. CHANGES IN EMPLOYMENT AND VARIABILITY, MEASURED BY THE STANDARD DEVIATION OF EMPLOYMENT CHANGE, ABOUT THE AVERAGE RATE OF CHANGE. SELECTED COUNTRIES AND PERIODS

Units; average change: per cent per annum. Variability: σ

SERIES CODE REFERENCE[9]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[9] TOTAL	INDUSTRIES EXAMINED[9] OF WHICH MANUF.	EMPLOYMENT EXAMINED	ANNUAL AVERAGE CHANGE IN EMPLOYMENT (PER CENT)	VARIABILITY ABOUT AVERAGE[1] 1 YR.	3 YRS.	5 YRS.	WHOLE PERIOD
					SECTORS					
					a) *Wage-Earners*					
11200	Belgium	1949-62	11	1[4]	Men	0.6 *				2.9*
					b) *Wage-Earners and Salaried Employees combined*					
02240	USA	1948-61	10	1[4]	Both sexes	1.7	3.3	2.6	2.3	2.0**
01240	Canada	1950-61	10	1[4]	Both sexes	1.1	4.6	2.7	2.4	2.4
					APPROXIMATELY 2-DIGIT INDUSTRY LEVEL					
					a) *Wage-Earners*					
02200	USA	1948-61	21	21	Both sexes	0.0	8.6	6.5	2.0	3.2
02220	USA	1948-60	21	21	Both sexes	–0.1	6.2	3.5	2.6	1.9
02200	USA	1948-61	11	1[4]	Both sexes	0.6	4.7	3.5	3.1	3.0
02200	USA	1948-61	31	21	Both sexes	0.6	8.2	6.1	2.5	3.0*
01200	Canada	1949-60	17	17	Men	0.4	6.0	3.3	2.4	1.8
01280	Montreal	1949-60	16	16	Men	0.5	7.4	3.7	2.4	1.5
01290	Toronto	1949-60	13	13	Men	0.7	9.2	5.5	3.9	1.5
15220	France	1955-60	25	14	Men	2.7*	9.4	3.5	2.6	
25200	Sweden	1954-59	11[4]	10	Men	0.2*	2.5	2.0	1.8	
25220	Sweden	1952-60	10	10	Both sexes	0.7	2.3	1.6	1.6	1.2*
22200	Norway	1955-59	25	20	Men	–0.6*	6.1	4.5	3.8[10]	
22200	Norway	1950-59	20	20	Men	1.3	4.7	2.9	2.3	2.3*
11200	Belgium	1949-62	23	23	Men	0.9*				2.4*
21220	Netherlands	1954-60	20	20	Semi-skilled, men	0.4*[11]				6.4*
21230	Netherlands	1954-60	20	20	Unskilled, men	–1.7*[11]				6.6*
					b) *Salaried Employees*					
02230	USA	1948-60	21	21	Both sexes	4.2	4.4	3.6	3.1	2.7
01205	Canada	1949-60	17	17	Men	4.8	8.5	4.8	4.0	3.2
01206	Canada	1951-57	17	17	Office and clerical, men	2.4*		7.6[10]		7.0*
01207	Canada	1951-57	17	17	Managerial and prof., men	8.5*		6.7[10]		5.2*
01285	Montreal	1949-60	16	16	Men	5.1	11.0	6.7	5.2	2.6
01295	Toronto	1949-60	13	13	Men	4.5	10.8	6.1	4.9	2.8
25230	Sweden	1952-60	10	10	Both sexes	3.2	2.1	2.0	1.9	1.7*
22230	Norway	1950-59	20	20	Both sexes	3.3	6.4	3.4	2.8	2.6*
					c) *Wage-Earners and Salaried Employees combined*					
02240	USA	1948-61	21	21	Both sexes	0.8	5.0	3.1	2.6	2.2**
02240	USA	1948-61	36[4]	0	Both sexes	2.4	4.8	3.8	3.3	3.0**
02240	USA	1948-61	60	21	Both sexes	1.7	5.2	3.8	3.3	2.9**
01240	Canada	1950-61	17	17	Both sexes	0.3	4.1	2.6	2.1	1.6
01240	Canada	1950-61	21[4]	0	Both sexes	2.3	4.6	4.0	3.9	3.5
01240	Canada	1950-61	38	17	Both sexes	1.3	4.6	3.7	3.4	2.9
28200	UK	1949-59	17[7]	14	Men	1.0	2.9	2.0	1.9	1.7
15220	France	1946-62	20	15	Both sexes	1.0	2.3	1.8	1.6	1.3
					MORE DETAILED INDUSTRY CLASSIFICATIONS					
					a) *Wage-Earners*					
02200	USA	1951-61	61	61	Both sexes	–1.1	6.0	3.6	3.1	2.6*
16200	Germany	1950-60	27[4]	26	Both sexes	4.1	4.9	3.9	3.5	3.3[10]
16240	Germany	1957-62	32[8]	29	Men	–1.1*	6.3	4.5	3.2	
16210	Germany	1957-62	32[8]	29	Skill group 1, men	–0.6*	6.7	4.9	4.2	
16220	Germany	1957-62	32[8]	29	Skill group 2, men	–1.2*	7.5	5.1	4.2	
16230	Germany	1957-62	32[8]	29	Skill group 3, men	–5.3*	11.2	7.2	6.3	
25220	Sweden	1952-60	88	88	Both sexes	0.7	7.1	4.5	4.0	3.9*

TABLE 9. CHANGES IN EMPLOYMENT AND VARIABILITY ABOUT THE AVERAGE RATE OF CHANGE *(continued)*

SERIES CODE REFERENCE[2]	COUNTRY	PERIOD	INDUSTRIES EXAMINED[3] TOTAL	INDUSTRIES EXAMINED[3] OF WHICH MANUF.	EMPLOYMENT EXAMINED	ANNUAL AVERAGE CHANGE IN EMPLOYMENT (PER CENT)	VARIABILITY ABOUT AVERAGE[1] 1 YR.	3 YRS.	5 YRS.	WHOLE PERIOD
					b) *Salaried Employees*					
25230	Sweden	1952-60	88	88	Both sexes	3.2	7.4	5.5	4.9	4.4*
					c) *Wage-Earners and Salaried Employees combined*					
01200	Canada	1950-61	53	53	Both sexes	0.3	6.7	4.2	3.1	2.4*
28240	UK	1949-58	109	109	Men	1.5	7.0	6.0	3.6	3.3*

NOTE. The whole-period figures relate to changes between terminal 3-year periods, and the variability of these changes, except for those marked *, which relate to the terminal years themselves.

1. The standard deviation was calculated about the unweighted average rate of increase in each span of 1, 3 and 5 years; the figures shown in the table are the average of the observations for all spans of the relevant length.
2. For a listing of series codes, see Table 27. For the detailed results which this table summarises, see Annex I.
3. For a limited number of classifications and periods, estimates were calculated using one or two fewer observations than the numbers shown.
4. Manufacturing sector.
5. Manufacturing industries and Mining.
6. Service Industries.
7. Manufacturing industries and the branches "Building and Contracting," "Gas, Electricity and Water" and "Transportation and Communication."
8. Manufacturing industries and the branches "Mining," "Energy" and "Building."
9. 1950 to 1960.
10. 1955 to 1959.
11. Unweighted.
12. 1951 to 1954 and 1954 to 1957 only.
13. Average 1951-53 to average 1958-60.

TABLE 10. EARNINGS AND EMPLOYMENT[3] VARIABILITY ABOUT AVERAGE RATE OF CHANGE

Per cent per annum.

	NO. OF POSSIBLE COMPARISONS[1]	RANGE OF VARIABILITIES OBSERVED OVER: 1 YEAR SPANS EMPLOYMENT	1 YEAR SPANS EARNINGS	3 YEAR SPANS EMPLOYMENT	3 YEAR SPANS EARNINGS	5 YEAR SPANS EMPLOYMENT	5 YEAR SPANS EARNINGS	FULL PERIOD[2] EMPLOYMENT	FULL PERIOD[2] EARNINGS
Sector breakdowns	3	3.3- 4.6	1.6-1.7	2.6-2.7	0.9-1.1	2.3-2.4	0.6-1.0	2.0-2.9	0.3-0.8
General Industrial breakdowns: North America	15	4.1- 8.6	1.2-3.8	2.6-6.5	0.6-1.7	2.0-4.0	0.5-1.2	1.6-3.5	0.3-1.0
General Industrial breakdowns: Europe	15	2.3- 9.4	0.7-5.6	1.6-6.0	0.4-2.5	1.6-4.9	0.2-1.8	1.2-4.4	0.3-1.4
Industry breakdowns with restricted coverage[3] ...	9	6.7-11.2	2.1-4.2	3.7-6.7	1.1-1.9	2.4-6.3	0.8-1.2	1.5-2.8	0.5-1.0
Geographical breakdowns[4]	6	3.0-11.2	1.3-6.5	2.0-4.8	0.7-2.2	1.7-4.5	0.4-1.5	1.4-2.1	0.4-0.5

1. The number of breakdowns for which comparisons could be made in practise differs according to the type of period studied.
2. Where above 7 years.
3. Data for special occupational groups for Germany and Canada and the Canadian general breakdowns for Montreal and Toronto.
4. Regional employment/earnings relationships are discussed in Chapter VIII.

of differential movements in earnings and employment is summarised in Table 10 for those classifications for which both earnings and employment data were available. Whatever the period length considered, the deviation of an industry's (or region's or occupation's) employment change from the average change in employment over the relevant group is usually not less than three times the deviation of that industry's rate of wage advance from the

general rate of wage increase; and in certain countries and periods, the factor has been as much as 10 to 1.

The data in Table 9 and Table 10 have undergone a great deal of condensation, and it may be helpful to present some rather more specific extracts from the material studied. This is done in Chart I, where representative frequency distributions for different periods, countries and activity breakdowns are given. The contrast between the distribution of earnings increases and employment increases is striking. The former are concentrated into a few percentage intervals each containing a large number of industries (or occupations or regions) pointing up the cohesiveness of the earnings increases experienced. The employment charts, on the other hand, testify to the contrasting employment experience of different branches over periods in which the rate of wage advance was within a quite limited range. Many examples could be given in still more concrete form. To take only two: in the United States, between 1953 and 1960, employment in manufacturing in Arizona rose by 77 per cent and in Michigan it fell by 18 per cent, but the annual rates of increase in average earnings were respectively 4.1 and 4.0 per cent. In United Kingdom manufacturing, employment in radio manufacture rose by 12 per cent in 7 years (earnings increase:—5.7 per cent per annum); in textile machinery it fell by 20 per cent (earnings increase:—5.8 per cent).

The fact that a sector's variation in employment change is typically much greater than its variation in earnings increase may be felt to carry the implication that changes in relative earnings have not been an important cause of changes in the structure of employment. But it is also consistent with the interpretation that the employment structure is highly sensitive to changes in relative wages (i.e. that intersectoral elasticities of substitution are significantly greater, in absolute value, than unity). In general, the Expert Group inclines towards the wage-insensitive interpretation of these data, because it believes that it is more strongly supported by additional evidence than the wage-sensitive hypothesis. Such evidence will be considered in the course of the chapters which follow.

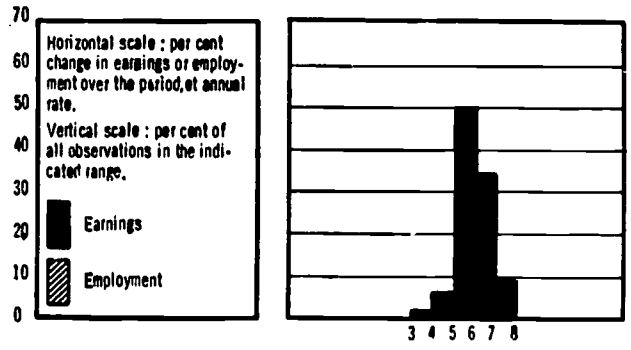
SUMMARY

The main points that emerge from the material studied in the present chapter are as follows:

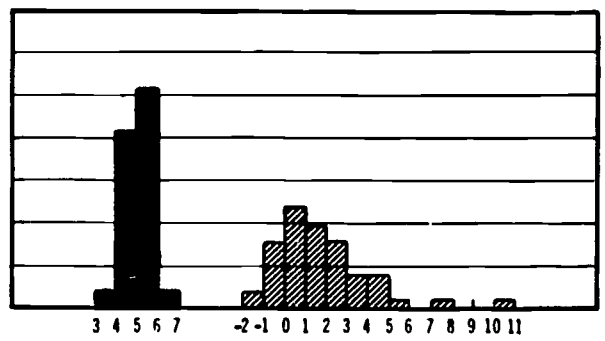
1. During the whole period studied, significant modifications of the structure of employment have continued to take place reflecting the changing economic structures of the countries examined. There is no way of knowing whether still bigger (or rather smaller) movements of employment might not have been more consistent with economic efficiency than those actually observed.
2. Certain movements are characteristic: the flow out of agriculture, the growth of the service sector. Individual industries are also found to have had quite diverse experience. Some have greatly increased their net employment, others have suffered a more or less continuous decline in absolute numbers.
3. As in the case of wages, variations from the overall rate of employment change are more marked in the short term than in the longer term, over which cyclical and irregular fluctuations are of smaller proportionate consequence. But whatever the period length studied, individual industries' or sectors' variations from the average growth in net numbers employed have always been much greater than the variation of the same branches' growth of earnings from the average growth of earnings.

Chart 1. FREQUENCY DISTRIBUTIONS OF CHANGES

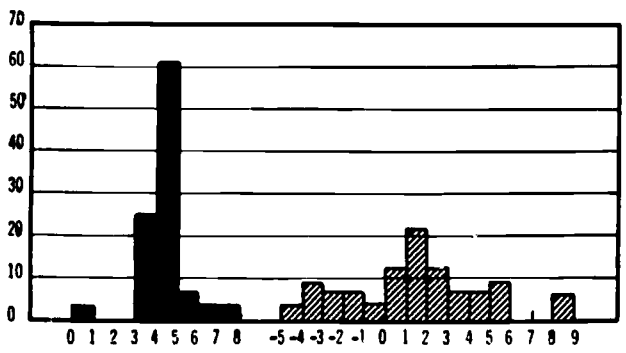
DENMARK: 56 occupations, male unskilled workers (ref. 13182); 1952/54-1959/61



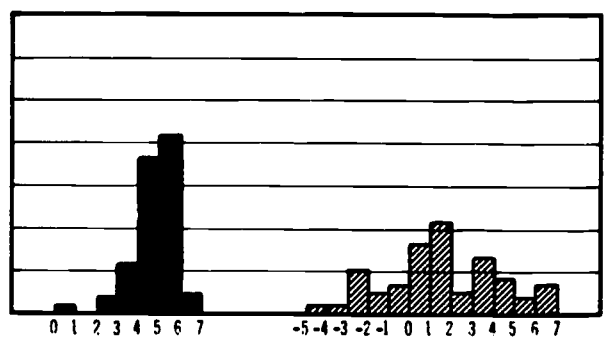
UNITED STATES: 51 states; manufacturing (ref. 02150-02250); 1947/49-1959/61



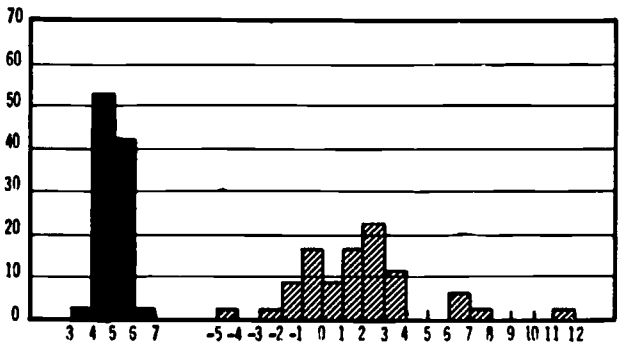
BELGIUM: 33 industries (ref. 11100-11200); 1955-1962



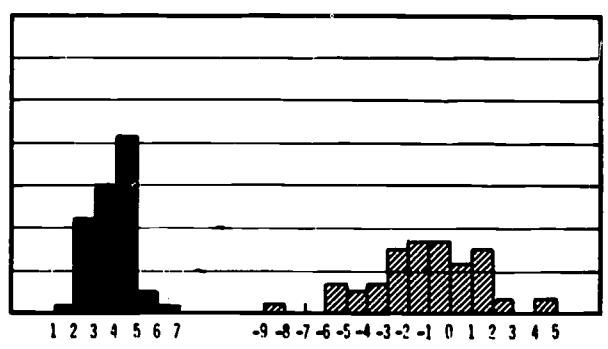
UNITED STATES: 60 industries (ref. 02140-02240); 1948-1961



CANADA: 36 industries (ref. 01140-01240); 1950/52-1959/61



UNITED STATES: 61 3-digit manufacturing industries (ref 02100-02200); 1951/53-1959/61

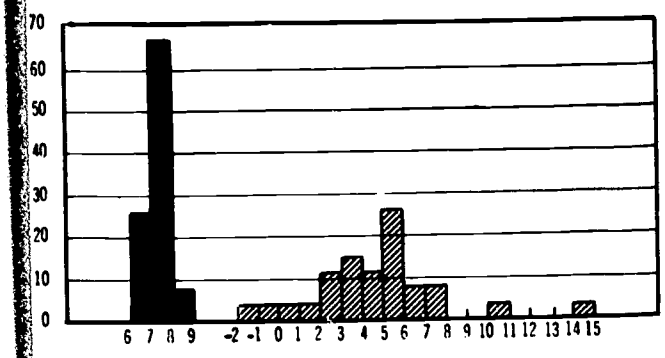


NOTE. For coverage of these series, see Annex 1.

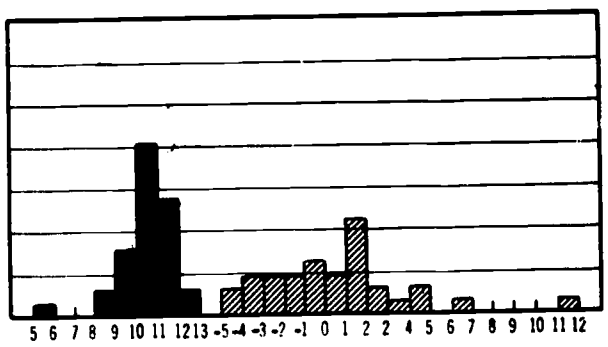
The code numbers are given to facilitate reference.

IN EARNINGS AND EMPLOYMENT

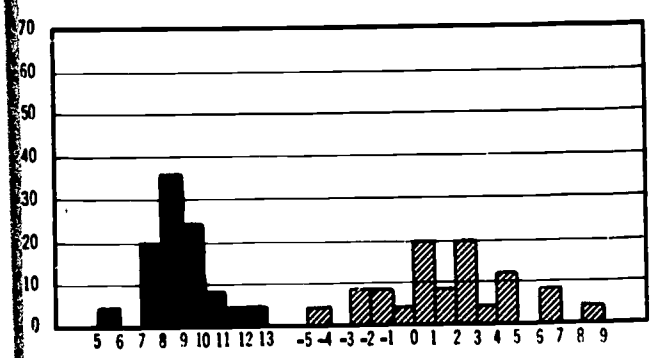
GERMANY: 27 industries (ref. 16100-16200); 1951/53-1958/60



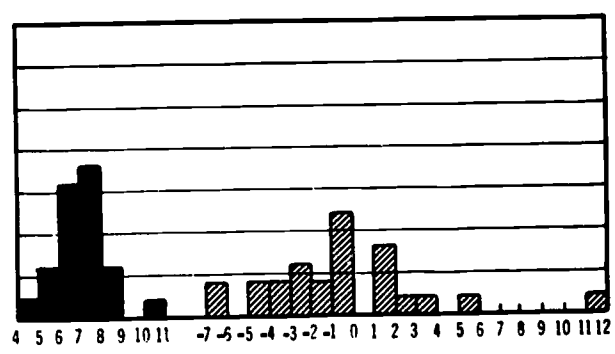
GERMANY: 32 industries; male skilled workers (ref. 16110-16210); 1959-1962



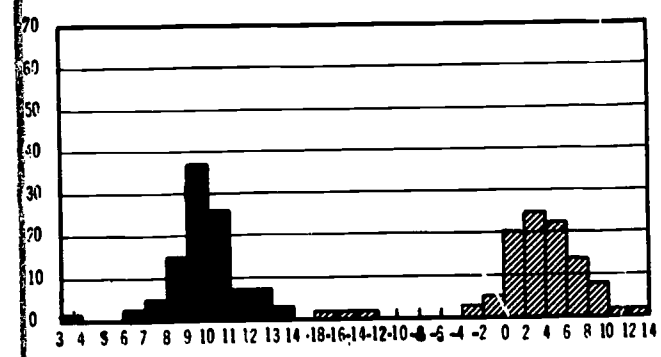
FRANCE: 25 industries (ref. 15120-15220) · 1957-1960



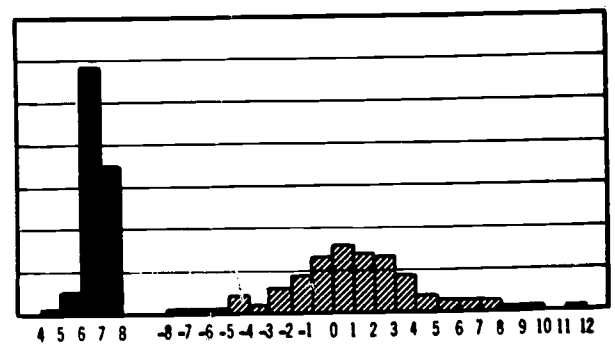
NORWAY: 25 industries (ref. 22100-22200); 1955-1959



FRANCE: 90 Departments (ref. 15150-15250); 1955-1960



UNITED KINGDOM: 109 3-digit manufacturing industries (ref. 28100-28240); 1949/51-1956/58



IV

THE AMOUNT AND CHARACTERISTICS OF JOB CHANGING

The substantial net changes in the numbers employed in different industries and occupations described in the previous chapter must be viewed against the background of the very much larger gross labour flows—or turnover—of which they are only the end-product. In practice a firm may have to undertake between 20 and 80 hirings per annum per hundred employees on its books merely to maintain its existing employment. A small change in one of the gross flows can thus produce a change which is relatively large in terms of net numbers employed.

Whether it is replacing or expanding manpower, an industry or firm wishing to recruit must resort to one of a number of recruitment streams—the unemployed, new entrants and re-entrants to the labour force, and job-changers. The discussion in the present chapter relates to the size and characteristics of movements by the *existing labour force*, with particular reference to those who leave one job with the intention of taking another. It aims to throw some light on the extent to which the operative incentives lie in earnings or other aspects of the job, to specify the nature of job-changes, to identify the members of the labour force who are most likely to change jobs, and to assess the extent to which job changing in practice involves changes in the pattern of industrial or occupational employment. The factors influencing the choice of job by new entrants to the labour force are dealt with in Chapter V.

LABOUR TURNOVER

Total Labour Turnover

A fair amount of evidence exists on the amount of labour turnover. The data are of two types: those relating to job-shifting as such, and those relating to total *job separations* sometimes with details of voluntary and involuntary cessations of employment[1]. In the latter case there is usually no information on subsequent job history. Data on separation rates and new accessions

1. The United States definitions are as follows. "*Quits*" (voluntary mobility): Employee initiated job cessations and failures to report for work in a newly accepted job. "*Other separations*": Job cessations due to sickness, retirement, death, ending of temporary contract, disciplinary measures and suppression of the job by the employer for economic reasons. The two together are equal to total separations.

TABLE 11. LABOUR TURNOVER:
ANNUAL AVERAGE NUMBER OF SEPARATIONS PER 100 OCCUPIED JOBS[1] AND NET EMPLOYMENT CHANGES IN SELECTED COUNTRIES.

	(58-60) CANADA	(58-60) FRANCE	(59-61) GERMANY	(56-58) UNITED KINGDOM	(58-60) USA
Main Economic Sectors combined					
Separation rate	74	48	37	n.a.	n.a.
Net employment change[2]	2.6	1.1	2.0	0.6	2.0
Manufacturing					
Separation rate	60	44	(30)[3]	34	50
Net employment change[2]	2.3	1.5	3.5	1.6	2.7

Sources : Canada : " Hiring and Separation Rates in certain Industries, " DBS 72-006 (" Separation rates per 100 persons on payroll ").
France : " Etudes statistiques " (" Taux de rotation " or its inverse " Coefficient de stabilité ").
Germany : " Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung " (" Fluktuationsquote ").
USA : "Employment and Earnings " (" Separations per 100 employees ").
UK : " Ministry of Labour Gazette " (" Number of Discharges and other Losses per 100 employed at beginning of period ").

1. In all countries, data relate to the total of male and female wage-earners and salaried employees and include most or all separations of temporary and casual employees. Because of coverage differences, the rates for Canada, UK and France, are slightly understated by comparison with United States and German data, but not sufficiently to distort orders of magnitude. For full definitions, see Annex I.
2. Average of year-to-year per cent changes, ignoring sign.
3. Secretariat estimate based on related published data.

correspond fairly closely, both overall and by industry[1]. This concordance points up the extent to which quite large changes in net numbers employed can be generated by only minor variations in either accessions or separations. However, as the analytically significant breakdowns are usually in terms of separations, attention will be mainly focused on these latter statistics.

In order to present the data of the different countries in as comparable a way as possible, the concept of " annual number of separations per 100 occupied jobs " has been adopted as standard. In some cases, however, it has been necessary to use figures based on the number of persons " who worked. " Since there are always a certain number of persons who accept a short period job and do not take a new one when it comes to an end, the number of persons " who worked " is always in excess of the average number of jobs available, and turnover rates based on the number " who worked " cannot be compared with turnover rates based on the number of occupied jobs.

Table 11 presents job separation rates for five countries for a three-year period near 1960, selected partly because of data availability, and partly because economic conditions in the countries studied were reasonably similar about this time—although in any event variations in separation rates over time are relatively minor in size. The table brings out strikingly the size relationship between overall labour mobility[2] and net changes in employment; over the periods studied, the gross movements corresponding to a given net employment change have been from ten to forty times as large.

Table 11 suggests that labour turnover in North American manufacturing is significantly higher than in the European countries studied, with 50 to

1. The difference corresponds in principle to the net change in employment.
2. Strictly speaking, accession rates should be used for this comparison, but as already stated accessions and separations correspond closely.

TABLE 12. SEPARATION RATES FOR SELECTED INDUSTRIES AND COUNTRIES IN VARIOUS PERIODS AFTER 1952

Separation per 100 occupied jobs.

	UNITED STATES[1]			CANADA			FRANCE			UNITED KINGDOM			GER-MANY[6]
	52-54	55-57	58-60	52-54	55-57	58-60	52-54	55-57	58-60	52-54	55-57	58-60	61
Total				83	82	74	50	53	48				20
Construction				208	210	211	100	102	77				35
Trade				75	70	60	60	65	60				28[6]
Manufacturing	48	42	50	64	61	60	43	45	41	33	34	30	17
Metal Mining	57	45	44	59	62	56	41[6]	43[6]	38[6]				
Transportation				40	41	40	26	31	31				11
Finance				43	45	42	24	26	26				
Food and kindred products	60	50	72	98	96	86	72	75	65	48	53	45	22
Wood products	63[6]	62[6]	66[6]	113	113	95	50	50	45	39	40	34	19
Clothing	54	46	69	76	70	69	59	56	54	39	38	36	17
Leather products	46	46	57	61	58	52	50	49	46	34	35	33	
Non metallic mineral products	39	33	47	63	68	69	41	46	40	38	36	31	14
Metal industries and machinery	50	42	51	52	51	58	38	40	36	29	29	27	16
Electrical equipment	41	39	41	36	41	38	37	42	42				
Textiles	46	43	43	52	49	44	35	37	35	37	39	38	15
Paper and printing	37[6]	32[6]	33	42	39	38	36	40	38	24	25	23	
Chemicals and allied products	23	21	25	40	39	33	33	41	34	27	27	23	11
Petroleum and allied products	15	15	13	25	25	22	23[7]	22[7]	27[7]				

1. Data for 1958-1960 are not fully comparable with data for earlier periods (classification changes, inclusion of seasonal industries).
2. Number of job changes divided by the number of non-mobile workers plus the number of job-changes: production workers only.
3. Including finance.
4. Including quarrying.
5. Excluding furniture.
6. Excluding printing.
7. Including oilmining.

Definitions and Sources : See Table 11. The data for Germany relate to job changers only but include re-employment with the same firm after a spell of unemployment. (*Spezifische Arbeitsplatzwechselquote bei den Arbeitern*).

Methods : Data have been converted to an annual basis where not originally available in this form. Industry coverage is adjusted as far as possible, using employment figures as weights, to the two-digit ISIC.

60 separations annually per 100 occupied jobs against 30 to 40 in Europe[1]. As far as can be judged, turnover in those countries for which both figures could be calculated is higher in non-manufacturing than in manufacturing activity, but the extent of the difference depends on the weight of such sectors as forestry and construction, where the seasonality of operations results in proportionately heavy resort by employers to temporary labour.

LABOUR TURNOVER BY INDUSTRY

Separation rates by individual industry or sector are available for some countries going back to the early post-war period. As will be seen from Table 12, within each country, a given industry has tended to keep approximately the same rank in respect of its separation rate over the entire span for which data are available. Further, while separation rates have varied over time in line with economic conditions, the changes are small in relative terms, and it is possible to suggest that a certain general level of its separation rate characterises an industry in a particular country[2]. Further, to the extent that

1. Italian figures, which refer to wage earners only, and therefore are not strictly comparable to those in the table, are of a similar order of magnitude.
2. This property has been used as one of the bases for making forecasts of manpower movements in OECD countries.

varying nomenclatures permit inter-country comparisons to be made, it appears that where an industry has a high separation rate in one country it tends to have a high rate in all countries.

The observed stability of turnover rankings reflects certain technological and economic characteristics of the industries studied. On the one hand, the constancy of the industry rankings and their inter-country stability reflect such labour force features as greater or lesser recourse to temporary employees and female labour (which in manufacturing, tends to separate more frequently than male labour). Such differences in the types of labour employed are due in large part to varying technological requirements. But they also reflect historical differences in product market conditions which in turn help to determine inter-industry differences in levels of compensation. Thus the latter help indirectly to account for differences in labour turnover. In this connection, it will be recalled that in Chapter II it was found that industry rankings with respect to earnings are also similar across countries and over time. This raises the additional question of a direct relation between labour turnover and earnings.

Turnover and Earnings

One of the most significant findings of this study is that when the association between earnings levels and labour turnover is examined, it turns out to be consistently of negative sign, and with high and usually statistically significant values of the correlation coefficients. Data for Canada, France, the United Kingdom and the United States are presented in Table 13. The United States figures relating to quits (voluntary mobility) show a still stronger association than do those relating to total separations; unfortunately, for other countries, figures for total separations only are available. It may also be noted that both the United Kingdom and the United States figures for the early years show a tendency for a lower association than subsequently. It may be that the measurements for these years reflect traces of the last phases of the post-war employment readjustment.

Some of this relationship between low earnings and high turnover, and vice-versa may, of course, be accounted for by technological characteristics such as those mentioned in the preceding paragraph. For example, female labour in manufacturing typically earns less and has a high turnover rate, although it is not necessarily accurate to say that it is has high turnover *because* it earns less. It follows that a manufacturing industry in which female employment accounts for a large share of total would be likely to display lower average earnings and higher labour turnover even if there were no direct relationship between earnings levels and turnover. However, a comparison of the United Kingdom figures which relate to employment and earnings of (a) all employees (b) men only, does not suggest that this factor has been of great significance.

Similarly, both earnings and turnover in an industry will be jointly influenced by its age composition, occupational structure, typical size of firm, etc. In a test calculation for Canada and France, the correlation between an industry's degree of concentration and its labour turnover was found to be at least as strong as the correlation between earnings levels and turnover[1].

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1. It will be pointed out at pages 113 to 116 that there is a consistent relationship between concentration and earnings levels.

TABLE 13. THE RELATION BETWEEN LABOUR TURNOVER AND EARNINGS LEVELS

Coefficients of Correlation.

YEAR	UNITED STATES		CANADA	FRANCE			UNITED KINGDOM	
	20 MANUFACTURING INDUSTRIES		17 MANUFACTURING INDUSTRIES	13 MANUFACTURING INDUSTRIES		25 INDUSTRIES	14 MANUFACTURING INDUSTRIES	
	QUITS (*a*)	SEPARATIONS (*b*)	(*c*)	(*d*)	(*e*)	(*f*)	BOTH SEXES (*g*)	MEN (*h*)
1949	..	..	..	..	..	..	—.57	—.42
1950	—.43	—.36	—.52	—.34	..	..	—.58	—.51
1951	—.43	—.50	—.59	—.41	..	..	—.63	—.59
1952	—.56	—.46	—.60	—.52	..	..	—.76	—.69
1953	—.52	—.27	—.68	..	..	..	—.66	—.64
1954	—.75	—.24	—.57	—.43	..	..	—.65	—.68
1955	—.73	—.43	—.61	—.50	—.46	—.42	—.58	—.67
1956	..	—.41	—.62	—.36	—.46	—.49	—.65	—.71
1957	—.81	—.45	—.60	—.35	—.38	—.39	—.76	—.77
1958	—.77	—.62	—.56	—.41	—.44	—.44	—.87	—.84
1959	—.76	—.62	—.60	—.32	—.33	—.20	—.81	—.79
1960	—.79	—.64	—.52	—.34	—.40	—.31	..	(—.73)
1961	—.79	—.67	—.56	..	..	..	..	(—.89)
1962	—.79	—.70	..	..	..	..	..	..

NOTE. The numbers shown are coefficients of correlation calculated between the annual numbers of separations per 100 occupied jobs and the earnings level:

a) Annual quit rate (all employees) and annual average hourly earnings of production workers. (*Source :* " Monthly Labour Review, " " Employment and Earnings ").

b) Annual separation rate (all employees) and annual average hourly earnings of production workers. (*Source :* " Monthly Labour Review, " " Employment and Earnings ").

c) Annual separation rate (all employees) and weekly average earnings. (*Source :* " Hiring and Separation rates in Certain Industries, " " Employment and Payrolls ").

d) Annual separation rate (all employees) and hourly earnings of wage-earners in September. (*Source :* " Etudes Statistiques, " " Revue française de travail ").

e) and *f)* Annual separation rate (all employees) and monthly average earnings of wage-earners. (*Source :* " Etudes Statistiques ").

g) Annual separation rate (all employees) and hourly earnings of wage-earners in October. (*Source :* " Ministry of Labour Gazette ").

h) Annual separation rate (all male employees) and hourly earnings of male wage-earners in October. (*Source :* " Ministry of Labour Gazette "). The 1960 and 1961 estimates were based on April figures.

Attention should perhaps be drawn to one other possible ambiguity of interpretation arising from our basic ignorance of personal motivations. The United States figures in Table 13 are of particular interest in this context when they are related to Table 3. From this latter table, the United States wage structure is seen to have expanded during the period studied, that is, industries with high earnings have tended to raise pay more rapidly. Jobs in high wage industries are not merely more attractive financially; but they are also safer and relatively scarce. The difficulty of obtaining alternative and equally safe employment may be a factor promoting lower turnover in high-wage activities, i.e. lower labour turnover in association with high pay may not only reflect the retentive power of good earnings but also considerations of job security.

It follows that the observed relationship between low pay and high turnover requires to be interpreted with caution[1]. Nevertheless, Table 13 suggests clearly the " direct " explanation that high average earnings in an

1. Two other factors which could contribute to it appear to be as follows:

a) personal characteristics: unskilled workers, who are low in the wage structure because they are unskilled, change jobs more readily. Evidence on this is considered below.

b) ease of job transfer: to the extent that less well paid jobs tend to be unskilled jobs, a greater range of alternative openings is open than where skills are more specific.

industry are associated with below-average labour turnover i.e. that the existing level of earnings is an important influence promoting decisions to leave (or not to leave) a given job. It may be noted that if differences in earnings were offset by differences in non-pecuniary employment conditions, one would expect an absence of correlation. The observed correlation suggests that some industries are better " payers " than others, and that workers are aware of this fact. Additional support for this explanation is derived from the tendency in the United Kingdom and the United States (where it is especially pronounced) for the observed relationship to grow stronger over time.

To throw further light on the relationship between earnings and labour turnover rates, two distinct, but related, problems must be examined:

1. the extent to which some workers are more mobile than others, and the factors which account for differences in mobility,
2. how far considerations of financial advantage appear to play a role in the decision to leave a job, the extent to which other allocational mechanisms are operative, and the influence of the prevailing economic climate on the relative contribution of the different causes to total job-changing.

These questions are taken up below.

FACTORS AFFECTING LABOUR MOBILITY

The Mobile Labour Force

The preponderant part of the labour force is stable. But while much of the overall movement of labour observed is concentrated on a smallish segment of workers who change their jobs relatively frequently, potentially, the observed redistribution of employment could be accounted for by intake from this recruitment source alone. For example, in the United States in 1961, the 8 million persons who changed their jobs represented 10 per cent of those who had work experience during the year; and altogether, more than 13 million job departures took place. A selection of figures for the United States (1955) and Germany (from 1959) is given in Table 14. They display the following features:

a) About 10 to 15 per cent of the people in the labour force changed jobs in the year studied;

b) Roughly two-thirds of those who changed jobs in a year did so once only;

c) The remaining one-third who changed jobs more than once accounted for well over half of the total number of job-shifts observed.

It is interesting to note from a study by Eldridge and Wolkstein[1] that where persons have changed jobs often in a given year, they are more likely to experience repeated job-changes in later years. Some proportion of observed labour mobility is of course the act of habitual job-changers. This particular recruitment stream is easily tapped, but its instability renders it of only limited relevance in the context of expansion of net numbers employed in individual firms or industries. It is those workers whose occasional or frequent job-changing reflects an attempt to improve their employment status permanently who are of interest to the present study.

1. " The Incidence of Employer Change, " *Industrial and Labour Relations Review*, October, 1956.

TABLE 14. THE FREQUENCY OF REPEATED JOB-CHANGING AND ITS CONTRIBUTION TO OBSERVED MOBILITY IN SELECTED YEARS IN GERMANY AND USA

	USA 1955		GERMANY 1959		GERMANY 1961	
Mobile persons per cent of employed[1]	11.6		15.8		11.5	
	PER CENT OF MOBILE PERSONS	PER CENT OF JOBS CHANGED	PER CENT OF MOBILE PERSONS	PER CENT OF JOBS CHANGED	PER CENT OF MOBILE PERSONS	PER CENT OF JOBS CHANGED
1 Job change	66.8	43.2	67.2	46.3	68.1	47.4
2 Job changes	21.4	27.7	20.4	28.1	20.1	28.0
3 Job changes	5.6	10.8	12.4	25.6[2]	11.8	24.6[2]
4 or more job changes	2.6	6.7[2]				
" Many " job changes	3.6	11.6[2]				
Total	100	(100)	100	(100)	100	(100)

1. The United States employment base is the number of persons who worked during 1955. The base for the German figure is average employment. The United States figures exclude job changes by dual job-holders, the pattern of which, however, is similar.
2. At least.
Source : (i) Current Population Reports, Bureau of the Census, Series P. 50, No. 70, February 1957. (ii) Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung.

The following paragraphs list certain characteristics of the labour force which tend to be associated with greater job changing. By implication, this enables the factors making for employment stability to be deduced, i.e. the characteristics of the 85 to 90 per cent of the labour force who do not change jobs in a year and thus do not contribute to changes in the pattern of employment. It should be borne in mind that this analysis is in terms of persons; by reason of repeated job-shifts, the number of jobs changed is greater than the number of persons who changed jobs.

Two major kinds of difficulty are met in interpreting the data. First, it is not always possible to assess to what degree these characteristics are interdependent. For example, it may be that the greater mobility of youth reflects the absence of seniority; but it may also be that the greater mobility of the less senior reflects their lower average age. This question is taken up below. Again, there is some probability that the people who change jobs when labour markets are tight have different characteristics to those whose job-departure takes place in difficult employment conditions. Unfortunately, the nature of the available statistics is such that questions of this kind cannot always be answered.

Age

The general pattern, valid both for men and women, is one of low mobility up to the age of 18 (apprenticeship appears to be an important factor here in some industries and countries), a very high rate of job changing through the early twenties, and then a steady decline in mobility through the working career. It is not surprising to find that younger people are relatively more mobile. With fewer property commitments and lower seniority ratings, they are less tied to a given job or locality than their elders. Thus, having found work, a youth may voluntarily undertake several job-shifts before finding what he regards as his permanent employment. This is confirmed by the fact that a higher percentage of young persons take temporary employment than is the

TABLE 15. JOB DEPARTURES PER 100 PERSONS IN THE AGE GROUP WHO WORKED, BY REASON AND SEX: USA, 1961[1]

AGE GROUP	ALL CESSATIONS	JOB LOSS	IMPROVEMENT IN STATUS	END OF TEMPORARY JOB	OTHER
MEN					
14-17	15.2	2.8	3.0	4.7	4.7
18-19	43.5	11.7	13.4	6.3	12.0
20-24	42.4	13.6	14.2	4.9	9.7
25-54	16.7	6.9	6.3	1.3	2.3
55-64	6.7	3.7	1.2	1.0	0.7
65 and over	6.7	2.8	0.9	1.4	1.7
All ages	18.0	6.8	6.1	2.0	3.2
WOMEN					
14-17	9.8	1.4	1.4	3.2	3.9
18-19	38.6	7.0	12.0	6.5	13.1
20-24	26.6	4.7	8.0	4.7	9.3
25-54	11.3	2.5	3.7	1.5	3.5
55 and over	5.8	1.6	1.1	1.7	1.4
All ages	13.6	2.8	4.1	2..	4.4

Source : Calculated from Tables E2 and E4, Manpower Report of the President, March 1963.

case for the older age brackets; but the higher mobility of the young is also found in jobs which are considered by employers as of a permanent nature. Some of the higher mobility of young persons also results from the fact that when firms find it necessary to reduce their labour force, young and recently hired employees are likely to be the first to go.

In Table 15 above, United States data have been recalculated and expressed as annual separation rates for each age group considered[1]. It will be observed that "improvement in status" is given more frequently as the cause of separation than loss of previous job by men in the age groups 18-19 and 20-24, while for mobile labour as a whole, job loss is most often cited as the reason for separation. The table also shows that while " improvement in status " is a relatively more important reason for job changing by the younger members of the labour force, this group is also more liable to suffer job loss than other ages. Relative to other age brackets, younger workers are seen to be more likely to accept temporary employment, possibly reflecting the higher rate of unemployment prevalent among these age groups, but this factor accounts for only 15 to 20 per cent of the overall mobility of younger workers.

Data available for Germany are less detailed, but confirm the greater mobility of younger workers. In 1961, 34 per cent of wage-earners were aged under 25, but 42 per cent of those wage-earners who changed jobs were under 25. For reasons already discussed, it is likely that these 42 per cent were responsible for more than 42 per cent of job-shifts. The figures for salary-earners are very

1. The employment figure in the denominator covers all those in the age group who had work experience, so that the turnover rates tend to be understated by comparison with the concept adopted elsewhere in this chapter (" . . . per 100 occupied jobs "). The degree of understatement will vary by age group, since short-term work experience is more prevalent among some (e.g. age 18-19) than among others.

similar: 32 per cent of salary-earners were aged under 25, but 46 per cent of salary-earners who changed jobs were under 25.

The relevant findings of several other studies can also be given here. In an analysis of British internal migration, it was found that there was predominance of movement in the 20-29 age group over the other groups, exceptions relating to areas to which people retire in old age[1]. So far as job mobility is concerned, one-third of men and nearly half of women in the age group 18-24 interviewed in a sample enquiry had changed employer at least once during a 4-year period starting in 1945; in the 55-64 group, the corresponding figures were one-eighth of the men and one-fifth of the women[2]. Similarly, in a study of mobility in the Swedish town of Norrköping, it was found that men 45 years old in 1958 had averaged 0.57 job-shifts each in the preceding 5-year period; men 35 years old 0.88 job-shifts each, while the figure for men 25 years old was 1.61 job-shifts[3].

Seniority

In the United States in 1955, about 70 per cent of all job separations were of persons who had spent less than a year with their employer, and a further 22 per cent related to persons with more than one but less than four years' service. In terms of annual separation rates[4]:

Below 1 year's service	150 per cent
1 to 4 years' service	33 per cent
5 to 9 years' service	11 per cent

Clearly, seniority considerations, ranging from the simple-hearted motives of job satisfaction and company loyalty to the substantial economic incentives to immobility represented by acquired pension rights, longer holidays, enhanced employment security and seniority pay, can be of great weight in a decision not to change jobs. Again, the persons most likely to acquire seniority are those who are stable to start with, and the greater the seniority, the longer this process has been at work. There are also factors on the employer's side making for lower mobility of more senior workers. In many large companies, hiring policy is to take on labour at the base of the employment structure and in certain " key " (maintenance and other skilled and white collar) categories and to promote from within; and when lay-offs must be undertaken, first in/last out is usually the rule. But it is also true that larger firms tend in general to have lower labour turnover than small firms (see Size of Firm, page 58). Because of the greater average length of service which this implies, it may be that some of the seniority/stability relationship may merely be a reflection of the general conditions of employment in large firms.

The only data which stratify separation rates by seniority and age relate to the United States in 1955. The figures are reproduced in Table 16 overleaf. They suggest strongly that age and seniority have cumulative rather than interacting effects in promoting stability, except for very short service employees.

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1. Newton and Jeffrey, " Internal Migration, " *General Register Office, Studies on Medical and Population Subjects*, No. 5, 1951.
2. *Labour Turnover in Britain, 1945-1949 ; the Mobility of Labour in England and Wales*, UK Social Survey Reports.
3. " The Mobility of Labour—A Study of a Local Labour Market " (in Swedish). Table 24.
4. Source: *Private Pension Plans and Manpower Policy*, Bulletin 1359, United States Department of Labour (See Table 16 below).

Looking down the table, the separation rate declines with age whatever the length of service in excess of one year[1]. However, young persons less than one year in the job appear to be if anything less mobile than their elders. Looking across the table, mobility diminishes rapidly with seniority whatever the age group concerned. The two types of mobility thus appear to be largely independent of each other. A priori this seems reasonable: the data suggest that a young man with long service is more mobile than an older person with the same service duration, and that a man of given age with a short service record is likely to be less stable than his colleague of the same age with a longer service record[2].

TABLE 16. ANNUAL SEPARATION RATE BY AGE AND SENIORITY: USA 1955

Per 100 occupied jobs.

AGE \ SENIORITY	0-1 YEAR	1-4 YEARS	5-9 YEARS	10-14 YEARS	15 YEARS OR MORE	AVERAGE BY AGE GROUP
Under 25	134	48	24	—	—	95
25 to 34	146	31	13	8	7	60
35 to 44	150	28	9	7	4	47
45 to 54	173	25	10	5	4	39
55 to 64	160	27	10	7	4	31
Average by seniority group	150	33	11	8	7	54

Source : " Private Pension Plans and Manpower Policy, " *BLS Bulletin No. 1359*, United States Department of Labour. Data are from unpublished tabulations of the Bureau of Employment security relating to 7 areas (size of firm and activity coverage not specified).

Size of Employing Firm

Broadly speaking, the larger the firm, the lower its separation rate. Comparative data, however, must be cautiously interpreted, since internal job-shifts in large firms do not appear as separations, whereas a move of a similar type between two small firms would be counted as a separation. The only estimates of the size of this effect relate to Italy. In an enquiry into labour mobility in the province of Lombardy in 1961[3] job change rates of some 20 per cent were observed in firms employing below 250 persons, whereas in larger firms, the figure was of the order of 13 per cent. However if within-firm transfers and changes in occupational category are taken into consideration, the estimates become 22 per cent and 20 per cent respectively (the intermediate figure omitting occupational category changes is not available). These data lend support to the probability that there is some tendency to greater employment stability in large firms.

Figures for France in 1951 and 1952 are presented in Table 17 and for the United States in 1955 in Table 18. They show a striking downtrend of

1. The separation rate jumps again after age 65 (not shown in the table) due to retirements.

2. In the opposite direction, certain factors tend to promote mobility of medium-service workers. In some categories of employment, a job-shift may not be possible until the time required to learn a speciality has elapsed. Also, job dissatisfaction or even sheer restlessness may well be a cumulative process in certain cases, finding expression in a voluntary departure only after a certain length of time and when circumstances are favourable.

3. " Il Ricambio del Lavoro nel 1961, " ed. *Associazione Industriale Lombarda*, Milan, 1963.

TABLE 17. FRANCE:
ANNUAL SEPARATION RATES BY SIZE OF ESTABLISHMENT: 1951 AND 1952

Per 100 persons employed at end-year.

NO. OF EMPLOYEES	1 TO 2	3 TO 5	6 TO 10	11 TO 20	21 TO 50	51 TO 100	101 TO 200	201 TO 500	501 TO 1,000	OVER 1,000	TOTAL
1951	63	59	62	64	62	58	51	43	33	23	50
1952	63	59	63	64	60	57	49	42	32	18	50

Source : Etudes Statistiques: (" Supplément au Bulletin Mensuel de Statistique, " October/December 1953 and October/December 1954). (Data derived from returns made for fiscal purposes.)

labour turnover with increasing firm size. To the extent that different industries are characterised by greater or smaller production units, the relationship between size of firm and labour turnover is part of the explanation of inter-industry differences in turnover (see page 51).

The correlation between earnings and turnover rates to which attention has already been drawn suggests that while the turnover a firm experiences depends in part on the types of labour it employs, it can, by providing (or being obliged to provide) good conditions of employment (in particular, but not exclusively, higher wages) keep its turnover below that experienced by some other employers of the same type of labour[1]. The reasons underlying policy on employment conditions are not specific to large firms, although large firms are more likely to be cognisant of them, and more likely to have the resources to put the policy into operation[2]. In particular, good working conditions contribute to the maintenance of a contented and efficient labour force; the chances are greater that a firm will be able to retain on its books precisely those employees whom it would be least satisfied to see leave. Other motives for pursuing a high wage policy may be the firm's desire to have an image as a " good " employer, the administrative savings available from having lower staff turnover, etc. At the same time, involuntary mobility is also likely to be lower in large firms than in small; their greater resources enable them better to withstand adverse economic conditions.

Size of Firm and Pension Rights

Data for the United States in Table 18 confirm the decrease of labour turnover with increasing firm size. They also bring out the fact that labour turnover is consistently lower among firms with pension plans in both large and small firms and for younger as well as older workers. Quits among elderly workers appear to be disproportionately low in pension firms whatever the size of firm. This suggests that after a certain age, the existence of a pension

1. Moreover, the qualitative characteristics of a firm's work force may also reflect the firm's wage policy.

2. A survey of earnings of full-time adult male manual workers in British manufacturing establishments in October 1958 shows " a tendency for both average weekly earnings and average hourly earnings to rise according to the size of establishment. " Average weekly earnings were lowest for firms employing less than 25 wage earners in 83 out of 107 industries for which calculations were made, and they were highest for firms employing above 500 wage-earners in 71 out of 92 industries for which calculations were made. But " in six industries the smallest size range had the highest average weekly earnings and in twelve industries it had the highest hourly earnings " (*Ministry of Labour Gazette*, April 1959, pp. 125-128).

TABLE 18. USA: ANNUAL SEPARATIONS AND QUITS BY SIZE OF ESTABLISHMENT WITH AND WITHOUT PENSION SCHEMES. 6 AREAS, 1955.

Per 100 occupied jobs.

ESTABLISHMENT SIZE	50 TO 99	100 TO 499	500 TO 999	1,000 TO 4,999	5,000 AND OVER	ALL FIRMS
Workers under 45 with pension scheme:						
Separations	51	53	37	38	40	42
Quits	29	27	21	20	23	23
Workers under 45 without pension scheme:						
Separations	86	72	62	52	..	80
Quits	39	33	39	22	..	33
Workers 45-64 with pension scheme:						
Separations	25	23	13	15	12	16
Quits	6	7	3	4	4	5
Workers 45-64 without pension scheme:						
Separations	66	44	22	32	..	46
Quits	21	14	12	7	..	15

Source : Private Pension Plans and Manpower Policy, BLS. Bulletin 1359, United States Department of Labour.

plan has a definite and additional effect in reducing mobility. It would be going too far to extend this finding to all age groups although the figures in Table 18 are consistent with such a hypothesis. Pensions are more common in high wage firms, i.e. the wage level in pension firms is likely to be higher than in non-pension firms. Again, firms in seasonal industries, i.e. firms which in any event are more likely to have above average labour turnover, are less likely to have pension schemes than firms with year-round working. In other words, pension firms might be expected to have lower turnover than non-pension firms—but not only because they had pension schemes. However, it should also be noted that in some countries there has been some tendency to vest pension rights, i.e. to make pensions transferable. Should this trend continue, the deterrent effect of pensions on mobility may be expected to weaken gradually.

Sex

It is sometimes assumed that female labour has a higher rate of job-leaving than male, but the evidence on this point is conflicting, and different conclusions are derived depending on the countries studied and the level of aggregation at which comparison is made. Overall mobility comparisons, whether relating to job-changers or to total separations, indicate lower turnover of female than of male labour. For example, at the most aggregate level, the ratio of female to male separation rates is 0.92 in Canada (1958-60), 0.98 in Germany (1959-62) and 0.78 in the United States (1961). These figures include such sectors as construction and forestry, in which seasonal work is done by a predominantly male labour force, but sector by sector female employees are also less likely to separate from their jobs than male, with one notable exception. This is manufacturing, where the ratio between female and male separation rates towards 1960 was 1.6 in the United Kingdom, and 1.4 both in the United States and Canada for the sector as a whole. Higher female turnover is also

observed in the majority of individual 2-digit manufacturing industries[1] but the differential is very variable according to industry, reflecting the different mobility rates in the occupations characteristically pursued by men and women, and the occupational structure of the industry in question. Summary data for voluntary and involuntary separations in United States manufacturing are presented in Table 19. This material indicates that greater female mobility in this sector applies equally to quits (voluntary mobility) and to other separations.

TABLE 19. MALE AND FEMALE QUITS AND OTHER SEPARATIONS IN US MANUFACTURING (1958-1960)

Annual separations per 100 jobs occupied by men and women respectively.

	MEN		WOMEN	
	QUITS	OTHER SEPARATIONS	QUITS	OTHER SEPARATIONS
1958	10	38	18	48
1959	15	32	24	37
1960	13	33	23	39

Source · *Employment and Earnings* (BLS) Calculated from rates for the first month of each quarter. (For full explanation of concepts used, see Annex I).

Data comparing the reasons for job changing by male and female workers are available for the United States; a selection is presented in Table 20. As already noted, these surveys indicate significantly higher male than female job-departure rates (see Table 15). The Table 20 figures relate to job departures, irrespective of whether or not fresh employment was found subsequently. Comparing lines 2 and 3 it can be seen that in both years studied a greater proportion of female than of male workers were holders of temporary jobs,

TABLE 20. PER CENT OF JOB-DEPARTURES BY REASON: US 1955 AND 1961 (ALL ECONOMIC SECTORS)

	LOST JOB	IMPROVEMENT IN STATUS	ENDED TEMPORARY JOB	OTHER
	1955			
1. All job-shifts	23.5	37.6	17.9	20.9
2. Men	26.5	39.1	17.2	17.2
3. Women	16.2	34.6	19.8	29.4
	1961			
1. All job-shifts	32.1	32.6	12.9	22.5
2. Men	37.5	33.7	10.9	18.0
3. Women	20.6	30.0	17.1	32.2

Source : Current Population Reports Series P. 50, No. 70, February 1957, and *Manpower Report of the President*, March 1963.

1. The wood and transport equipment industries in both the United States and Canada are exceptions.

and a far greater share of female cessations was for " other " reasons, reflecting the greater likelihood that when women quit work, this may be for domestic or marital reasons. This last type of mobility shows up as " quits " in data on separations, and it may be noted here that while female separation rates in manufacturing are higher than male rates, the percentage of women who take a new job having left one in this sector is rather lower than the percentage of men who do so. This points up the somewhat different position of women in the labour market: they are more likely to enter and depart from the labour force than men, and it is probably true to say that most girls starting work have not the same career view of their occupation as men.

Skill and Qualifications

Broadly speaking, the less skilled a blue collar worker, the more likely he is to experience job changes. In Germany in 1961, 16.7 per cent of unskilled labourers changed employers, the corresponding figure for skilled workers being 11 per cent. Similarly, the rate of voluntary job-shifting among unskilled workers in large firms in Lombardy (Italy) was 27 per cent in 1961, against a figure of only 6 per cent for skilled workers[1]. In the United States, the amount of job changing of unskilled workers outside agriculture and mining is the highest of any of the occupational categories for which data are available[2]. The greater propensity of the unskilled to change jobs reflects the number of job-shifts per mobile person as well as the relative numbers of mobile persons: the greatest percentage of workers holding two or more jobs in the year is that observed for the unskilled category.

Salaried employees on the whole are considerably less mobile than blue collar workers. German statistics show that the overall rate of job-changing was almost three times as high for wage-earners as for salary earners in 1961, a relation which held both for individual sectors of activity across the country and for the average of all activities within each of 13 regions. Similarly, in the Norrköping (Sweden) study already cited, manual workers made more job-shifts than white collar workers in the 10 years 1948-1958.

Nevertheless, labour turnover of certain grades of salary earners is relatively high. The 1961 Italian survey referred to above shows voluntary turnover rates of 12 per cent among lower graded employees (6 per cent in higher grades).

TABLE 21. JOB CHANGERS AS A PERCENTAGE OF PERSONS WHO WORKED: USA 1961[1]

MAJOR OCCUPATIONAL GROUP OF LONGEST JOB	PER CENT OF PERSONS EXPERIENCING A JOB CHANGE		
	TOTAL	MEN	WOMEN
Labourers, excl. farm and mine	16.1	16.4	10.6
Clerical and kindred	9.8	9.1	10.1
All other	9.8	10.7	8.0
All who worked	10.1	11.0	8.6

1. The figures relate to number of persons changing jobs, not to the number of job-shifts.
Source : Monthly Labour Review, August 1963.

1. " Il Ricambio del Lavoro nel 1961, " ed. *Associazione Industriale Lombarda,* Milan, 1963.
2. In all countries job-shifts by temporary workers are included in the data studied.

In the United States in 1961, the percentage of female clerical workers who changed jobs was about as high as the percentage of job changers in the labour force as a whole (Table 21). This appears to be a factor making for the apparently higher rates of female job-cessation in manufacturing already noted. In general, clerical operations are more or less pre-empted by female employees, and jobs of this kind account for a greater proportion of total female employment in manufacturing than in other sectors.

The Reasons for Job Changes

In 1955, there were about 13.3 million departures from jobs in the United States, broken down as in Table 22:

TABLE 22. ANALYSIS OF TOTAL JOB DEPARTURES BY CAUSE: USA 1955

	TOTAL JOB DEPARTURES	NEW JOB NOT STARTED	JOB SHIFTS
Number of actions (millions)	13.3	1.8	1[illegible].5
Percent attributable to:			
Job loss	23	29	23
Ending of Temporary job	18	33	16
Miscellaneous Reasons	21	29	19
Job left to improve status	38	9	42

Source : Current Population Reports, Series P. 50, No. 70, February 1957 (Bureau of the Census).

The reason given most frequently for job departure by those who changed jobs, and the least frequently by those who did not take up fresh employment, was " improvement in status. " This term covers job quits made " to get a better job, to make more money, or because of dissatisfaction with type of work, work conditions or other aspects of the job. " When all job departures are considered, 38 per cent were motivated by the desire to improve status. In 1961, a year of higher unemployment and lower mobility, the corresponding figure was 33 per cent.

It is not possible to say directly how many of those seeking to " improve their status " were influenced by financial or promotion considerations, by job dissatisfaction or by comparison of employment conditions. Further, for those whose " improvement in status " corresponded in some sense to an increase in net economic advantage, it is important to know more about the actual motivation of their job change. A very approximate idea of the relative importance of financial and non-financial reasons for job-leaving can be had from an examination of the scattered enquiries in which samples of voluntarily mobile workers were asked why they left their jobs. A selection of the results of a number of these surveys is given below:

a) In an enquiry by the Allensbach (Germany) Institute of Demoscopy into the job changes of 720 voluntarily mobile workers it was found that " the desire for better earnings is an important reason which has a primordial role for a good half of the wage and salary earners who change jobs. Apart from earnings, other reasons enter into consideration, such as better working conditions, a more agreeable atmosphere, job security, better fringe benefits, or the geographical relationship of home and work-place. " For a large proportion of those questioned these advantages were even more important than earnings.

b) In the United Kingdom, 53 per cent of Dagenham workers under 45 who changed jobs voluntarily said they did so solely for financial reasons, 29 per cent of those over 45. In Battersea the corresponding proportions were 46 per cent and 26 per cent[1].

c) Among voluntarily mobile men in six United States cities over the period 1940 to 1950, 55 per cent of job changes were with the aim of job improvement, 29 per cent were made for personal or family reasons; the rest were because of relations on the job (10 per cent) or taking up of defence work (6 per cent)[2].

d) The results of an enquiry among 300 of its job leavers by an (anonymous) German firm were as follows: 37 per cent of short-term male employees gave " better earnings " as the reason for leaving, 9.5 per cent of short-term female employees. But a single motive was never present in isolation, and subsequent interviews brought out the fact that the main reason initially specified was often not the dominant one; workers had kept in mind the possibility that one day they might again be seeking employment with the firm[3].

e) In the Norrköping (Sweden) study, from 18 to 25 per cent of job changes, according to age, were " forced " moves, older workers being the worst affected. Among voluntary movers, wages were an especially important reason for movements by the middle age group, but dissatisfaction with working conditions was most often mentioned in the youngest age group. In choosing the job, economic rewards offered seemed to increase in importance with increasing age; but as many as 40 per cent of the youngest manual workers could give no other reason than " chance " or " no other choice. " (7 per cent among the eldest white collar workers). The authors of the study comment that " results like these do not necessarily mean that a lot of changes in the labour market are irrational. They are perhaps more an indication of how difficult it is for the individual to base his choice on reliable information about alternative jobs. "

It may be a fair summary of these different enquiries to conclude that " improvement in status " means an improvement in financial status more often than not, but that such considerations as job satisfaction and employment security[4] are not negligible factors in the decision to change jobs, and sometimes may be dominating factors. The enquiries further bring out the fact that " improvement in status " and " voluntary mobility " are by no means coincident: family reasons, work atmosphere, a shorter distance from home to factory etc., account for far from insignificant proportions of voluntary job departures.

Thus, while comparison of present and future earnings is clearly an important component of the motivation of voluntary job cessations, it is not the only component thereof and may be overshadowed by other considerations. Its influence will vary from time to time in the same country, from country to country, and for the individual according to his age group, his earnings level, his seniority, his family status and his knowledge of available alternatives.

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1. M. Jefferys " Mobility in the Labour Market: Employment Changes in Battersea and Dagenham " (1954).
2. Gladys L. Palmer, " Labour Mobility in 6 Cities, " *op. cit.*
3. Cited by Professor Stephanie Münke.
4. The distinction within " improvement of status " between employment security and immediate earnings prospects is a difficult one to make. Both are determinants of probable lifetime earnings.

Further, the evidence for Germany and the United States suggests that the amount and type of job-changing that takes place varies according to the prevailing economic climate. This question is taken up in the following section.

VARIATIONS IN LABOUR MOBILITY

In United States manufacturing industry, quits have accounted for from 30 per cent to 70 per cent of total separations during the post-war period[1]. The figures are given in Table 23; they show a strong and statistically significant inverse association between overall mobility and the level of unemployment, and a still stronger inverse association between the share of voluntary in total mobility and the level of unemployment[2]; the latter relationship is also shown in Chart II. Similarly, during the depressed years of the 1930s, there was no time when quits accounted for much over 30 per cent of total job separations. These figures suggest that when activity is high and labour markets tight, mobility is predominantly voluntary; during spells of high unemployment, involuntary mobility comes to account for a far greater share of job-departures.

Similar conclusions are derived from the direct analysis of reasons for changing jobs given in the two United States sample labour surveys of 1955 and 1961. The overall figures from these surveys are reproduced in Table 24

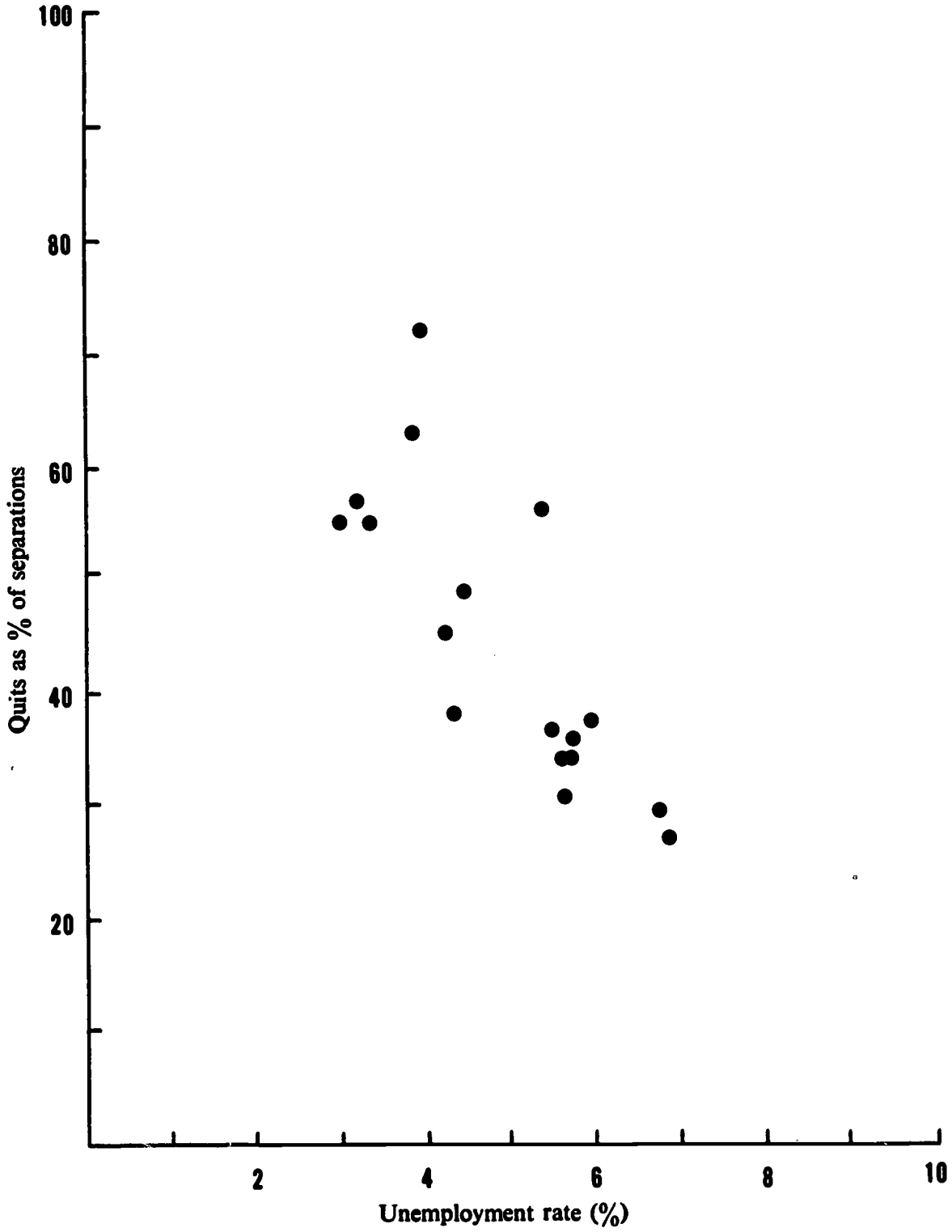
TABLE 23. UNITED STATES MANUFACTURING: VOLUNTARY AND TOTAL LABOUR MOBILITY AND UNEMPLOYMENT, 1947-1963

	AVERAGE MONTHLY RATE		QUITS AS PER CENT OF TOTAL SEPARATIONS	UNEMPLOYMENT AS PER CENT OF CIVILIAN LABOUR FORCE
	QUITS	TOTAL SEPARATIONS		
1947	4.1	5.7	72	3.9
1948	3.4	5.4	63	3.8
1949	1.9	5.0	38	5.9
1950	2.3	4.1	56	5.3
1951	2.9	5.3	55	3.3
1952	2.8	4.9	57	3.1
1953	2.8	5.1	55	2.9
1954	1.4	4.1	34	5.6
1955	1.9	3.9	49	4.4
1956	1.9	4.2	45	4.2
1957	1.6	4.2	38	4.3
1958	1.1	4.1	27	6.8
1959	1.5	4.1	37	5.5
1960	1.3	4.3	30	5.6
1961	1.2	4.0	30	6.7
1962	1.4	4.1	34	5.6
1963	1.4	3.9	40	5.7

Source : Employment and Earnings, BLS.

1. Estimates by H. S. Parnes (" The Labour Force and Labour Markets " in *Employment Research*, Industrial Relations Research Association, 1960) are of a similar order of magnitude.
2. Correlation coefficients: unemployment, total separations: —0.65, unemployment, share of quits in total: —0.80.

Chart 2. THE RELATION BETWEEN THE SHARE OF VOLUNTARY MOBILITY IN TOTAL AND THE DEGREE OF UNEMPLOYMENT IN THE UNITED STATES, 1947-1963



Source: Table 23.

TABLE 24. JOB LEAVERS' REASONS FOR DEPARTURE, USA 1955 AND 1961

	JOBS LEFT (MILLIONS)			REASON FOR LEAVING (PER CENT OF TOTAL JOBS LEFT)			
	NO NEW JOB STARTED	NEW JOB STARTED	TOTAL	ECONOMIC REASONS	IMPROVEMENT IN STATUS	TERMINATION OF TEMP. JOB	OTHER[2]
1955	1.8	11.5	13.3	23.5	37.6	17.9	20.9
1961	2.3	10.9[1]	13.1	32.1	32.6	12.9	22.5

1. Excluding persons making 4 or more shifts.
2. Sickness, retirement, domestic preoccupations and other reasons including "not specified."
Source: US Special Labour Force Surveys: 1. *Current Population Reports, Series P. 50, No. 70*, Bureau of the Census, 1955. 2. *Private Pension Plans and Manpower Policy*, BLS Bulletin No. 1359 3. *Monthly Labour Review* (BLS) August, 1963. 4. *Manpower Report of the President*, Department of Labour, March 1963.

above[1]. "Improvement in status" accounts for a higher percentage of job shifts in 1955 than in 1961 while the share of job departures for "economic reasons" (in general, redundancies or lay-offs), which was the cause of slightly over one-fifth of job-shifts in 1955 rose to almost one-third in 1961. It may be noted that the number of job departures identified was about the same in 1961, when the unemployment rate was well above the post-war average, as in 1955, a year of relatively low unemployment, but the number of identified job re-starts was rather lower.

The figures available for Germany are not wholly comparable to those for the United States, but they confirm that voluntary mobility increases on a tight labour market. But whereas American experience suggests that *total* mobility also increases in a tight market, the German data, admittedly relating to a short span of time—1959 to 1961—do not bear this out. Over these three years, there was increasing tension on the labour market slackening but nevertheless remaining high after the March 1961 revaluation. However, the overall separation rate declined, if but slightly, each year during the period[2] and the number of job changes[3] did so even more rapidly. Some part of the decline in total separations can be attributed to measures taken in the construction sector to promote continuous working, but some is also due to a decline in the number of discharges. At the same time as total cessations fell, the proportion (and the number) of employee-initiated cessations rose: in 1959, employees accounted for less than half of total separations; in 1961, 72 per cent of separations were employee-initiated.

These findings based on global turnover data are consistent with the results of a study of factory attendance and employment records in 55 British factories between July 1951 and July 1952, in which it was found that both absenteeism and labour turnover declined as unemployment rose. Particular findings were that absenteeism declined more in factories with redundancy than in factories situated in regions with redundancy but not themselves laying

1. There is no exact correspondence between the concepts employed here and in Table 23. Voluntary mobility in Table 23 includes "Improvement in Status" and an unidentified part of "other" in Table 24.
2. It is interesting to note that the decline in total mobility appears to have continued into 1962: overall separation rates in the four years were 38.3 per cent, 36.3 per cent, 35.5 per cent and 34.4 per cent. (*Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung.*)
3. Separations, whether employer or employee initiated, of persons who subsequently found another job.

off labour; and that regional differences in turnover rates corresponded to regional differences in the level of employment. The author concludes that " labour turnover as well as absenteeism are primarily determined by economic forces, namely the level of employment "[1].

There may be a difference in the kind of voluntary mobility, which occurs as labour markets move from easy to tight conditions, or vice versa. Persons who for one reason or another are dissatisfied with their present employment are less likely to risk leaving their jobs while there is uncertainty as to the availability of alternative work. When labour is scarce, the risk is reduced; and the observed increase in the share of voluntary mobility in total suggests the existence of a reserve of potentially mobile labour among the employed which only becomes actual when labour markets become more or less tight. This suggests that the extent to which workers seek information about job alternatives may itself be influenced by the economic climate. Mobility at times when jobs are scarce presupposes certain precautions. When it is known that other employment can be had reasonably easily, the decision to leave can be based on much less specific information, and therefore is more likely to reflect negative aspects of the present job than the positive attraction exercised by the job which is subsequently found. The results of the Norrköping study, which indicates job-dissatisfaction as an important factor promoting movements by the youngest workers, and stresses the limited extent to which information was available about the job subsequently taken, are particularly relevant here. Another Swedish study, discussing the full employment relationship between turnover rates and earnings, draws attention to the inverse association between cessations and wage levels

> " while a corresponding significant correlation between wages and inflow of workers cannot be found. These circumstances suggest that wages are of less importance as an incentive to enter into another industry (the " pull "-incentive) than as an incentive to leave (the " push "- incentive) "[2].

Job Changes by Type

The preceding discussion has dealt with the characteristics of job-changers and their reasons for undertaking changes of employer. But in the context of an examination of changes in the structure of employment, it should be borne in mind that not all changes of employer result in changes in numbers employed in a given industry or occupation. For brevity, job-changes which result only in a change of employer will be referred to as Type A mobility; all other job-changes will be denoted as Type B[3]. The concept of mobility used up to this point has covered both Type A and Type B movements, for the data have related to changes of employer without distinguishing the sector in which employment was subsequently taken up. When an attempt is made to assess the magnitude of employment flows within and between industries and occupa-

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1. H. Behrend, " Absence and Labour Turnover in a Changing Economic Climate " *Occupational Psychology*, Vol. 27, No. 2, p. 69. National Institute of Industrial Psychology, London, April 1953.
2. R. Meidner, " Svensk Arbetsmarknad vid full Sysselsättning " (The Swedish Labour Market in Conditions of Full Employment) *Konjunkturinstitutet*, Stockholm, 1954 (Swedish, with summary in English).
3. Type A could be designed as " intra-class " mobility in that the worker stays in the same occupation and industry.

tions[1], the available statistics require very careful interpretation since a high proportion of all job changes involves several kinds of mobility simultaneously. Further, once the industries and occupations for study of mobility have been defined, Type A mobility appears as a residual (" did not change industry or occupation "). The finer the classification, the less Type A mobility there appears to be[2].

Type A mobility presents some rather special features in the context of an examination of the allocative role of wages. It involves the least cost and effort on the part of the worker, since change of employer involves no adaptation other than doing the same job in a different work-place. To the extent that labour markets are localised, Type A mobility can be a factor promoting increases in wages which may go some distance without producing any alteration in the occupational or industrial distribution of employment. There will of course be a redistribution of employment between firms, tending in due time to the elimination of the least efficient units. Type A mobility is most pronounced where for some reason a local shortage of a given type of skilled labour occurs. Some firms in the industry affected will raise the wage offered for this kind of labour, and whether because of wage comparisons, or because the differential was sufficient to cause some labour to move, other firms will be incited to raise their wage offer in turn. If market imperfections are such that labour is not drawn in from elsewhere, any mobility observed will be of Type A until such time as a sufficiently wide differential opens up to overcome the imperfections and attract the labour required from outside (Type B). In practice, offsets to Type A mobility are (a) gentlemen's agreements against " pirating " (b) attempts to expand employment by recruiting—at existing wage levels—from outside the local labour market before recourse to raising wages (c) where training can be done rapidly, upgrading of the next lower occupational stratum.

Data on Type A mobility are available only for the United States and Germany. A selection of the United States material is given in Table 25[3]. This type of mobility appears to have accounted for about one-third of all job changing in the two years studied when the classification adopted is one of broad occupational groups and two-digit industries. Craftsmen, especially construction workers, and agricultural employees, appear particularly likely to undertake job-changes within the same industry and occupation. On the other hand, when clerical workers change jobs, they stay in the same occupation and industry fairly rarely by comparison with other groups of the labour force. The statistics indicate that the proportion of job-shifts involving no change of either occupation or industry was higher in 1961 than in 1955, and higher in both years for women than for men.

Other data collected in the same surveys show that *occupational change* was a feature of slightly more than half of all 1955 job-shifts and rather less than half in 1961. Job-changes by men were more likely to involve a change in occupation than job-changes by women in both years. Typically, four-

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1. Geographical mobility is dealt with in Chapter VIII.
2. And where statistics of this kind can be had, the more Type B.
3. A number of the United States special labour market studies also enable estimates of Type A mobility to be made. Allowing for differences in definitions of occupational and industrial classes, their results concord well with those cited above. See in particular, Eldridge and Wolkstein, *op. cit.*; Palmer and Others, *The Reluctant Job Changer*, Pennsylvania University, 1962; G. L. Palmer " Labour Mobility in 6 Cities " *Social Science Research Council*, New York, 1954.

TABLE 25. PERCENTAGE OF TOTAL JOB-CHANGES FOR WHICH NEW JOB WAS IN SAME INDUSTRY AND OCCUPATION[1]

	ALL SHIFTS STUDIED	ANALYSED BY SECTOR OF DEPARTURE (WAGE AND SALARY EARNERS ONLY)					ANALYSED BY OCCUPATIONAL DIVISION LEFT (ALL ACTIVE PERSONS)			
		AGRICULTURE	CONSTRUCTION	MANUFACTURING	TRADE	SERVICES	SERVICE, EXCL. DOMESTIC	OPERATIVES ETC.	CRAFTSMEN ETC.	CLERICAL AND KINDRED
					1955					
Men	27	32	43	25	26	22	25	25	43	15
Women	30	51	[2]	34	31	27	35	35	[2]	21
					1961					
Men	34	—	—	—	—	—	31	25	53	16
Women	35	—	—	—	—	—	40	44	[2]	24

1. The surveys do not cross classify geographical mobility, some of which is therefore included in Type A mobility as defined here. A job-change within the same sector or occupational group is counted as Type A if the subsequent employment was in the same industry and in the same occupation.
2. Number of cases too small for percentages to be shown (200,000 in 1955, 100,000 in 1961).
Source : See Table 24.

fifths of those of either sex who changed their occupation also moved to a different industry[1]. Groups particularly prone to leave their occupation when changing jobs appear to be male clerical workers, labourers, and those employed in the trade, service and agricultural sectors. On the other hand, female clerical workers who change jobs appear to stay in the same occupation more frequently than any other group except perhaps professional and technical people.

In these surveys, industrial change appears more frequently than any other type of mobility. It was a feature of 65 per cent of 1955 job-changes, and 56 per cent of 1961 job-changes. Only about one-third of inter-industry shifts were within the same occupational group, i.e. about 60 to 70 per cent of persons of either sex who changed industries also changed occupations[2]. Clerical and kindred workers again appear as a special case: 67 to 71 per cent of their job-shifts were to a different industry, a rate of inter-industry movement matched only by non-farm labourers and persons in the service sector.

More generally, it can be deduced from the overlap of the industrial and occupational classifications in these surveys that a high proportion of those making any kind of job-shift (Type A or Type B) were semi-skilled or unskilled workers. This is in line with the findings of other studies already cited in the discussion of the relationship between skill and mobility (see page 61).

Although the different definitions and presentation adopted make comparison difficult, data for Germany suggest that job-departures there in 1961 involved a change of industry somewhat more often than in the United States. In the metal industries " sector " at least 75 per cent of those who changed jobs left their industry; 50 per cent of job-changers left the sector completely. The experience of other manufacturing industries was rather varied: only half of those who left clothing and milling went to different industries; over 80 per cent of departures from ceramics and glass were towards other industries.

1. Cases of persons who change occupations within the same industry account for only about 10 per cent of all job-shifts.
2. Which in turn means that at least one-half of those job-changes which involved a change in either industry or occupation involved a change of both (80 per cent × 60 per cent or 70 per cent).

The material discussed in the preceding paragraphs relates almost exclusively to the United States. The following conclusions can be drawn from it; while they seem reasonable, it would be going too far to suggest that the proportions observed in the United States are necessarily those obtaining in other countries.

a) A significant proportion of job-changes (one-third) involve no change in either occupation or industry.

b) Workers who change their jobs tend to make occupational shifts less frequently than industrial shifts[1].

c) When occupational shifts are made, they are in the majority of cases associated with a change of industry (but the figure of 80-90 per cent suggested by the United States data is an over-statement, as job taking by people who changed occupations but stayed with the same employer was not reported).

d) Rather more than half of industry changes are associated with a change of occupation, i.e. industry shifts involve a change of occupation substantially less frequently than occupational shifts involve a change of industry. This reflects the degree to which training is required to make an occupational change possible, whereas the same occupation may be pursued in a number of industries.

The findings of a sample inquiry into labour mobility in the United Kingdom concerning industrial changes of men,[2] are of direct relevance to our enquiry and may be cited here. Attention is drawn to

> " the extent to which persons leaving an industry do not enter others in the same " group, " but spread themselves among the rest roughly in accordance with the numbers employed in each group of industries . . . (this pattern seems as if) it is dependent over time on a constant ratio of vacancies in an industry to the total numbers in that industry. "

The survey examines the relationship between vacancies and employment for 1949, and finds that except for engineering and textiles, vacancies were in fact distributed between industries according to the number employed in these industries. Summing up its findings, the survey comments that men seem to be less tied to an industry than they are by an occupation; the fact that this movement appears to accord with vacancies seems to support the argument that the change of industry was not a factor taken into account in the decision to change employers.

While those who are seeking jobs appear to change occupational category relatively infrequently, the growth and decline of different industries means that in certain circumstances the types of labour offered may not match those required, even if there is an apparent balance between the *number* of job-seekers and the number of vacancies. (This may also be true of the geographical locations in which labour is available and in which it is required.) This problem has to be faced in any attempt to establish employment equilibrium, and some countries have taken cognisance of it and put into operation what are now called active manpower policies[3]. To some extent, active manpower policies can be a substitute for changing wage differentials. This is particularly

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1. This is particularly true of the geographically mobile, whose occupational loyalty appears to be higher than that of the labour force as a whole.
2. *UK Social Survey* " Labour Turnover in Great Britain, 1945-49. "
3. For a useful description of the underlying concepts and practical implementation of active manpower policy, see the *OECD Observer*, No. 8, February 1964.

so where the existing wage structure is " suitable "[1], but the balance of supply and demand is impeded by market imperfections (e.g. absence of information) and barriers to mobility.

INTERPRETATIVE IMPLICATIONS

It may be helpful at this point, and before going on to discuss the relationship between changes in wage differentials and labour mobility, to bring together the threads of the discussion in the present chapter. A great deal of job-leaving and job-taking is going on at all times. The data examined have covered different aspects of it in different countries at different times. It would have been useful to make still further inter-country comparisons, but this is a statistical field in which much progress has yet—and ought—to be made.

Focusing attention first on job-leaving, it is clear that a high proportion of job departures results from redundancies. The immediate allocational mechanism here is not primarily the earnings structure—although clearly levels of earnings affect the willingness of employers to hire workers and their ability to keep them. Other job departures take place for reasons not directly associated with relative wages—age, departure from the labour force, ending of temporary jobs. The remainder consists of departures from permanent jobs made with the aim of obtaining another and better job. It is among this last category, which in the United States has amounted to 30 from 40 per cent of total job-leaving, that financial motivation appears most relevant. However, the record suggests that in the United States, non-financial reasons account for a good deal of what the surveys call " improvement in status. " As far as can be judged from the available material, the same has been true of other countries.

Much less direct information is available on the reasons for taking a particular job rather than another. Concentrating for the moment on job-choice by voluntary job-changers (job-choices by the unemployed and new entrants are discussed in the next chapter), the Swedish study of the town of Norrköping suggests that a fair proportion of job-acceptances was made in the absence of information about alternatives, or even without a great deal of information about the job which was actually taken.

Individual local market studies in the United States point to a similar conclusion. Summarising the results of a number of enquiries, Myers suggests that the process of job-taking by voluntary job-changers does not resemble a classical model of fully informed decisions based on considerations of maximum advantage:

> " Workers who leave one job voluntarily for another do not usually have another job in mind. They may leave in the expectation that they can find a better job, but their knowledge of available alternatives is apt to be sketchy and their search haphazard. If there is any sort of shopping around for jobs, it comes through this sort of job-shifting early in the worker's career, rather than through the careful weighing of alternatives available at the moment "[2].

It may be recalled here that the high mobility phase is relatively short by

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1. See in particular point 1 of the Summary to Chapter VII, p. 130.
2. C. A. Myers, " Labour Market Theory and Empirical Research, " in *The Theory of Wage Determination*, ed. Dunlop (Macmillan, London, 1957).

comparison with the duration of a working career. By age 25 or so, the worker has already become relatively immobile, and—so far as voluntary mobility is concerned—becomes more so with the passage of time.

Thus, whether job-departures or job-acceptances are being considered, the proportion of job-movements in which maximisation of advantage or even of earnings determine decisions is perhaps smaller than would have been thought a priori. But even if only a quite small part of total labour movements were based on comparisons of relative advantage, one might expect this to suffice to redistribute labour roughly in accordance with differential earnings opportunities. The extent to which this appears to be the case is studied in Chapter VI. There are, however, a few points which may be raised at this stage in order to clarify the issues to be studied there.

In the first instance, much labour mobility is of a replacement nature, and involves little or no change in the existing wage structure or in the pattern of employment. This can most clearly be seen in the case of promotions. Almost by definition, promotion-induced labour flows occur within the existing wage hierarchy, and insofar as each job-departure implies a vacancy, the process can be considered as a replacement chain at the end of which a new entrant to the relevant employment sector may well be offered employment in a different occupation, industry and region from those in which the initial vacancy occurred. Such a chain most often, but not exclusively, involves promotion from within. And there are certain employment categories for which firms typically hire from the outside. These include college educated persons; certain office employees such as women stenographers and executive secretaries; maintenance workers—especially electricians, machinists and millwrights—and some semi-skilled workers, especially in certain industries where small firms are the characteristic mode of organisation or in which craft unions are predominant.

To some extent, therefore, the redistribution of employment can be conceived in terms of the intake of new entrants in the relevant employment category. Further, since job-shifts in the replacement chain involve no change in average earnings and maintain rather than modify the existing structure of employment, such movements escape identification by correlation-type analysis. A zero or negative correlation between earnings and employment change is consistent with an important amount of financially motivated job-changing if such job-changing reflects promotion-induced mobility.

Similar considerations apply to a job-change resulting in higher subsequent earnings in the framework of the existing structure even if the change has no promotion content, but only involves lateral mobility, i.e. results in better earnings for roughly the same work, possibly in a different occupation or industry. A large proportion of job-changes involve such a complete break with the previous activity that it is difficult to say whether lateral comparison or promotion is the dominant element and the distinction between lateral and promotional mobility cannot be made on the basis of available statistics. Analytically, however, it may be of importance to distinguish between them. Some mobility which prima facie is promotion-induced turns out on closer examination to be due to "inflation of function" (upgrading) in the sector of intake. In this case, average earnings measured over all employees in the labour receiving sector will rise, reflecting the change in its employment structure. Where upgrading of this kind is a successful indirect means of putting higher pay into effect to attract additional labour, a positive association will appear between changes in average earnings and in numbers employed.

The basic distinction, therefore, is that between changes in the pattern of employment which call for no modification to the existing earnings structure, and those which are provoked or facilitated by appropriate changes in relative earnings. The preceding discussion has shown that while improvement in financial status may constitute an important cause of job-changing, it need not be associated with change in the inter-industrial wage structure. Nor need it always involve change in the inter-industrial structure of employment. Where it does involve a change in employment distribution, this may occur without a change in the wage structure if an industry replacing an older man by promotion can also at some stage in the chain fill the outstanding vacancy by a recruit from another industry, which in turn replaces him by a new entrant[1].

SUMMARY

The main points which emerge from the discussion in the present chapter can be summarised as follows:

1. The gross flows of labour corresponding to a given change in the structure of employment may be many times as large as the eventual change in net numbers employed.
2. Labour turnover rates vary greatly between industries. The highest turnover rates tend to be observed in industries with the lowest earnings, and vice versa.
3. Only a minority of the labour force is mobile in any one year although the number of persons changing jobs is still far bigger than the net changes in employment. By reason of repeated job-changing by the same individuals, the number of job-changes made is greater than the number of persons who change jobs.
4. The likelihood that a person will change jobs varies according to age, sex, seniority, size of employing firm, wage levels, pension rights, skill level etc. But little is known about the interdependence of these variables.
5. Many *job-shifts* involve a change of employer only, but leave the industrial and occupational structure of employment unchanged. Complex shifts involve a change of industry more often than a change of occupation, and they appear to affect less-skilled workers proportionately more frequently than more qualified workers.
6. *Job-departures* may result from a number of causes, among them redundancies, retirement from the labour force, ending of a temporary job, or, where departure is voluntary (although the causes here are less easily ascertained), attempts to improve status. In the United States some 35 per cent of job-departures in 1955 and 1961 are considered to have arisen from attempts to improve status. This last category is the only one for which net economic advantage is likely to be a substantial factor in job-change decisions. Studies of labour markets in several countries suggest however that job dissatisfaction and non-economic reasons (family, change of residence etc.) are important considerations affecting voluntary decisions to leave jobs.

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1. This is more than a possibility. In a community in which certain labour markets are dominated by a large employer, the latter may concentrate on hiring low-paid labour from smaller firms, which in turn recruit directly from the ranks of new entrants, pay them lower wages, and experience high turnover rates.

7. There is little quantitative material on the reasons underlying *job-acceptances* by voluntary job-changers. A number of points, however, can be made:

a) Hiring may also be done from among new entrants and the unemployed. Voluntary job-changers are only one of several recruitment streams available to industries expanding their employment.

b) To the extent that voluntarily mobile labour shares the characteristics of the mobile labour force as a whole, it will contain a proportion of persons changing jobs several times during the period, and its age structure will contain a higher weight of young persons than for the labour force in general.

c) There appears to be some tendency, particularly among young persons, to test a job by actually working in it, rather than by acquiring information about alternative possibilities. Wage comparisons seem to take on more importance with increasing age, skill, or seniority—at the same time as mobility diminishes.

8. Mobility is greater in periods of expanding employment opportunities than at other times. As a proportion of total mobility, voluntary mobility has varied in the United States between some 20 to 30 per cent in periods of high unemployment to two-thirds in periods of expanding employment. This suggests that some mobility observed in conditions of high activity reflects job-shifts postponed by persons who were dissatisfied with their existing job, but felt it unsafe to make a move.

9. To the extent that wage considerations enter into job dissatisfaction, and given the absence of knowledge of alternatives by those who are most mobile, the earnings structure appears to act more in terms of retaining labour or impelling it to move, than by attracting it to specific activities.

10. Many positions are filled through promotion, upgrading or training of the existing labour force. These movements transfer the demand for labour further down the skill hierarchy, not necessarily in the same firm or industry.

11. Where an industry or firm expanding employment can recruit from other industries because existing wage relativities enable it to offer higher pay to those workers who move, the distribution of employment can be altered without changing the wage structure. A distinction should therefore be made between employment flows resulting in higher earnings in the framework of the existing structure, and those for which modification of the existing structure is a necessary condition. This question is taken up in Chapters VI and VII.

V

JOB CHOICE BY YOUNG WORKERS AND THE UNEMPLOYED

It can be estimated that out of 7.3 million job acceptances in Germany in 1961, 2.9 million were accounted for by persons taking their first job in the year—immigrants, former unemployed, re-entrants and new entrants. In this category, annual recruitment of school leavers averages about 0.4 million[1]. Some 4.4 million jobs were taken by those who left a job in the same year. Rather over 1 million of these persons had been discharged from their earlier job; the remainder were voluntary job changers who may or may not have had a spell of unemployment. A similar estimate for the United States suggests that out of a total of 14.1 million job-acceptances[2], 10.9 million jobs were started by persons who had already worked during the year while 3.2 million were accounted for by persons taking their first job[3] (about 1.6 million youths are available each year on average[4]). It may also be noted that 13.4 million spells of unemployment were reported. This figure compares with 13.1 million job departures[5]. Relevant Italian data can also be given here. In that country, employment offices dealt with about 1 million job placements in the two years 1960 and 1961. Some 20 per cent of these placements related to persons taking their first job. These new entrants probably formed a still higher percentage of the persons placed, since some of those with work experience may have passed through the employment offices several times during the period.

While these estimates are rather crude, they may be used to assess orders of magnitude. Job changers clearly account for a high proportion of job-taking. But, as has already been noted, much of the movement of the existing labour force is between jobs in the same occupation and industry. A good deal of the remainder is offsetting in terms of the structure of employment. This is clearly true of replacement mobility, but also holds for "lateral" job

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1. In any one year, of course, the figure varies, reflecting school-leaving legislation and practice and the extent to which prevailing economic conditions induce potential entrants to postpone or bring forward their entry (see "Cyclical Variation in Civilian Labour Force Participation," Strand and Derburg, *Review of Economics and Statistics*, November 1964).
2. Calculated as follows: identified job separations 13.1; deaths 0.4; net change in employment 0.6; total jobs accepted 14.1 million.
3. This figure is obtained as a difference and therefore includes any estimating errors.
4. See note (1) above.
5. Sources: Secretariat estimates based on (1) *Monthly Labour Review* (BLS), August 1963 (2) *Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung*.

changes[1]. The importance of the inter-activity allocation of the unemployed and of new entrants in changing the distribution of labour is therefore greater than might seem to be the case from a simple comparison of the size of recruitment streams. Further, even the smallest of these streams, the once-only first choices made by new entrants, would on its own suffice to account for observed changes in the pattern of employment.

Young Workers

While the post-war literature appears to contain no direct study of the importance of school leavers in the redistribution of employment[2] some attention seems to have been paid to this question in the high unemployment inter-war years in the United Kingdom. A study of unemployment books exchanged between 1927 and 1937 points out that re-adjustment was more by juvenile entrants than by movements of persons aged 18-64 years.

> " The adults not only failed to transfer themselves in sufficient numbers to contribute towards the increase in the size of the growing industries, they failed even more to move in sufficient numbers to compensate for the loss of workers due to deaths or retirements "[3].

On the other hand, intake of juveniles into customary local occupations was a factor preventing a more rapid adjustment to changes in economic conditions. In cotton and engineering there was a large inflow of juveniles and a large outflow of adults. The failure of the coal mining industry to contract reflected the difficulty of damping down the inflow of juveniles. Other sources confirm that difficulties of this kind were being experienced. The following is illustrative:

> " One of the peculiar features of the cotton trade (in Lancashire and South Yorkshire) is that it has gone on recruiting juveniles all through the period of depression "[4].

Thus in some cases, expansion of an industry's work force reflected primarily the intake of juveniles. In others:

> " The juvenile entrants entered declining industries on a disturbingly large scale . . . the failure of depressed industries to contract more rapidly was due as much to the difficulties of damping down the inflow of juvenile workers as to the difficulty of transferring old workers out of the industry "[5].

But it may also be noted that even in postwar years, some industries have concentrated on the intake of young workers to compensate for their inability to retain adult employees in sufficient numbers. In Belgium, for example, declining relative earnings in textiles have been associated with growing emphasis on the recruitment of female adolescents; nor does the industry

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1. For example, if industry A hires a worker from B, and B takes on a worker from A (possibly in different occupations and regions) there is no net change in the inter-industry distribution of employment, but there has been mobility of labour.
2. The United Kingdom, however, has collected regular information on the employment distribution of school leavers (Ministry of Labour Gazette).
3. H. Makower, J. Marschak and H. W. Robinson, " Studies in the Mobility of Labour, Analysis for Great Britain, " Part II, *Oxford Economic Papers*, 4, 1940. The citation is from page 57.
4. *UK Royal Commission on Unemployment Insurance 1931-32:* Minutes of Evidence and Appendices (item 3717). There seems however, to be nothing in the evidence about the extent to which the expansion or contraction of the labour force in different industries was achieved by juveniles.
5. H. W. Robinson " The Response of Labour to Economic Incentives, " Chapter VI, *Oxford Studies of the Price Mechanism*, ed. Wilson and Andrews (1951).

appear to have been unduly concerned about the correspondingly high turnover rates[1]. No difficulty appears to have been felt in tapping this recruitment stream. From the girls' own point of view, it has been suggested that the availability of social security benefits in case of unemployment is a factor attracting them to these rather less well paid occupations[2]. At the same time, the existence of some industries which rely on recruitment of new entrants implies the existence of others which prefer to hire experienced workers from the recruiters of new entrants. One reason: such industries prefer to pay higher wages than to hire inexperienced labour and incur the costs of training and exploratory turnover.

The following paragraphs take up the question of the behaviour of new entrants, and the reasons why they take the jobs they do. A number of direct studies of certain aspects of this question have been made. In interpreting their findings it should be borne in mind that their relevance to the present day is affected by changes in the institutional and social setting, and by differences in economic climate. In particular, substantial changes in environment have taken place since some of these surveys were made. The educational level, and therefore the adaptability of new entrants, has continued to rise. In many countries, changes in the social climate and the attainment of a degree of full employment, have engendered significant changes of attitude on the part of younger workers, tending to promote a more considered choice of first job. In some countries apprenticeship has become less widespread and training periods have tended to shorten. More generally, rising real earnings levels have made it possible for the new entrant to become self-supporting immediately, whereas until comparatively recently he would still have had to rely in some measure on his family to see him through his first working years. Again, the development of unemployment compensation systems has rendered the need for an immediate job-decision somewhat less urgent—a point which applies equally to the adult unemployed. In some countries, vocational training and educational schemes, together with increasing emphasis on job counselling techniques, are further factors making juveniles' job choices very different from what they were, say, ten or fifteen years ago. Correspondingly, these choices differ still more substantially from those of the pre-war years.

There is a great deal of evidence that kinship, while still a considerable factor in job-choice, has become relatively less important in recent times. The data in Table 26 are illustrative of this; many other examples could be given. There is also evidence that the new entrant's job-horizon is very restricted geographically. In part this reflects the extent to which young persons are tied to their homes, and (as the British material cited above suggests) will enter a local industry even though pay and prospects are poor. And in addition to home ties there are more general psychological barriers. Parodi[3] cites the experience of a placement officer in Marseilles, who found youths extremely reluctant to consider job vacancies in industrial districts other than their own on the grounds that they were unfamiliar with the transport network, and were not used to " frequenting the districts in question. "

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1. It is stipulated that girls getting married will not be maintained on the staff.
2. On the employer's side, changes in methods of Social Security financing may also have an impact on the type of labour used. In Italy, a law passed in 1955 provided for reduced employer contributions in respect of apprentices. Between 1958 and 1962, total employment of apprentices rose from 556,000 to 810,000 (Source: *Statistiche del Lavoro*, Sept. 1963. The data exclude the civil service).
3. M. Parodi, " *Croissance Economique et Nivellement Hiérarchique des Salaires Ouvriers*, " Ed. Marcel Rivière et Cie, Paris, 1962, page 100.

TABLE 26. KINSHIP TIES IN A NORTH WALES STEEL PLANT TO 1954
PERCENTAGE OF NEW ENTRANTS "SPOKEN FOR"
BY RELATIVES OR FRIENDS

	WAGE EARNERS	STAFF AND MANAGERS	ALL
Before 1925	41	54	42
1925-1938	22	37	25
1939-1946	28	44	30
1947-1954	10	30	12

Source : W. H. Scott and others "Technical Change and Industrial Relations," *University of Liverpool*, 1956.

In an enquiry into the reasons for taking jobs by 1,350 Glasgow boys[1], the commonest reason given was "the interest of the work"—about half the boys. A long way behind came parents' wishes; still further behind, the boys' desire for ultimate position and for good wages, in that order. "Interest of work" was the main objective of boys at all levels of scholastic attainment. About 640 boys were in apprenticeship for skilled work or for a profession, and 96 per cent of them felt that they were doing the kind of work in which they intended to remain, whereas for all boys studied, the corresponding percentage was 74 per cent. It is also of interest that the proportion earning relatively high wages was small in the higher grades, great in the lower; the modal wage of boys in training for skilled work, i.e. the most satisfied boys, was one ten-shilling class lower than that for all the boys.

Summarising interviews with 800 manual workers concerning the circumstances surrounding their first job, Reynolds writes[2]:

> "Most youngsters (and their parents) approached the choice of a first job with no clear conception of where they were going; the great majority of first jobs were found in a very informal way, preponderantly through relatives and friends; the great majority of youngsters took the *first job* they found and did not make comparisons with any other job; their knowledge of the job before they took it was in most cases extremely limited . . ."

A particularly striking feature of these case histories is that 85 to 90 per cent of the sample took the first job they found after leaving school and did not compare it with any other job. In some cases (about 15 per cent), the yougsters had a preference for a particular line of work and took the first job he found *in that line*. In most however, he literally took the first job he came across, often without knowing what the starting rate was[3]. And in many cases, possibly the majority, the job turned out to be a "blind alley," leading to nothing better. Reynold's own comment is that

> "altogether, workers' initial job choices appear to be singularly uninformed, inappropriate and unrewarding . . . (but) the worker's first job is often very short and may be relatively unimportant in his entire occupational history. If the first job proves unsatisfactory, the youngster shifts

1. T. Ferguson and J. Cunnison, *The Young Wage Earner, a Study of Glasgow Boys*. Oxford University Press (1951).
2. L. G. Reynolds, *The Structure of Labour Markets*, Harper, New York, 1951, page 127.
3. Among a sub-sample of 450 relatively immobile workers, 70 per cent had known nothing about their first job except the starting rate, the remainder not even that.

to another, and may make several changes during the first years of employment. This " settling down " period involves considerable waste of time, needless effort and disappointment, but it also serves the constructive purpose of educating the worker to the realities of employment and of clarifying his own abilities and interests. "

These studies imply that the level of earnings has a rather small influence on the choice of first job by young workers. But while this may be true of the specific choice of job, there is some evidence that earnings levels have been of relevance in determining the general nature of the employment sought. Rising earnings levels and closing differentials have combined to tempt new entrants to accept relatively highly paid, but unskilled jobs. Recognition of this phenomenon has led certain industries in Belgium to provide for higher earnings for youngsters following training courses.

But it should also be pointed out that young persons' first choices tend to be ephemeral, and the factors underlying the choice of first job and those underlying subsequent job shifts in the younger age groups may well be very different. The BLS studies of the United States cited in Chapter IV[2] indicate that:

1. Males aged 18-24 experienced the highest rate of job changing in 1961, but they also experienced the highest rate of job shifts per 100 persons who moved for " improvement in status " (Table 15).
2. While the age span of maximum financial motivation may be short, the 16-24 group contributed one-third of all job changes, and about one-third of these were with the aim of " improving status. "
3. The proportion of job changers with higher earnings on the second job was greater (a) in the group with no unemployment between jobs (b) at the low end of the weekly earnings scale. (b) in particular is consistent with the circumstances of younger workers.

Job Choice by the Unemployed Worker

On the whole, job choices by the unemployed have tended to display a relatively small wage-assessment content. A number of factors operate here. In Rehn's words:

" Ironically enough, the individual most often is made aware of his need to re-adjust by being deprived of his means for re-adjustment; he becomes unemployed, or, in the case of a businessman, bankrupt. Financially and psychologically depressed, he is hardly in a position to make a sound decision regarding his future place in the economy. Instead he takes the first job offered to him. He is, in effect, forced to function irrationally "[2].

The administrative rules of all public employment systems require cessation of benefit if the unemployed person rejects an opening which the placement officer deems appropriate for him, although an effort is usually made to interpret the rules flexibly. This is a stimulus to acceptance of the first offer notified. Further, while there is some collation of the individual's qualifications with the characteristics of the job, employment services tend in practice to rely largely

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1. For sources, see Table 24.
2. " Manpower Adaptability and Economic Growth, " *OECD Observer*, November 1962.

on locally notified vacancies[1], and they mainly operate through voluntary requests by employers—which are least frequently made when labour is plentiful. Placement is thus mainly a function of available job vacancies rather than of choice between alternatives[2]. Not all placements, of course, are made through employment services, but so far as the unemployed are concerned there is no reason to believe that more rational results are achieved through other channels.

Some evidence of the impact of unemployment on job choice is available from the 1961 United States Labour Survey. Among job changers, 14 per cent of those who experienced no unemployment between jobs took fresh employment in a lower earnings group, but 23 per cent of those who had a spell of unemployment took a job offering lower earnings[3]. At the same time there are indications that white collar workers are under less pressure in this respect than blue collar, and more generally, that the likelihood of a redundant worker taking a job at lower pay is smaller, the greater the resources he can draw upon while he is looking for a job. A recent study of one case of redundancy in the United Kingdom found that[4]:

> "Weekly paid men who had not found jobs within a week or two of leaving almost invariably then took the first thing that came along. Monthly paid men on the other hand, frequently turned down offers and deliberately took their time to find just the right job. One factor of importance . . . not only did the monthly paid men more often have some savings to fall back upon, they also received more generous ex-gratia payments from the company . . . they could afford to be more choosy."

It seems reasonable to conclude that better provision for redundant workers could be of importance in promoting better re-allocation of the labour force when layoffs occur.

It should be noted finally that while the availability of the unemployed to effect redistribution of the labour force may be significant quantitatively in certain of the countries studied, it represents a much less considerable source of recruitment in a full employment economy.

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1. Methods of extending geographical coverage are under study in a number of countries. The French experiment in connection with the placement of Algerian repatriates is particularly noteworthy as an example of extempore organisation and has since served as the basis of a permanent system of employment notifications. On a more regular basis, United States placement services are regularly advised of job vacancies arising outside State borders.

2. Reynolds reports that even where an employment officer brings several vacancies to the worker's notice, the decision is almost invariably taken to go for an interview to the first vacancy mentioned. (The Structure of Labour Markets, *op. cit.*).

3. "Job Mobility in 1961," *Monthly Labour Review*, August 1963. The full figures are:

	Earnings Group		
	LOWER	SAME	HIGHER
No unemployment between jobs	13.7 %	46.4 %	39.9 %
Some unemployment	23.3 %	50.9 %	25.8 %

4. Dorothy Wedderburn, "White Collar Redundancy," *The Times Review of Industry and Technology*, February 1964.

SUMMARY

The main points which emerge from the discussion in the present chapter can be summarised as follows:

1. New entrants represent a significant recruitment source. In numerical terms, they could account for observed changes in the pattern of employment.
2. Studies have shown that new entrants have not generally made systematic research of job opportunities. They have tended to accept the first offer, usually in the locality in which they live and frequently in the same line of activity as their parents.
3. In more recent years, higher educational levels, vocational training, job counselling and improved employment services have promoted a greater degree of rational choice among new entrants, and this process is continuing. But it should be noted that job counselling is in terms of job interest, future prospects and development of personality: immediate earnings are only one element taken into consideration. Also, in some countries, technical educational facilities have lagged behind specialised industrial manpower requirements.
4. Job choice by the unemployed is influenced by the unfortunate position in which the worker finds himself. There is a strong tendency to take the first vacancy offered, reinforced by existing administrative techniques in placement offices.
5. It should nevertheless be borne in mind that the choices made both by new entrants and the unemployed may be ephemeral. If the job proves unsatisfactory, at least it provides a haven in which the worker can shelter until an alternative, preferable, opportunity arises.

VI

THE RELATION OF DIFFERENTIAL WAGE MOVEMENTS AND THE REDISTRIBUTION OF LABOUR AMONG INDUSTRIES

The number of studies which exist on this subject is far from negligible. Most of them have approached it in what appears to be the most direct way, that is by making statistical assessments of the strength of the relationship appearing between changes in relative earnings and changes in relative employment. But while this relation is clearly of central importance to any understanding of the mechanisms involved, it cannot be seen in isolation. An attempt has been made in the preceding chapters to set the background to the present one by putting the alternative motivations of different types of labour flow into perspective.

Comparison of the results obtained in different studies covering different countries and periods of time brings out a remarkable similarity in the factual results obtained. A positive association appears between changes in relative earnings and relative employment more frequently than a negative one; but where the coefficients are high enough to make the observed association statistically significant, they rarely suggest that the relationship is a strong one. Moreover, the sign of the relationship frequently changes, depending on the time period in question or the particular series chosen, which, for the same country, differ with respect to coverage, unit of observation or source of data.

To the concordance of the factual results there corresponds a remarkable degree of divergence in the interpretation of these results. This is indicative of the extreme difficulty of the subject. As it is essential to our mandate, the Secretariat has, at our request, carried out a more detailed and comprehensive analysis, which is described below, The data cover a wider range of countries, earnings classifications and periods of variable length than it has hitherto been possible to consider in the scope of a single piece of research. A full list of the countries and series studied will be found in Table 27. As will be seen, they confirm the factual findings of the earlier studies, but leave the problem of interpretation very open.

THE LIMITS OF THE ANALYSIS

Considerable use has been made of correlation analysis, and to this extent the results are not merely open to alternative interpretation, but in some cases are not relevant to certain of the most important aspects of the question under

TABLE 27. SUMMARY LISTING OF EARNINGS, EMPLOYMENT AND RELATED SERIES STUDIED[1]

CLASSIFICATION	PERIOD STUDIED	EMPLOYMENT SERIES		EARNINGS SERIES		RELATED SERIES	
		CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
USA							
1. 10 Sectors	1948 to 1961	02240	Full and Part-time employees	02140	Annual Compensation	02360	Profits
2. 61 Manufacturing Industries	1951 to 1961	02200	Production Workers	02100	Hourly Earnings		
3. 21 Manufacturing Industries	1948 to 1961	02200	Production Workers	02100	Hourly Earnings	02307 02350 02326	Concentration Profit rates Index of Production
4. 21 Manufacturing Industries	1948 to 1960	02220	Full and Part-time production workers	02120	Annual Earnings	02360 02380	Profits Ratio of labour cost to sales
5. 21 Manufacturing Industries	1948 to 1960	02230	Full and Part-time non-production workers	02130	Annual Earnings	02360 02380	Profits Ratio of labour cost to sales
6. 21 Manufacturing Industries	1948 to 1961	02240	Full and Part-time employees	02140	Annual Compensation	02360 02380	Profits Ratio of labour cost to sales
7. 31 Industries (21 Manufacturing)	1948 to 1961	02200	Production Workers	02100	Hourly Earnings		
8. 60 Industries (21 Manufacturing)	1948 to 1961	02240	Full and Part-time employees	02140	Annual Compensation	02360	Profits
9. 10 non-manufacturing industries (and total manufacturing)	1948 to 1961	02200	Production Workers	02100	Hourly Earnings		
10. 36 Service Industries	1948 to 1961	02240	Full and Part-time employees	02140	Annual Compensation	02360	Profits
11. 51 States	1947 to 1961	02250	All employees in Manufacturing	02150	Annual Earnings		
CANADA							
12. 10 Sectors	1950 to 1961	01240	Index of total employment	01140	Weekly Earnings		
13. 17 Manufacturing Industries	1949 to 1960	01200	Male Wage Earners	01100 01110	Hourly Earnings Weekly Earnings	01307 01360 01326 01380	Concentration Profits Index of Production Ratio of labour cost to sales
14. 17 Manufacturing							

	Industries	1950 to 1961	01240	Index of total employment	01140	Weekly Earnings		
16.	53 Manufacturing Industries	1950 to 1960	01240	Index of total employment	01140	Weekly Earnings		
17.	38 Industries (17 Manufacturing) ..	1950 to 1961	01240	Index of total employment	01140	Weekly Earnings		
18.	21 Service Industries .	1950 to 1961	01240	Index of total employment	01140	Weekly Earnings		
19.	17 Manufacturing Industries	1951-54-57 and 1959-60	01206	Male office and clerical	01106	Weekly Earnings	01307 01326	Concentration Index of Production
20.	17 Manufacturing Industries	1951-54-57 and 1959-60	01207	Male managerial and professional employees	01107	Weekly Earnings	01307 01326	Concentration Index of Production
21.	10 Provinces	1949 to 1959	01250	All employees in Manufacturing	01150	Annual Earnings		
22.	16 Manufacturing Industries (Montreal) .	1949 to 1960	01280	Male wage earners	01180 01181	Hourly Earnings Weekly Earnings		
23.	16 Manufacturing Industries (Montreal) .	1949 to 1960	01285	Male Salaried employees	01185	Weekly Earnings		
24.	13 Manufacturing Industries (Toronto) ..	1949 to 1960	01290	Male Wage Earners	01190 01191	Hourly Earnings Weekly Earnings		
25.	13 Manufacturing Industries (Toronto) ..	1949 to 1960	01295	Male Salaried employees	01195	Weekly Earnings		
	GERMANY							
26.	27 Industries (26 Manufacturing) ..	1950 to 1960	16200	Wage Earners	16100	Hourly Earnings		
27.	32 Industries (29 Manufacturing) ..	1957 to 1962	16240	Male Wage Earners	16140 16141	Hourly Earnings Index of standard Hourly Earnings	16307 16380	Concentration Ratio of labour cost to sales
28.	32 Industries (29 Manufacturing) ..	1957 to 1962	16210	Male Wage Earners, skill group 1 (highest skill group)	16110	Hourly Earnings	16307 16380	Concentration Ratio of labour cost to sales
29.	32 Industries (29 Manufacturing) ..	1957 to 1962	16220	Male Wage Earners, skill group 2	16120	Hourly Earnings	16307 16380	Concentration Ratio of labour cost to sales
30.	32 Industries (29 Manufacturing) ..	1957 to 1962	16230	Male Wage Earners, skill group 3	16130	Hourly Earnings	16307 16380	Concentration Ratio of labour cost to sales
31.	9 Regions	1957 to 1962	16210	Male Wage Earners, skill group 1	16110 16111	Hourly Earnings Standard[a] hourly earnings	16308	Concentration

TABLE 27 *(concluded)*

CLASSIFICATION	PERIOD STUDIED	EMPLOYMENT SERIES		EARNINGS SERIES		RELATED SERIES	
		CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
32. 9 Regions	1957 to 1962	16220	Male Wage Earners, skill group 2	16120 16121	Hourly Earnings Standard[2] hourly earnings	16308	Concentration
33. 9 Regions	1957 to 1962	16230	Male Wage Earners, skill group 3	16130 16131	Hourly Earnings Standard[2] hourly earnings	16308	Concentration
UNITED KINGDOM							
34. 109 Manufacturing Industries	1949 to 1958	28240	Male employees	28100	Hourly Earnings of male wage-earners	28307	Concentration
35. 13 Manufacturing Industries	1949 to 1959	28240	Male employees	28100	Hourly Earnings of male wage-earners	28360 28326	Profits Index of Production
36. 17 Industries (14 Manufacturing) ..	1949 to 1959	28240	Male employees	28100	Hourly Earnings of male wage-earners		
FRANCE							
37. 20 Industries (15 Manufacturing) ..	1946 to 1962	15240	Index of total employment	15100	Index of hourly earnings of hourly paid workers	15360 15300	Profits Index of activity
38. 25 Industries (14 Manufacturing) ..	1955 to 1960	15220	Male Wage Earners	15120	Annual Earnings	15307	Concentration
39. 89 Departments	1955 to 1960	15250	Male employees	15150	Annual Earnings		
SWEDEN							
40. 10 Manufacturing Industries	1952 to 1960	25220	Wage-earners	25120	Annual Earnings	25307 25380	Concentration Ratio of labour cost to sales
41. 88 Manufacturing Industries	1952 to 1960	25220	Wage-earners	25120	Annual Earnings	25307 25380	Concentration Ratio of labour cost to sales
42. 10 Manufacturing Industries	1952 to 1960	25230	Salaried employees	25130	Annual Earnings	25307 25380	Concentration Ratio of labour cost to sales
43. 88 Manufacturing Industries	1952 to 1960	25230	Salaried employees	25130	Annual Earnings	25307 25380	Concentration Ratio of labour cost

(10 Manufacturing) ..	1954 to 1959	25200	Male wage-earners	25100	Hourly Earnings		
45. 30 Manufacturing Industries	1952 to 1961			25100	Hourly earnings of male wage-earners	25360	Profits
NORWAY							
46. 20 Manufacturing Industries	1950 to 1959	22200	Male wage-earners	22120	Annual Earnings	22326 22380	Index of Production Ratio of labour cost to sales
47. 20 Manufacturing Industries	1950 to 1959	22230	Salaried employees	22130	Annual Earnings	22326 22380	Index of Production Ratio of labour cost to sales
48. 25 Industries (20 Manufacturing) ..	1955 to 1959	22200	Male wage-earners	22100	Hourly Earnings		
BELGIUM							
49. 11 Sectors	1949, 1955 and 1962	11200	Male wage-earners	11100	Daily Earnings		
50. 23 Manufacturing Industries	1945, 1955 and 1962	11200	Male wage-earners	11100	Daily Earnings		
NETHERLANDS							
51. 20 Manufacturing Industries	1954 and 1960	21220	Male semi-skilled workers	21120 21121	Hourly Earnings Weekly Earnings		
52. 20 Manufacturing	1954 and 1960	21230	Male unskilled workers	21130 21131	Hourly Earnings Weekly Earnings		

1. For full description of the coverage of these series, see Annex I. The earnings series in principle include overtime payments, but other earnings supplements are included to varying degrees. When not otherwise specified, earnings data relate to the same labour force as the employment figures.
2. Adjusted for differences in industrial composition of employment.

examination. Some of these difficulties are inherent in all correlation analysis, i.e. whether an observed association is merely a joint response by the variables under study to some outside influences which operate on both, or whether it is in fact a causal relationship and if so, what is the direction of causality. This is particularly important in the study of the allocative role of wages. To the extent that the analysis does indicate an association between earnings and employment changes, this is consistent with the view that wages are fulfilling an allocative role, i.e. that wage *changes* are operating to redistribute labour as a direct response to changes in demand for labour. But it is also consistent with the view that when demand rises in a given sector, employment will increase as a result of the newly available job vacancies at the same time as conditions are created which encourage unions to demand, and employers to grant, above-average wage increases, i.e. that the existence of job vacancies suffices to induce manpower to come forward at the *current* wage.

Further difficulties of interpretation arise from the composite nature of most series on both employment and earnings. One difficulty is that the coverages of the series are often different.[1] What is more serious is that each series itself is an aggregate within which many relevant movements of its components may be hidden, or cancelled out against each other while the behaviour of the aggregate becomes dominated by some irrelevant feature that the components have in common. A particular occupation in an industry, for example, may show a marked association between changes in employment and earnings, but changes of many kinds are at the same time occurring in other occupations of the same industry, and in particular, there may be substantial changes in relative numbers in occupations, firms and regions providing different levels of earnings. The resultant movements of average earnings show the joint outcome of many factors besides those we are trying to isolate. Although it has been possible in some cases to study the relationship in successively finer breakdowns of the same population, the data are always subject to some degree of aggregation, and therefore liable to some distortion from these " extraneous " influences.

But there are also difficulties even where the series for employment and earnings are for a single homogeneous group. They correspond to those met in attempts to derive supply and demand functions from time series of quantity and price. If shifts in supply have been greater, the relationship to appear will be predominantly between quantity and demand price. Thus in the labour market, higher employment may be associated with a lower relative wage because of an increase in the numbers seeking that kind of work. But there is reason to believe that in the countries and periods we have studied, the shifts in supply have been generally smaller than those in demand. The labour markets studied have mostly (but not all and not always) experienced conditions ranging from equilibrium to excess demand. Insofar as changes in production patterns and technology have generated changes in the amount and structure of the aggregate volume of labour required, and may be judged to have been of more significance than autonomous changes in the supply of labour arising

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1. e.g. total male employment in Great Britain and earnings of adult males in the United Kingdom; total employment, and hourly earnings of wage employees in France. For full details of coverage of series and industries included, see Annex 1. The absence of comparability between the industrial and occupational breakdowns adopted in different countries makes generalisation of conclusions a hazardous affair, and points up the need for still further progress in the international systematisation of concepts and nomenclatures.

from labour force growth, changes in qualifications and education etc., one may really be measuring the extent to which employment tends to move in the direction of higher relative earnings offered by employers with vacancies to fill. In other words, on *a priori* reasoning—and given, as we believe to have been the case, a reasonable degree of imperfection in labour markets enabling both differential earnings movements and the employment response to them to be identified—one would be led to expect a predominantly positive correlation, and that the measurements made are meaningful.

It must nevertheless be borne in mind that many factors tend to obscure the positive relationship between changes in earnings and employment which one might expect to observe if earnings were merely a price serving to determine the distribution of labour between activities. Damping down, or even reversal of the relationship can follow from differential supply elasticities. Thus, two industries, confronted with the same increased demand for their production (in terms of labour needs) may have varying success in acquiring new workers. In one case, little or no change in earnings may be needed to obtain a substantial increase in employment—the industry may be well placed to attract or intercept the appropriate recruitment stream. In the other case, wages may be forced up with relatively little increase in employment, e.g. if the grades of labour demanded were in short supply and took a long time to train. The result of this, by itself, would be a negative correlation between employment and earnings. Similarly, there is the case in which too rapid increases in earnings, given product market conditions, may oblige employers to cut back production and therefore employment, or alternatively to invest in labour-saving equipment—again with a reduction in employment. In certain circumstances, mechanisation may reduce the number employed while making possible a marked rise in the relative pay of those retained in employment. Where such relationships hold, correlation analysis will throw up apparently " perverse " results.

Timing is another factor which must be taken into account. In essence, correlation analysis consists of testing whether certain relationships which it seems reasonable to consider as possibly of practical significance are in fact so. Insofar as the central relation under study is that between earnings and employment changes, it may be that if the market mechanism were working really efficiently, earnings differentials would open just long enough to attract the required inflow of labour and then might close again, i.e. one would not necessarily expect to find any association. In fact, the evidence reviewed in previous chapters suggests that the labour market is far from perfect, so that perhaps not too much weight need be given to this point. But in the same order of thought, it is relevant to enquire whether barriers to mobility may not make for a lagged response by labour to differential earnings possibilities. In the analysis done, an attempt has been made to test for lagged reactions, but there is the difficulty that such relationships may differ as between different types of labour market, and within any one market may not be the same at different times.

Further criticism relates to the choice of earnings as the measure of the price of labour. It is by no means certain that changes in relative earnings alone accurately reflect changes in the overall attractiveness of entry into a given industry, occupation or region. Some differences in industries' average earnings arise from the occupational composition of their employment, and some may be offset, in part or in total, by differences in fringe benefits or in non-pecuniary working conditions. But even allowing for this, differences in wage ranking frequently appear to reflect genuine wage differences for similar types of labour

in different industries[1]. This is a field in which statistics are notably deficient, and it has only been possible to assemble data on total labour costs per worker in a limited number of cases.[2] In general, the figures used are as close as possible to total earnings so as best to measure the incentive effect of wage changes. This also has its disadvantages. For example, up to a certain point, expanding demand for labour can result in an increase in overtime working without any change in numbers employed—a specific illustration of the general point that observed *changes in employment* are not synonymous with changes in the *demand for labour*[3]. Where the time periods compared relate to different phases of the trade cycle, the overtime element will promote a bias towards a diminution of the correlation which would otherwise be observed, since there is a margin within which a relative earnings gain from premium rates is not accompanied by any increase in numbers employed.[4]

There is also scope for discussion whether the use of absolute or percentage changes in earnings is more appropriate for study of the significance of the wage allocative process. These two measures occasionally yield quite different results in correlation with other factors. If industries high in the earnings ranking implement wage increases which are below-average in percentage terms, this may still imply an expansion of absolute differentials, particularly in periods of rapid wage rise. If these industries are losing employment relative to the low wage sector, a positive relation appears between percentage earnings changes and employment changes, but if they are gaining, the positive relation will appear to be between absolute earnings changes and employment changes. It is therefore possible to " prove " a positive association by referring to one or the other type of measure whereas in fact all that exists is a statistical relationship between the two measures.[5] Further, if the high wage sector is experiencing greater percentage increases of earnings, and its relative employment is expanding (contracting) a positive (negative) association between percentage wage increases and employment movements will be noted, but the numerical value of the measure of association of absolute changes and employment changes will be greater. A number of check calculations were made to test the possible importance of these relationships. In a limited number of cases there were quite substantial differences pointing up the importance for analyses of individual cases of going beyond the correlation coefficient to the underlying

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1. The evidence cited in support of this in various parts of this chapter is supported by the fact that in practise examples of firms and industries with reputations as " good payers " are far from rare. An experimental check calculation suggests that " good payers " are also good earners. Profits as a percentage of equity capital are positively correlated with an industry's earning level each year for United States manufacturing industry 1948/1961, the majority of the coefficients being at or above the 5 per cent significance level.

2. Efforts are being made to improve the position. In particular, mention should be made of a meeting of experts convened by ILO (7th-16th Sept., 1964) to define total labour costs and recommend an internationally comparable classification. It is hoped that the conclusions reached will in due time be reflected in national statistical practises.

3. The appropriate employment measure in this case would be man-hours; but data on this are rarely available. In a check calculation for France, the results derived from use of employment indices differed little from those derived using activity (man-hour) indices.

4. See John T. Dunlop, *Wage Determination under Trade Unions*, N.Y., 1950 pp. 19-27 and J. E. Maher " Union and Non-Union Wage Differentials, " *American Economic Review*, June 1956, for a more detailed discussion of the pitfalls involved in using average earnings as a measure of labour reward.

5. See for example S. Ostry " Interindustry Earnings Differentials in Canada, 1945-56, " *Industrial and Labour Relations Review*, Vol. 12, No. 3, April 1959. (This author uses both types of measures simultaneously), and A. M. Ross and W. Goldner, " Forces affecting the Inter-industry Wage Structure, " *Quarterly Journal of Economics*, May, 1950.

phenomena. But taking the results as a whole, there is a close degree of concordance, and certainly the general conclusions reached below would have been in no way modified if absolute rather than percentage differentials had been used. In the present examination, there were two main reasons for concentrating on percentage relationships. Some of the earnings data were available in index form only, and comparability of the measures for different countries would have been defective. Further, so far as motivation is concerned, the inducement potential of a given wage difference will vary according to the percentage of income which it represents.

Finally, it is necessary to allow for the influence of the existing earnings structure on employment movements. In those cases in which employment has tended to grow most rapidly in high-wage industries,[1] there may be a presumption that such industries, by virtue of their place in the earnings hierarchy may have less need to increase their relative earnings than would otherwise have been the case. This suggests that in measuring employment change/earnings change relationships, there may be a need to allow for the influence on employment shifts of an industry's position in the wage structure. Accordingly, in addition to direct measures of the relationship, partial correlation coefficients have been calculated to assess what the degree of association would have been in the absence of any earnings level effect. Comparison of the two sets of coefficients indicates that the relationships are much the same in either case. If anything, the partial coefficients suggest a lower degree of association between relative earnings and employment changes when the influence of the earnings structure is held constant.

As already stated, the results concord well with those obtained in other independent studies in which the same line of approach has been adopted. Further, rather similar relationships have been observed in the different types of labour market studied, but there are important differences between them in (*a*) the amount of data available from which to draw general conclusions, (*b*) the forces at work, (*c*) implications for policy; and certain markets are therefore considered separately.

CHANGES IN EARNINGS AND EMPLOYMENT AS BETWEEN ECONOMIC SECTORS

At the level of broad economic sectors, there have been two major types of employment flow presenting very different features:

a) In all countries, labour has moved out of agriculture—in the direction of higher wages.

b) Outside agriculture, the tendency has been for employment in low wage sectors (e.g. certain services, particularly in the more industrialised countries) to expand more rapidly than employment elsewhere—i.e. much of the movement has been in the direction of lower wages.

When employment flows are considered in relation to changes in earnings, data for North America show in general no association between changes in relative earnings and contemporary changes in relative employment; although it should be borne in mind that these economies have on the whole been under-

1. It may be noted in passing that the coefficient of correlation between earnings levels and changes in employment is a useful indicator of the direction of labour flows; a negative coefficient indicates a more rapid rise of employment in low-wage industries.

employed through the period. There is, however, some evidence of what appears to be a lagged response of earnings to employment movements in certain sectors. In the USA, the services sector ranked seventh out of eight in respect of its rate of wage *change* over the period 1948-1957 [1], but second in 1957-60, whereas its share of total employment had been climbing steadily throughout the whole 12-year period. In the opposite direction, the employment trend in mining was steeply downward throughout the entire period 1948-1960, but this sector's wage-change ranking, after climbing from 4 (1948-1953) to 1 (in 1953-1957) only declined (to 8) in the last three years of the period, when for the first time its wage and salary increases fell below the average for the entire non-agricultural sector. However, the strength of this relationship is not over-impressive. One would expect these trends to be associated with some compression of the sectoral earnings structure, to the extent that earnings rose more rapidly in the low-wage sectors (in which the employment gain occurred). In fact, no such tendency existed during the period reviewed: the coefficient of variation for wages and salaries per employee rose slightly during these years (see Table 3).

In common with the United States, employment in Canada has been rising most rapidly in low-wage sectors. The data contain a much stronger indication that earnings changes have tended to *follow* changes in employment. A positive association is observed throughout the entire period when employment change is related to wage change in the following year.[2] Further, there is no consistent relation between employment and earnings changes in the same year, and the relationship between earnings changes and employment changes in the following year is uniformly of negative sign. On this particular point, see also page 99.

It is of interest to compare earnings and employment developments in total manufacturing in the United States with those in other sectors, the (rather miscellaneous) service sector in particular. Over the period 1948 to 1960-1961, manufacturing employment rose *less* rapidly than in other sectors, while per-worker compensation rose *more* rapidly. Two reasons for this are to be found within the manufacturing sector itself. One consists of the increasing demand for professional, technical, and other white-collar employees, which, both in the United States and Canada, has been associated with rising salaries within manufacturing.[3] Another consists in the operation of collective bargaining, which has affected wage movements not only in the labour markets where " key wage bargains " were negotiated but in others as well.[4] Duesenberry has concluded on this point that wage movements in manufacturing have reflected the influence of collective bargaining[5] whereas increases in service

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1. Data relate to total employment and annual wages and salaries per employee.
2. All year-to-year correlation coefficients are positive, four of them significantly so, with a further three on the threshold of significance.
3. and, from Canadian data, in all other sectors as well.
4. For a discussion on United States collective bargaining developments see G. Seltzer, " Pattern Bargaining and the United Steel Workers, " *Journal of Political Economy*, August 1951, pp. 319-331; H. M. Levinson, " Pattern Bargaining: A Case Study of the Automobile Workers, " *Quarterly Journal of Economics*, May 1960, pp. 269-317; J. E. Maher, " The Wage Pattern in the United States, 1946-1957, " *Industrial and Labour Relations Review*, October 1961, pp. 3-20; O. Eckstein and T. Wilson, " The Determination of Money Wages in American Industry, " *Quarterly Journal of Economics*, August 1962, pp. 379-414.
5. J. Duesenberry, " Underlying factors in the Postwar Inflation, " in American Assembly, *Wages Prices, Profits and Productivity*, New York: (Columbia University Press, 1959) Ch. 3. His conclusion cannot be extended to Canada, where nationwide spread of industries is the exception rather than the rule, and the majority of " patterns, " where they can be discerned, go no further than regional boundaries.

wages reflected more the influence of excess demand for labour in sectors in which trade union organisation was weak.

At the same time, the period after 1957 in the United States was one of generally low levels of aggregate demand, and there is some likelihood that generally high levels of recorded unemployment had a degree of underemployment as a counterpart, reflected in part by an increase in numbers employed in service trades. The continued growth of service employment after 1957 may have represented an increase in the supply of as well as the demand for labour; and to this extent it is correspondingly likely that the lagged response of service earnings to employment growth is more apparent than real. On the other hand, the lagged relationship between earnings and employment movements in the mining sector appears to reflect an attempt by the parties to collective bargaining to maintain or improve relative earnings despite falling employment; and this attempt was successful for quite some time.

A number of influences thus appear to have been operative in the determination of earnings levels, illustrating the need in relevant cases to go behind the correlations to the underlying phenomena. The main point suggested by the data is that large employment shifts could and did take place without any concurrent same-direction movement of relative earnings. It is not possible to say whether or not the " wrong " differential may have made for some inefficiency in the reallocation process by hindering the employment shifts from taking place as rapidly as they might otherwise have done. But it is relevant that employment falls were registered in high-income branches, which, at least for a time, continued to implement above average increases in compensation, while many of the employment gains were made by low-paying activities in which compensation rose less than average, at least until 1957.

EMPLOYMENT/EARNINGS RELATIONSHIPS BETWEEN INDUSTRIES

The data mainly cover manufacturing but material has also been available to make a parallel study of the relation between relative changes in earnings and employment for non-manufacturing industries, usually in the services sector, for a number of countries. In general, the results can be summarised as follows:

i) In most countries, there has been an association, occasionally quite strong, between movements in relative earnings and in employment, at the level of broad (2-digit) industry groupings within manufacturing.

ii) There is little or no association for non-manufacturing 2-digit industry groupings.

iii) There is little or no association when a finer manufacturing breakdown is studied.

2-Digit Industries

When the data for production workers in general or for total employment are examined at 2-digit industry level, there is a marked contrast between the results for manufacturing industries and the corresponding results for industries outside manufacturing. Within manufacturing, the long time series for the United States[1] (1948-1961), the United Kingdom (1949-1959), Canada

1. Similar results are obtained whether gross hourly or annual earnings are studied.

(1949-1961), Norway (1950-1959) and France (1946-1962) all show a marked excess of positive over negative relations between employment and earnings changes, a relationship which holds whether the data are studied in 1, 3, or 5-year spans. In general, the association is weak, although there are individual years or spans when a high relationship is observed.

Over all countries, the number of 2-digit manufacturing industries studied varies from 14 to 25, so that the significance value[1] of the correlation coefficient varies from .53 to .40. Less than 20 per cent of the individual relationships studied exceed this value, i.e. for four-fifths of the relationships examined, statistical analysis indicates that in each case the observed co-variation of relative earnings and relative employment changes could have arisen by chance. The broad statements made in the text are justified only because they are based on observation of a large number of coefficients. For the remaining relationships, the correlation coefficients, although statistically significant, are not usually high enough to suggest more than a faint degree of association in practice. For example, a correlation coefficient of 0.5 (a value which is observed only rarely) indicates that as much as 75 per cent of the changes in relative employment do not appear to have been associated with changes in relative earnings.[2] At the same time, taking the entire population of industry correlation coefficients it is striking that positive relationships outnumber negative ones by a factor of about 5 to 2, and there are periods within individual countries when a positive relation is observed for as many as 7 or 9 successive years.[3]

The material available for study of non-manufacturing industries at approximately 2-digit level is rather more restricted. For the United States, there is some consistency of sign when earnings and employment changes are related over one-year periods for 10 non-agricultural industries and manufacturing total, but the relationship is not statistically significant and it is not apparent when considered in terms of longer spans; while for 36 service industries there is no systematic relationship at all. The same is true for 21 Canadian tertiary industries (although here there are some signs of a positive relationship between earnings changes and employment changes in the following year), and for Belgian non-manufacturing industries (one 13-year, and two 6- and 7-year subperiods). However, the Belgian data are at a very aggregate level by comparison with those studied for the USA and Canada.

3-Digit Industries, Manufacturing

When more detailed manufacturing groups are studied, the relationship noted at two-digit level becomes greatly attenuated or disappears entirely.

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1. In line with established practise, the " 5 per cent level " is used as an indicator of whether an observed relationship is statistically significant or not.

2. The square of the correlation coefficient indicates what percentage of the movement in one variable is associated with changes in the other. However, as the coefficient itself is only " accurate " to within the range given by plus or minus twice its standard error, it would be more correct to say that in each individual case the percentage explanation was between . . . and. . . . For example, and very roughly, with a correlation coefficient of 0.5 and a standard error of 0.2, the true value of the coefficient may be anywhere between 0.1 and 0.9, and the degree of explanation between 1 per cent and 81 per cent.

3. It is uncertain that use of the 5 per cent level is appropriate for study of sets of relationships. If the degree of accuracy required is lowered so that statements regarding significance of relationships are true only half of the time (50 per cent level), the data can still be summarised as being characterised by a predominantly positive association if positive and significant relationships outnumber all others by more than 2 to 1.

TABLE 28. CORRELATION COEFFICIENTS: RELATIVE CHANGES IN EARNINGS AND EMPLOYMENT IN MANUFACTURING IN THE UNITED KINGDOM, THE UNITED STATES AND CANADA

PERIOD	UNITED KINGDOM—WAGE EARNERS			US PRODUCTION WORKERS				CANADA—ALL EMPLOYEES			
	17 2-DIGIT[1] IN-DUSTRIES	109 3-DIGIT MANUFACTURING INDUSTRIES		20 2-DIGIT MANUFACTURING INDUSTRIES		61 3-DIGIT[2] MANUFACTURING INDUSTRIES		17 2-DIGIT MANUFACTURING NDUSTRIES		53 3-DIGIT MANUFACTURING INDUSTRIES	
		SIMPLE	PARTIAL[3]	SIMPLE	PARTIAL[3]	SIMPLE	PARTIAL[3]	SIMPLE	PARTIAL	SIMPLE	PARTIAL[3]
1948-49	..	..	..	.04	.05	..	..	..	..	..	..
1949-50	.31	.35	.36	—.32	—.33	..	..	..	..	..	..
1950-51	.25	.08	.05	.52	.51	..	..	.12	—.49	(.24)	.09
1951-52	.68	.47	.46	.20	.15	.29	.26	.26	.14	(.26)	.23
1952-53	.44	.25	.26	.26	.09	.14	.07	.38	.37	.28	.27
1953-54	.36	.13	.13	.44	.55	.27	.32	.66	.59	.48	.48
1954-55	.53	.24	.22	.53	.53	.20	.12	.29	.22	.30	.27
1955-56	.57	.28	.26	—.13	—.03	—.05	.06	.64	.47	.20	.08
1956-57	.40	.34	.34	.27	.07	.35	.25	.59	.54	.25	.23
1957-58	.70	—.11	.02	—.37	—.11	—.09	.21	.02	.00	.10	.11
1958-59	.24	..	..	—.03	.09	—.18	—.21	—.16	—.08	.14	.13
1959-60	..	..	..	.00	.03	.14	.15	.42	.37	.09	.07
1960-61	..	..	..	.02	.16	.21	.26	—.12	—.32	—.19	—.16

1. Includes 3 non-manufacturing industries.
2. Does not exhaust the manufacturing sector.
3. Holding the influence of the earnings structure constant.

NOTE. Underlined coefficients are significant at the 5 per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

The data refer to 61 United States, 53 Canadian and 109 British 3-digit manufacturing industries over roughly the 1950 decade. The United States results indicate a dissolution of the positive two-digit level relationships. There are still some signs of a relationship in the United Kingdom and Canadian data, but it just barely crosses the significance level and in practical terms its effect is negligible.[1] Comparison of the results for the three countries is made in Table 28 for 1-year spans. Similar relations appear in the data for 3-year and 5-year spans shown in annex 1.

Data for 88 Swedish 3-digit manufacturing industries exhibit a predominantly negative association whether considered over 1-year, 3-year or 5-year spans. Due to the classification adopted in Swedish national statistics, these results cannot be compared with the relationship at two-digit level but when these industries are analysed in 10 very aggregate groupings, there is a higher proportion of positive signs, although negative signs are still far from being rare, i.e. what was an indeterminate relationship at aggregate level focuses into a predominantly negative relationship (with some statistically significant values) at three-digit level.[2]

A marked weakening of the relationship when passing from broader to more finely detailed industrial groups was first observed by Reddaway[3] who studied changes in earnings and employment of male workers in British 2-

1. Since the number of observations increases, the standard error of the 3-digit estimates is considerably lower, i.e. the coefficients are a relatively safer estimate of the actual degree of relationship.
2. Series 25120 (wage earners) and 25130 (salaried employees). The phenomenon is particularly marked in respect of the latter.
3. W. B. Reddaway, "Wage Flexibility and the Distribution of Labour," *Lloyds Bank Review*, Oct. 1959.

and 3-digit industries over the period 1951-1956. Our results, which relate to three countries over periods of length ranging from 1 to 12 years, and appear to be confirmed by the results for a fourth country, suggest that this effect is a quite general one. Reddaway analysed the underlying relation as follows:

> " . . . if one follows the idea that wage bargains are largely determined by " social " and " conventional " considerations, it is not difficult to understand why 3-digit industries tend to have much the same wage increase, despite differences in their character and their fortune. In some cases there is really only a single bargain covering an entire 2-digit industry[1] or virtually all of it (e.g. engineering). In others, it is regarded as almost axiomatic that the wage increases should be made closely similar to those in some broadly related industry (which will commonly be in the same 2-digit group. . . .) "

Reddaway's explanation is particularly relevant to British wage-setting. Bargains at two-digit level contain some element of " customary relativities, " but also reflect the specific economic experience of the branch as a whole, i.e. the (rather small) differences in settlement levels correspond to differences in rates of expansion and relative prosperity. At three-digit level, customary relativities are of predominant importance; the change of earnings is to a large extent given so far as the individual industry is concerned. In the United States, the operation of key bargaining would tend to produce a similar although perhaps weaker effect.

An alternative, or rather, complementary explanation is that three digit industries within a branch are affected at a given time in roughly the same way by movements of demand, so that their prosperity tends to be affected in the same direction. When these industries are aggregated into two-digit units the impact of relative differences in prosperity on both earnings and employment appears more clearly.

An explanation from another field may help to clarify the statistical phenomenon involved. When schoolchildren are studied individually, there may appear to be only slight relationship between their ability in languages and in mathematics. But when the same children are grouped by school (i.e. at two-digit level), the superiority of certain schools results in their pupils showing above-average aptitude in both subjects, and some relationship will appear between ability in mathematics and ability in languages. The essential point is that this relationship reflects the difference between schools rather than any fundamental relationship between ability in one and the other subject. In the same way, the association observed at two-digit industry level will tend to reflect the prosperity (or labour market) characteristics of two-digit industries, rather than any employment/earnings relationship at three-digit level. The latter data therefore appear to give a more valid picture of the actual degree of association which has obtained; and the data in Table 28 suggest that in practice this has been faint. Reddaway's conclusion for the United Kingdom therefore appears to be of fairly general validity:

> " It seems fairly clear that, where the wage change was much the same, e.g. within 2-digit industries, the pattern of the labour force could nevertheless be greatly changed, hence it also seems plausible that substantial changes could have occurred as between different 2-digit groups, even if the wage change had in fact been much the same there also. "

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1. In the author's words, " the whole of an Order. " The citation has been slightly paraphrased to render the terminology consonant with that used in the present report.

The results up to this point relate to earnings and employment relationships as measured directly. While in general they show some, if not very marked, statistical association, it is relevant to enquire if the nature of the relationship is not rather different in practice to that assessed using same-period changes in the two variables chosen. A number of alternative forms of employment/earnings relationships are discussed below. These are respectively (a) the importance of fringe benefits as an alternative to earnings as an inducement to labour redistribution, (b) the possibility of a lagged relationship between earnings changes and changes in employment, (c) the possibility that a stronger relationship between these two variables may be observed at certain phases of the economic cycle.

Fringe Benefits

In recent years, fringe benefits have come to account for an ever-growing share of wage costs, and in certain countries and labour markets, employers have attempted to use improvements in non-wage conditions of employment as a means of attracting employment of the desired quantity or quality. However, in some countries scope for competition in this field is relatively limited; the majority of fringes are represented by payments of different kinds made by the public authorities, and legal provisions govern unemployment benefits, medical plans, working hours, holiday length, etc. In countries where governmental participation or control is less extensive, e.g. in the United States, initiatives concerning fringe benefits taken by an industry or union have usually though not invariably[1] been followed elsewhere, and differentiation in respect of non-wage benefit changes may at times be hardly more marked than for earnings changes[2]. While the coverage of the data is very limited (material on fringes, or wage payments including fringes was available for the United States, Canada and the Netherlands), it suggests that if fringe benefits had been taken into account, industries' relative positions would not have been greatly altered. The conclusions to be drawn from the direct study of earnings/employment relationships thus do not appear to be subject to any significant modification.

A Lagged Response of Employment to Differential Earnings Changes

A lagged response of employment to earnings changes might be expected for several reasons. In a theoretically perfect market, adjustment to increased demand for labour will be instantaneous[3]. But labour markets are far from perfect; workers get different pay for the same job in different industries and regions, and indeed within the same industry; housing problems, local ties, seniority privileges and other factors prevent people from moving quickly and frequently. Nor, as has been pointed out, can rational behaviour always be assumed. All these factors lead to a blurred and delayed response to available job opportunities.

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1. For example, in the United States, certain fringe benefits, in particular supplemental unemployment benefits, have been implemented in only a limited number of industries.
2. In France the rapidity with which the grant of a fourth week's holiday by the State-owned Renault car factory was followed by similar arrangements in other collective bargains attests the difficulty of maintaining a significant advantage in respect of fringes.
3. Under classical static analysis, the wage structure shifts only marginally to induce the required (marginal) employment change; an equilibrium position obtains throughout.

The length of such lags will vary depending on the character of the labour market, the educational system, training facilities, the efficiency of employment exchanges etc. and may therefore vary among occupations or industries within a country as well as between countries. In order to test the possibility that the working out of the allocative function may take considerable time before the employment response focuses into a wage-motivated distribution, industry earnings changes were correlated with employment changes in the following year.[1] The results suggest the absence of any relationship. Positive and negative associations are about equally frequent, only a very few reach the significance limit, and many of these are negative. Owing to the nature of the data, it was not possible to test for a lag shorter than one year. It may also be noted that if a lagged reaction carries the employment response over a period boundary, the annual data will not fully reflect the relationship, although it may appear when comparison is made over a longer period. The figures, however, show no tendency for the association measured over a longer period to be greater than the average indicated by study of one year spans within the period.

A Lagged Response of Earnings to Changes in Employment

It was noted at page 94 that as between main economic sectors in North America, there has been some tendency for earnings trends to follow employment movements after a greater or lesser interval. This could be interpreted as being consistent with a lagged impact of labour or product market developments on collective bargaining arrangements. For example, assuming that expanding industries are well placed to fill their labour requirements at going rates (whether because they are already high in the earnings stucture, or more simply because the availability of vacancies enables them to increase their interception of recruitment streams), their continued prosperity may induce labour to claim, or employers to grant, above-average wage increases at some later time. In the reverse direction, the exercise of market power by unions or employers has in certain cases enabled above-average wage increases to be implemented for a while even with falling employment levels, but relative earnings have subsequently declined as continuously unfavourable labour or product market conditions have at length exhausted any room for manoeuvre.

It may also be observed here that a rise in relative pay lagged behind a rise in relative employment may serve a useful allocational purpose. An expanding industry—even if its average wage is at excess-supply level—may find it more economical to reduce quit rates than to increase its hiring by an equivalent amount. Theoretically it would carry this to the point where the marginal saving in indirect employment costs (personnel department, etc.) equals the increase in direct wage costs involved in reducing the quit rate. Again, if an industry runs out of supplies of recruits at some stage in the process of expanding employment and then raises wages in an attempt to attract some labour, this will appear statistically as a lag of wage increase behind employment increase.

However, at two-digit level, the study of lagged associations suggests that this has been a relatively insignificant influence by comparison with other

1. Occupational data, which would have provided a complementary test of lag relationships, were not available for this purpose.

factors entering into earnings and employment relationships. The association between employment changes and earnings changes in the subsequent period was examined at this level for five countries (Canada, France, Germany, UK, and USA). The results, given in Annex I, do not suggest any systematic effect of this type.

Variations in the Relationship between Changes in Earnings and Employment

It is fairly widely held that during periods of significant unemployment, workers, if they move at all, move to where jobs are available; wage differentials play a decidedly secondary rôle. In fact, few attempts have been made to test whether, when labour markets are tight, there is a greater tendency for manpower to move towards those industries or sectors in which faster earnings increases have been or are taking place. In one of the rare studies dealing with this question, Bowen states:

> " there is a pronounced cyclical difference in the relationship between inter-industry changes in employment and inter-industry changes in wages. During periods of generally low unemployment, wages have shown a tendency to go up most rapidly in industries characterised by relatively favourable employment trends. That is, industries in which employment has either gone up at a more rapid rate, or fallen at a slower rate than employment in the " average " industry have tended to raise wages faster than industries in the opposite circumstances. This pattern does not show up, however, in the recession periods. "[1]

Examination of the material available for different countries does not fully confirm that a strengthening of the earnings/employment relationship takes place with falling unemployment levels. In the first place, making broad inter-country comparisons, there is in general no tendency for the value of the correlation coefficients observed at similar levels of industry detail to vary in line with country unemployment rankings over the period taken as a whole. This is true whether comparison is made for economic sectors or at 2-digit industry level. At 3-digit level, the data for British manufacturing exhibit a statistically significant relationship rather more consistently than do the United States figures. On the other hand, a rather stronger association is noted for Canada (where percentage unemployment has been higher than in the USA since 1952) than for the United Kingdom, while the data for Sweden, a country which has long had a high degree of full employment, in general display a negative association between changes in relative earnings and changes in employment.

An alternative line of approach has been to examine the intensity of the earnings/employment relationship within individual countries[2] in relation to: (*a*) unemployment levels during a given period; (*b*) changes in unemployment over the period; (*c*) both taken together. Taking the whole range of countries and breakdowns studied, the first two columns of Table 29 suggest that the higher employment/earnings ralationships tend to be observed rather more frequently in periods of low unemployment than in periods of high unemployment, and in both Canada and the United States there is some tendency for

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1. W. G. Bowen, " Wage Behaviour in the Postwar Period, " *Industrial Relations Section*, Princeton University, 1960.
2. Before and after allowing for the influence on the relationship of base year earnings, and where data were available, profits.

a greater concentration of significant positive coefficients in periods of low unemployment than at other times. This is quite marked for some Canadian series, and may be of some significance for our analysis given the high degree of flexibility present in the Canadian labour market, where collective bargaining, and therefore wage setting, are decentralised. However, negative coefficients are by no means rare at such times,[1] and in general the average level of association observed is weak, i.e. under conditions of very low unemployment, one should not necessarily expect that wages will tend to go up most rapidly in industries characterised by relatively favourable employment trends. The use of partial earnings/employment correlation coefficients does not change this picture; nor does any tendency to a greater concentration of high (or low) correlations appear when changes in unemployment during the years studied are taken into account. A similar comparison of unemployment levels in the years in which the highest and lowest correlations are observed gives similar results (Table 29, last two columns). Average unemployment levels are lower where the correlations are higher, but in most countries (Canada appears to be an important exception) there is little practical difference between these unemployment levels and the average unemployment levels corresponding to the periods in which the lowest (i.e. least positive or most negative) coefficients are registered.

It would have been preferable to study this question in terms of sharply defined cyclical periods, but the nature of the data did not enable this to be done. On the whole, the appropriate conclusion to draw from the data examined appears to be that there is a rather weak tendency for a higher relationship to be noted between earnings and employment changes when unemployment levels are relatively low. But there are many exceptions, and in neither type of period does a very high association appear.

Taken as a whole, then, the results of a direct correlation analysis show no close and consistent relationship between changes in relative earnings and changes in relative employment either in the short or in the long-term. Nevertheless, the data do exhibit a tendency for what might be called a " limiting condition " to exist. While the general weakness of the year-to-year relationships confirms the impression to be gained by direct study of industries' experience, namely that differential wage movements can take place without any marked short-term tendency for employment movements to correspond with them, there appears to be a certain stage beyond which progressive deterioration of an industry's earnings position will be observed to be accompanied by relative declines in employment. This point is put as follows by Phelps Brown and Browne in their study of earnings and employment in United Kingdom manufacturing over the decade from 1948:

> " within a wide range, the rate of (employment) growth of an industry seems to have imposed no particular requirements on the relative earnings it offered but outside that range it did. Yet even here it seems to have acted according to no continuous relation, by which the greater the expansion the higher the required rise in earnings, but only as a blanket negative—industries that are to expand by more than 30 per cent in a

1. This can readily be seen by consulting the individual correlation coefficients presented in Annex 1. It may also be noted that for the war and postwar period characterised by tight labour markets in the USA, D. Eisemann (" Inter-industry wage changes, 1939-1947, *Review of Economics and Statistics*, Nov. 1956, p. 445) found a significant and *negative* correlation between earnings and employment changes.

TABLE 29. THE EMPLOYMENT/EARNINGS CHANGE RELATION IN PERIODS OF HIGH AND LOW UNEMPLOYMENT

COUNTRY	SERIES[1]	PERIOD	INDUSTRIES EXAMINED		AVERAGE OF CORRELATION COEFFICIENTS OBSERVED OVER THE THREE[a] SINGLE YEARS		AVERAGE LEVEL OF UNEMPLOYMENT OVER THE THREE[a] YEARS	
			TOTAL	OF WHICH MANUF.	WITH LOWEST UNEMPLOYMENT LEVEL	WITH HIGHEST UNEMPLOYMENT LEVEL	IN WHICH RELATIONSHIP STRONGEST	IN WHICH RELATIONSHIP WEAKEST
USA	02240/02140	1948-61	10[3]	1	.18	—.22	3.7	5.9
USA	02200/02100	1951-61	61	61	.23	.07	3.5	5.2
USA	02200/02100	1948-61	20	20	.30	.06	4.6	4.9
USA	02220/02120	1948-60	21	21	.30	.21	4.6	5.2
USA	02230/02130	1948-60	21	21	.14	.02	3.9	4.4
USA	02240/02140	1948-61	21	21	.28	.29	4.6	4.8
USA	02200/02100	1948-61	31	21	.11	—.02	5.1	4.8
USA	02240/02140	1948-61	60	21	.21	.17	4.2	4.7
USA	02240/02140	1948-61	36[4]	0	.18	—.04	4.1	4.7
Canada	01240/01140	1950-61	10[3]	1	.26	—.05	3.6	4.6
Canada	01200/01100	1949-60	17	17	.30	—.01	3.5	5.5
Canada	01205/01105	1949-60	17	17	.08	—.43	4.2	4.9
Canada	01240/01140	1950-61	17	17	.43	.05	3.5	6.1
Canada	01240/01140	1950-61	53	53	.34	.01	3.4	5.8
Canada	01240/01140	1950-61	38	17	.04	—.28	3.6	4.3
Canada	01240/01140	1950-61	21[4]	0	.21	—.32	3.3	5.5
Germany	16200/16100	1950-60	27	26	.22	.15	3.7	3.9
Germany	16240/16140	1957-62	29	28	.33*	.37*	1.7*	2.3*
Germany	16210/16110	1957-62	32	29	.32*	—.01*	0.8*	2.3*
Germany	16220/16120	1957-62	32	29	.30*	.01*	0.8*	2.3*
Germany	16230/16130	1957-62	32	29	.45*	.25*	0.8*	2.3*
UK	28240/28100	1949-58	109	109	.36	.24	1.0	1.2
UK	28240/28100	1949-59	13	13	.55	.34	1.0	1.2
UK	28240/28100	1949-59	17	14	.55	.35	0.9	1.4
France	15240/15100	1954-62	20	15	.27	.10	1.1	1.4
Norway	22200/22120	1950-59	20	20	.05	.12	1.1	0.8
Norway	22230/22130	1950-59	20	20	—.17	—.20	0.9	0.9

1. For series identification see Table 27.
2. Over two years only for the figures marked *.
3. Sectoral breakdown.
4. Service industries.

NOTE.

a) This table is based on a comparison of bivariate correlation coefficients between changes in earnings and in employment (calculated over 1-year spans), with average levels of unemployment rates. In the analysis, similar comparisons were made adding, where available, correlation coefficients allowing for the influence of base-year earnings and/or changes in profits, and changes in the level of unemployment.

b) Underlined figures represent averages which exceed the level at which individual correlation coefficients are significant. Non-underlined figures include some individual coefficients which were statistically significant.

Sources : Correlation coefficients: Annex I.
Unemployment rates: Manpower statistics 1950-62 (OECD), Employment and Earnings (BLS).

decade must not let their relative earnings fall; the forces that make industries contract by more than 5 per cent in a decade will seldom let their relative earnings rise."[1]

A similar relationship appears to exist for the United States, although it is not very strong. Comparison is made for 1948-1960 and selected sub-

1. E. H. Phelps Brown and M. H. Browne, "Earnings in Industries of the United Kingdom, 1948-59," *The Economic Journal*, Sept. 1962.

TABLE 30. AVERAGE WAGE AND EMPLOYMENT CHANGES OF UPPER AND LOWER QUARTILE GROUPS IN 24 UNITED STATES MANUFACTURING INDUSTRIES

Production Workers.

	1948-60	1948-53	1948-57	1953-60	1957-60
PER CENT CHANGE IN EARNINGS[1]					
Lower employment quartile	67	27	50	28	11
Whole distribution	70	31	53	30	11
Upper employment quartile	75	32	56	33	11
PER CENT CHANGE IN EMPLOYMENT[1]					
Lower earnings quartile	—13	4	—7	—10	—6
Whole distribution	4	7	4	—7	—4
Upper earnings quartile	5	10	10	4	—5

1. The industries in the upper or lower employment quartiles are not the same as the industries in the upper or lower quartiles when the ordering is according to rate of earnings change.
Source : Employment and Earnings (BLS).

periods of the mean and quartile earnings and employment increase in twenty-four manufacturing industries. (Table 30). The increases shown by the upper quartiles are higher, and those shown by the lower quartiles lower than the corresponding mean increases for the entire sample, except possibly for 1957-1960. The latter is a period of high unemployment in which there is some indication of a negative relation between employment changes and the original level of earnings.[1]

INFLUENCES ON THE WAGE STRUCTURE

As noted at the outset, correlation analysis does not in itself identify causality. The association observed between changes in relative earnings and the deployment of labour at the level of broad industry groups might be interpreted as an example of wages performing their allocative function or of a prosperous and expanding industry being able to put higher wage increases into operation although these are not necessary to attract or retain labour.

Extension of the use of correlation techniques enables the examination to be carried further by comparing the relative strength of the employment change/earnings change association observed when other variables are related to earnings changes. The material presented below suggests that certain product market variables are at least as highly correlated with changes in relative earnings as are changes in relative employment. To the extent that some of them are correlated with each other as well as with both earnings and employment, the nature of the causal relationships is still open to alternative interpretations; but at the very least the evidence that product market developments are relevant to changes in earnings is suggestive. In addition, further results obtained when variables representing the structural or competitive characteristics of an industry are related to earnings suggest that there are other factors

1. See detailed results in Annex 1. Series 02100 (3b) lists a bivariate correlation coefficient of —0.44 which is just significant at the 5 per cent level.

whose influence in promoting differential rates of earnings increase, although often overshadowed by the impact of market developments (labour or product), is quite pervasive.

Profits

Data on profits by industry exist in various forms for the United States, France and Canada, Sweden and the United Kingdom[1]. Except for the United States, only absolute figures relating to a limited number of industries are available. For all five countries the correlation between per cent changes in profits and relative changes in earnings in the same period was analysed. In addition, for the first four countries listed, the change in profits was correlated with the change in earnings in the subsequent period. The lagged relationship is weak and unsystematic, but for the same-period correlations, there is a majority of positive relationships. Rather stronger relationships are found for the United States than for other countries through to 1957 but not subsequently[2]. The lower relationship in the later years is to be expected: wage movements at this time reflected the impact of long-term contracts relating to important groups of the labour force covering roughly the years 1957-1959, and arranged during the previous period of high activity. It may also be noted that the Canadian relationships between profits and earnings changes appear to improve in the recession years after 1957, at the same time as there is some evidence of a decline in the strength of the association between earnings and employment changes.

The United States is the only country for which data on profit rates[3] were available (manufacturing industries only). A marked positive association appears between profitability and changes in relative earnings through the entire period from 1948. This association is observed whether profit rates in the preceding year or in the same year are used as an explanatory variable. With one exception (1955-56), the same-year coefficients are all positive, six of them significant at the 5 per cent level. The lagged relationship is slightly less strong.

A selection of the results obtained is given in Table 31. Those for the United States correspond closely with those obtained in independent American studies. The report of the Joint Economic Committee of Congress found that within nineteen manufacturing industries, the most important factors related to wage changes after 1951 were the level of profits and the degree of competition in the product market (no significant relationship was found between changes in hourly earnings and employment).[4] Bowen found that for six subperiods between January 1947 and June 1959, profits had a more consistent relationship with wage changes than employment, concentration or unionisation, although in each interval studied one of these variables had a higher cor-

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1. Usually enterprise statistics; the earnings and employment data used are typically establishment statistics.

2. The profit change/earnings change relationship in the United States is observed for all distributions studied (production workers, total employment) except at sector level (all employment) where it is less clear, and non-production workers in manufacturing (at least over one-year spans).

3. Profits as a percentage of stockholders equity.

4. United States Congress, *JEC Staff Report on Employment, Growth and Price Levels*, 1959, pp. 130-158, based largely on the analysis by H. M. Levinson: " Postwar Movement of Prices and Wages in Manufacturing Industry, " *Joint Economic Committee Study of Employment, Growth and Price Levels*, Study Paper No. 21, Jan. 1960.

TABLE 31. THE RELATION BETWEEN RELATIVE CHANGES IN PROFITS AND IN EARNINGS

a) 1 YEAR SPANS

	48/9	49/50	50/1	51/2	52/3	53/4	54/5	55/6	56/7	57/8	58/9	59/60
USA[1]: 21 manuf. indust. of which ...	.64	.16	.77	.14	.65	.56	.25	.46	.39	(—.16)	(—.21)	..
Production workers	(.74)	(.15)	.68	.38	.43	.58	.36	.44	.37	(.26)	(.33)	..
Non-production workers	.65	.03	—.35	—.38	.26	—.11	—.11	.52	.19	(—.44)	(.07)	..
42 industries (incl. 21 manuf.)	.43	.19	.22	.19	.28	.22	(.20)	(.33)	(.21)	(—.14)	(—.14)	..
8 main economic sectors	.56	.31	—.01	.62	.07	.12	.35	.16	—.34	.32	.—01	..
France[2]: 17 industries (incl. 13 manufacturing)	..	..	.39	.46	—.15	—.04	(.51)	(—.30)	(.16)	(.23)	(.46)	..
Canada[3]: 13 manuf. industries	..	..	..	..	..	.40	—.47	.44	(.03)	(.17)	.54	.53
UK[3]: 13 manuf. indust.	..	.05	.53	.57	.41	.26	.42	.16	.72	.38	.11	..
Sweden[3]: 30 manuf. indust.	..	..	..	..	—.04	.11	.14	—.03	.09	.39	.14	—.19
USA[2]: 19 manufacturing industries												
a) *profit rate and changes in earnings* .	.19	.17	.28	.60	.49	.59	.52	—.21	.52	.66	.22	.43
b) *changes in earnings and profits*	.48	—.24	.36	—.23	.01	.58	—.25	.17	.44	—.09	—.10	.29
c) *profit changes holding influence of profit rates constant*	.55	—.18	.36	.35	.20	.51	.15	.05	.32	.19	.09	.18

b) 3-YEAR SPANS

	48/51	49/52	50/53	51/54	52/55	53/56	54/57	55/58	56/59	57/60
USA[1]: 21 manufacturing industries, of which:	.71	.32	.76	.51	.61	—.10	.07	(.38)	—.10	..
Production workers	(.84)	(.54)	.67	.50	.60	.07	.25	(.46)	—.11	..
Non-production workers	.49	.14	.16	.31	.11	—.26	—.32	(.18)	—.07	..
42 industries (incl. 21 manufacturing)	.17	.04	.33	.58	(.42)	(—.06)	(—.07)	(.09)	(—.28)	..
8 main economic sectors	.43	.19	.00	.81	.73	—.21	—.34	—.15	.35	..
France[2]: 17 Industries (incl. 13 manufacturing)	..	..	—.05	.45	(—.20)	(.49)	(.23)	(.29)	(.31)	..
Canada[3]: 13 manuf. industries	..	..	..	..	..	—.22	(.08)	.24	—.14	(.08)
UK[3]: 13 manuf. industries	..	.25	.50	.56	.15	.55	.57	.60	.22	..
Sweden[3]: 30 manuf. industries	..	..	..	..	—.25	.03	.26	—.07	.05	.14
USA[2]: 19 manufacturing industries										
a) *profit rates and changes in earnings*	.21	.26	.45	.65	.62	.60	.55	.36	.63	.67
b) *changes in earnings and profits*	.74	.51	.51	—.03	—.07	—.27	—.28	.37	—.40	—.30
c) *profit changes holding influence of profit rates constant* .	.73	.60	.59	.55	.27	.31	.11	.62	—.06	—.13

1. Average annual earnings of relevant group.
2. Average hourly earnings of all wage earners.
3. Average hourly earnings of male wage-earners.

NOTE. Underlined coefficients are significant at the 5 per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

Source : Annex I.

relation coefficient[1]. Eckstein and Wilson also emphasise the importance of profits as a determinant of changes in the wage structure. They suggest that unemployment is the strategic variable influencing the balance of bargaining power in wage negotiations, while the profit rate both affects bargaining power and reflects the long run structural characteristics, such as degree of monopoly, of the product market. They find that these two " standard variables " account for the bulk of wage changes in the United States manufacturing, once the institutional characteristics of the wage determination process—collective bargaining in wage rounds, the existence of a " key" group of related heavy industries—are taken into consideration.[2]

It may be remarked here that Lipsey and Steuer, studying 10 branches of United Kingdom industry found profits " on the whole unsatisfactory as an explanatory variable of wage changes " for the period 1949-1958.[3] This is of course true, industry by industry, for wage developments throughout the period were strongly influenced by inter-bargain spread of arrangements made by wage-round leaders.[4] However, when a rather different question is taken up, namely whether the differentiation that did occur (which was smaller in the United Kingdom than in most other countries studied) was in line with relative profits experience, the data in Table 31 appear to support this hypothesis.

The strength of the relationship between changes in earnings and profits brings out the difficulty of drawing conclusions directly from employment/earnings relationships concerning the importance of wage changes per se in the allocation of labour. In an attempt to throw further light on this issue, relative changes in total output (measured by the index of industrial production) were correlated with changes in relative employment. The vast majority of the coefficients were positive, significant and high (Table 32), and they did not change very greatly when recalculated as partial correlation coefficients with the influence of changes in earnings held constant. Other relationships observed were an association between profits change and employment change, almost always positive and occasionally quite strong, and (not surprisingly in view of the other relationships) output changes were usually positively related to changes in earnings, although the relationship was usually far weaker than that between changes in profits and in earnings.

The general picture suggested by this set of relationships, and in particular the failure of the association between output and employment to weaken considerably after abstraction of the effect of changes in earnings is consistent with the " prosperity thesis " that wage structure developments reflect industries' ability to pay, while their employment requirements are dictated by events in the product market. Stating this in another way, the separate influences of output and productivity developments on employment, and of profit developments on earnings, result in same-direction movements of the two variables, so that although one should normally expect an association between earnings and employment changes, it may be no more than a similar response by both variables to factors which operate to move them in the same direction.

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1. W. G. Bowen, " Inter-industry Variations in the Unemployment Wage Relationship," *Wage Behaviour in the Postwar Period*, 1960.
2. O. Eckstein and T. A. Wilson, " The Determination of Money Wages in American Industry, " *Quarterly Journal of Economics*, Aug. 1962. The data used refer to a very limited number of observations.
3. R. G. Lipsey and M. D. Steuer, " The Relation between Profits and Wage Rates, " *Economica*, May 1961. Their analysis is based on time series for each industry.
4. For a detailed analysis of influences affecting wage-bargaining in the United Kingdom, see *The Problem of Rising Prices*, OEEC, Paris 1961, pp. 419-450.

TABLE 32. THE RELATIONSHIP BETWEEN CHANGES IN EMPLOYMENT AND IN THE INDEX OF PRODUCTION (*a*) DIRECTLY CALCULATED, (*b*) HOLDING CONSTANT THE INFLUENCE OF CHANGES IN EARNINGS

FIRST YEAR OF SPAN	UNITED STATES		CANADA		UNITED KINGDOM		NORWAY			
							MALE WAGE-EARNERS		SALARIED EMPLOYEES	
	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)
1-year spans										
1948	.83	.83	..	..	..	..	..	..	..	..
1949	.86	.86	.32	.28	.62	.68	..	..	..	..
1950	.83	.78	.52	.52	.72	.65	(.75)	(.75)	(.43)	(.41)
1951	.89	.89	.43	.44	.76	.60	(.63)	(.44)	(.54)	(.61)
1952	.91	.90	.64	.76	.86	.85	(.29)	(.39)	(—.08)	(—.08)
1953	.71	.71	.70	.72	.75	.77	.62	.62	.53	.70
1954	.81	.73	.60	.61	.84	.65	.49	.64	.36	.51
1955	.71	.84	.18	—.01	.74	.67	.57	.57	—.09	.07
1956	.68	.65	.83	.85	.71	.70	.45	.45	.67	.74
1957	.92	.91	.79	.78	.79	.54	.27	.25	.12	.10
1958	(.74)	(.74)	.46	.48	—.02	.03	.58	.57	—.10	—.08
3-year spans										
1948	.79	.77	..	..	..	..	..	..	..	..
1949	.90	.88	.45	.48	.84	.83	..	..	..	..
1950	.94	.93	.73	.72	.88	.86	(.65)	(.66)	(.41)	(.61)
1951	.74	.74	.61	.57	.88	.85	(.46)	(.39)	(.43)	(.42)
1952	.69	.65	.50	.43	.82	.82	(.40)	(.58)	(.79)	(.77)
1953	.60	.59	.67	.61	.93	.87	.77	.75	.70	.70
1954	.70	.71	.53	.47	.91	.75	.76	.74	.64	.71
1955	..	..	.79	.79	.86	.65	.47	.47	.24	.55
1956	(.60)	(.53)	.81	.80	.69	.50	.39	.38	.26	.32
1957	(.59)	(.55)	..	..	..	..	..	..	..	..
1958	(.38)	(.45)	..	..	..	..	..	..	..	..

United States : 20 Manufacturing industries; production workers' employment (ref. 02200). *Canada :* 17 Manufacturing industries, male wage-earners' employment (ref. 01200). *United Kingdom :* 13 Manufacturing industries; total employment (ref. 28240). *Norway :* 20 Manufacturing industries; (ref. 22200-22230).

NOTE. Underlined coefficients are significant at the 5 per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

Source : Annex I.

In fact, because of the inter-relationships between the different variables one can safely say only that the direct relationship between earnings and employment changes does not itself clarify the precise importance of differential wage movements. Estimates can, however, be made of what this relationship would be in the absence of any impact on earnings and employment of influences operating on either or both. The " prosperity thesis " suggests the particular importance of profits in this context. Partial correlation coefficients measuring the employment/earnings relationship when the influence of changes in profits is held constant are presented in Table 33.

It can be seen from this table that there is a general tendency, particularly marked in the case of the USA but rather less evident in the Canadian data, for lower estimates of the employment/earnings relationship to be observed as one passes from the direct to the partial coefficients. This suggests that employment and wage changes both reflect profits developments and that when this influence is eliminated, the earnings/employment relationship becomes rather

TABLE 33. THE RELATIONSHIP BETWEEN RELATIVE CHANGES IN EMPLOYMENT AND EARNINGS
a) DIRECTLY CALCULATED *b)* HOLDING CONSTANT THE INFLUENCE OF CHANGES IN PROFITS

FIRST YEAR OF PERIOD	UNITED STATES: 21 MANUF. INDUSTRIES PRODUCTION WORKERS ANNUAL EARNINGS				CANADA: 13 MANUF. INDUSTRIES PRODUCTION WORKERS HOURLY EARNINGS				FRANCE: 17 INDUSTRIES; ALL EMPLOYEES HOURLY EARNINGS OF WAGE EARNERS				UNITED KINGDOM: 13 MANUF. INDUSTRIES; TOTAL MALE EMPLOYMENT; HOURLY EARNINGS OF MALE WAGE-EARNERS			
	OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS	
	(a)	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*	*(a)*	*(b)*
1948	(.43)	(.17)	.44	(—.28)	..	..	..	..	..	..	..	..	..	..	..	..
1949	(.07)	(.03)	(.42)	(.02)	..	..	..	..	..	..	..	..	.00	—.05	.23	.06
1950	.76	.69	.58	(.21)	..	..	..	..	.32	.22	.19	.26	.43	.22	.51	.32
1951	—.01	—.22	.19	—.27	..	..	..	..	.31	.04	.04	.20	.73	.56	.50	.22
1952	.32	.27	.40	.27	..	..	..	..	.30	.30	(—.18)	(—.14)	.26	.00	.45	.43
1953	.59	.50	.24	.24	.35	.13	.30	.24	—.31	—.31	(—.22)	(—.34)	.38	.29	.71	.57
1954	.56	.48	.05	(.05)	.23	.36	(.47)	(.47)	(—.26)	(—.42)	(.22)	(.24)	.84	.81	.85	.79
1955	.29	—.09	.31	(.00)	.56	.70	.03	.02	(.11)	(.05)	(.16)	(.14)	.62	.69	.85	.76
1956	.26	.11	—.35	(—.34)	(.69)	(.73)	.20	.24	(.25)	(.39)	(.22)	(.22)	.30	.15	.59	.58
1957	.11	(—.04)	—.26	..	(—.01)	(—.09)	(.12)	(.10)	(.18)	(.05)	..	..	.72	.66	..	..
1958	—.01	(.28)	..	..	—.46	—.34	..	..	(.47)	(.36)	..	..	.39	.38	..	..
1959	—.30	..	..	..	.02	—.23	..	..	..	..	..	..	..	..	..	..

NOTE. Underlined coefficients are significant at the 5 per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

Source : Annex I.

more tenuous. This is consistent with, but does not prove, the " prosperity thesis. " It is quite feasible to argue that increasing production implies increasing profits and employment, and that the additional labour would not have been forthcoming unless the higher relative earnings made possible by favourable profit trends had been put into effect.

Since profits and employment do tend to move together, it is clear that the observed profits/earnings association will facilitate redistribution of labour in the required directions. A complementary approach is to test the extent to which relative profits and earnings increases occur simultaneously in the absence of differential employment experience as between industries[1]. When this calculation is made (Table 34), different results are derived for different countries. For the United States, Canada and France, the initial relationship between profits and earnings changes is seen to be subject to only a slight downward modification. On the other hand, for the limited number of UK industries in the sample studied, there is an important fall in the level of the correlation coefficients, greater than the fall registered by the earnings/employment coefficients when the influence of profit changes is held constant. Insofar as some causal significance can be read into the data, there is some evidence in favour of, and some evidence against the hypothesis that changes in earnings are more closely related to profits trends than to employment requirements. Whereas for the first three countries, profits appear relevant to the differentiation that would have occurred in the absence of employment changes, the UK figures suggest that any influence in this direction was minor, in particular by comparison with the apparent influence of employment change. But it should be borne in mind that earnings have differentiated to a much lower extent in the United Kingdom than in any other of the countries studied; bargaining cohesiveness, much more than either profitability or employment requirements, has been the major influence on the development of relative earnings.

In general, a purely mechanistic interpretation of these relationships may be deceptive. Increasing profits and earnings can be associated with declining employment as a result of technological change[2], and where normal outward mobility is insufficient to reduce the labour force to the extent necessary, industries in this position can resort to employee discharges. Insofar as this option is available, an accurate measure of the employment/earnings relationship can be computed only after omitting from the analysis those industries in which rising profits and earnings coincide with relative employment declines. But this automatically implies a high inter-correlation of earnings, profits and employment for the branches left in the analysis, and leaves completely open the question whether the earnings increases were necessary for, or merely happened at the same time as, increasing employment.

Productivity

The data examined by us indicate no significant tendency for above-average productivity gains[3] to be associated with more rapid earnings increase, although due weight must be given to the possibility that the apparent absence

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1. i.e. holding the influence of changes in employment constant.
2. Increasing labour costs may also induce employers to adopt capital-intensive production methods to protect rather than to improve their profits position.
3. Measured conventionally as real output per unit of labour input. The drawbacks and conceptual difficulties attending these measurements need not be enlarged on here.

TABLE 34. THE RELATIONSHIP BETWEEN RELATIVE CHANGES IN PROFITS AND EARNINGS
a) DIRECTLY CALCULATED *b)* HOLDING CONSTANT THE INFLUENCE OF CHANGES IN EMPLOYMENT

1ST YEAR OF PERIOD	UNITED STATES: PRODUCTION WORKERS 21 MANF. INDUSTRIES ANNUAL EARNINGS				CANADA: PRODUCTION WORKERS 13 MANF. INDUSTRIES; HOURLY EARNINGS				FRANCE: ALL EMPLOYEES; 17 INDUSTRIES; HOURLY EARNINGS OF WAGE EARNERS				UNITED KINGDOM: ALL EMPLOYEES 13 MANF. INDUSTRIES; HOURLY EARNINGS OF MALE WAGE EARNERS			
	OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS		OVER 1 YEAR SPANS		OVER 3 YEAR SPANS	
	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)
1948	(.74)	(.68)	(.84)	(.82)	..	..	..	..	..	..	..	.	..	..	..	..
1949	(.15)	(.14)	(.54)	(.37)	..	..	..	..	..	..	..	..	.05	.07	.25	.12
1950	.68	.58	.67	(.45)	..	..	..	..	.39	.32	—.05	—.19	.53	.40	.50	.30
1951	.38	.43	.50	.53	..	..	..	..	.46	.36	.45	.29	.57	.05	.56	.36
1952	.43	.40	.60	.54	..	..	..	..	—.15	—.15	(—.20)	(—.17)	.41	.33	.15	.07
1953	.58	.48	.07	—.08	.40	.24	—.22	—.13	—.04	—.04	(.49)	(.54)	.26	.02	.55	.24
1954	.36	.13	.25	(.25)	—.47	—.53	(.08)	(—.06)	(.51)	(.59)	(.23)	(.24)	.42	.22	.57	.33
1955	.44	.36	(.46)	(.36)	.44	.64	.24	.24	(—.30)	(—.29)	(.29)	(.28)	.16	—.41	.60	—.01
1956	.37	.29	—.11	(—.06)	(.03)	(—.31)	—.14	—.18	(.16)	(.34)	(.31)	(.31)	.72	.70	.22	.18
1957	(.26)	(.24)	..	..	(.17)	(.19)	(.08)	(.04)	(.23)	(.14)	..	..	.38	—.05	..	..
1958	(.33)	(.42)	..	..	.54	.45	..	..	(.46)	(.35)	..	..	.11	.00	..	..
1959	..	..	..	..	.53	.56	..	..	..	..	..	..	..	..	..	..

NOTE. Underlined coefficients are significant at the five per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

Source : Annex I.

of any relationship may be accounted for by the very great difficulties of measuring changes in productivity adequately. These findings are in line with those of the majority of earlier studies[1]. Exceptionally, both Dunlop[2] and Garbarino[3] find a statistically significant (rank) correlation between productivity and wage change over the 1920-1940 period in the United States; Dunlop suggests that the highest productivity gains are to be expected early in an industry's life when output is expanding rapidly, and attributes above-average wage increases not only to ability to pay but also to these industries' need to attract an expanding work force. But Myers and Bowlby[4] point out that these two authors omit industries considered as " abnormal " from their analysis, and argue that if abnormalities occur frequently enough to affect the results substantially they should not be disregarded. On the basis of full industry lists, they suggest that there was some cyclical relationship between productivity and earnings changes up to about 1933, with recovery-induced productivity gains permitting differentiation of wage increases during the upward phase of cycles, but that thereafter, changes in the institutional framework (unionisation, governmental wage setting) introduced determinants of inter-industry wage change other than productivity.

Gross Value Productivity

Productivity increases may lead to relative or even absolute price declines rather than rising wages, and demand factors working through price and profit changes may raise wages without comparable productivity changes. Physical productivity is therefore not necessarily the best indicator of the value of a worker's productive effort; Perlman[5] suggests that gross value productivity per worker (which allows for relative changes in output price) is a superior explanatory variable. This author finds rank correlation coefficients of 0.68 and 0.58 between sales per manhour and average hourly earnings in twenty United States manufacturing industries for the periods 1939-1947 and 1947-1953 respectively. On the other hand, in a Secretariat calculation for eighty-six

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1. D. M. Eisemann, Inter-industry Wage Changes, 1939-47, *Review of Economics and Statistics*, Nov. 1956; H. M. Levinson, " Postwar Movement of Prices and Wages in Manufacturing Industries, " op. cit.; D. G. Brown, " Expected Ability to Pay and Inter-industry Wage Structure in Manufacturing, " *Industrial and Labour Relations Review*, Oct. 1962. The last author finds an apparent relationship between value added per manhour and earnings change, which disappears when other explanatory variables are taken into consideration. Bombach, (" Quantitative und monetäre Aspekte des Wirtschaftswachstums, " *Verein für Sozialpolitik*, Gesellschaft für Wirtschafts-und Sozialwissenschaft, Baden-Baden, 1958), points out that wages have not always or necessarily increased in industries with the highest growth of individual productivity, adding that if there were any continuing relationship between productivity and individual wages, this would rapidly lead to an absurd earnings structure. See also E. H. Phelps Brown and M. H. Browne, " Earnings in Industries of the United Kingdom, 1948-1959, " *Economic Journal*, Sept. 1962; C. H. Feinstein " Income and Expenditure in the 1950's, " *London and Cambridge Economic Bulletin*, December 1960; W. E. G. Salter, *Productivity and Technical Change* (1950), Chapter XII; S. Fabricant, *Employment in Manufacturing* 1899-1939 (National Bureau of Economic Research, 1942); F. Myers and R. L. Bowlby, " The Inter-industry Wage Structure and Productivity, " Industrial and Labour Relations Review, Vol. 7, October 1953; J. W. Kendrick, *Productivity Trends in the United States* (1961), p. 198.

2. J. T. Dunlop, *Income, Employment and Wage Policy*, 1948.

3. J. W. Garbarino, *op. cit.*

4. F. Myers and R. L. Bowlby, *op. cit.*

5. R. Perlman, " Value Productivity and the Inter-industry Wage Structure, " *Industrial and Labour Relations Review*, October 1956.

United Kingdom industries for the period 1948-1954, no relation between changes in gross output at current prices per worker and earnings was found[1].

STRUCTURAL VARIABLES

A useful distinction can be drawn between those variables which, while operative on the wage structure are also inter-correlated among themselves, and those which are not. The latter are mainly structural variables representing technical or market characteristics of different industries; and some of them appear to be related to changes in the wage structure independently of differential product market and profits experience. One such variable is the ratio of labour to total costs, which can be considered as a combined indicator of both willingness and ability to pay. Data on the ratio of labour costs to sales proceeds have been related to relative earnings changes for Canada, Germany, the United States, Sweden and Norway. In all but one country (Norway) there is a marked preponderance of negative signs, suggesting that employers are the more ready to accord above-average wage increases the smaller the share of wages in their costs, and that this is true of earnings both of salaried employees and wage-receivers. The relationship is a weak but rather systematic one and constitutes more of a background condition than an operative influence; it is overshadowed by the association between the various market variables and earnings changes in particular periods. Further, it is not possible in general to say whether its influence will be in the same or the opposite direction to that of the market variables; industries with low labour cost ratios may or may not be those in which profits, production and employment are rising more rapidly. In a calculation for United States and Canadian production workers to abstract the apparent influence of profits changes on earnings, the inverse relationship of labour cost ratio and changes in earnings was found to subsist, and—particularly where the data are considered over three-year spans—to be of some strength in certain periods. A selection of the results is given in Table 35 overleaf.

CONCENTRATION[2]

A number of studies stress the importance of the degree of concentration of an industry as a factor making for above average rates of wage increase. Reasons for suggesting that this is an economically significant relationship are:

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1. Coefficient of correlation: 0.05. Curiously enough, there is a statistical relationship between an industry's earnings *level* in 1948 and the increase in gross output per worker at current prices in the following six years. (Coefficient of correlation: 0.41).

2. The concentration measures used in the analysis were based on employment, not on turnover, and are calculated as the percent of total employment in the industry accounted for by units employing more than x persons (x variable according to country, according to data availability), except for the USA and UK, where the concentration measure is the percentage of the industry's employment accounted fo by the three (US) or four (UK) largest companies (USA) or business units (UK). Use of establishment data (Canada, Germany; the scope of the French data is uncertain) imports a degree of measurement of size-of-establishment characteristics rather than of concentration of ownership: the same enterprise may, of course, control several establishments. The consistency of the results for the different countries, however suggests that there is a close correlation between an industry's establishment size characteristics and the extent to which its ownership is concentrated into a greater or lesser number of enterprises.

TABLE 35. THE ASSOCIATION BETWEEN THE RATIO OF LABOUR COST TO SALES PROCEEDS[1] AND DIFFERENTIAL MOVEMENTS IN EARNINGS

Measured over 3-year spans.

FIRST YEAR OF SPAN	SWEDEN[2]	NORWAY[3]	GERMANY[4]	CANADA[5]	UNITED STATES[6]	INFLUENCE OF PROFITS CHANGE HELD CONSTANT	
						UNITED STATES[6]	CANADA[5]
			a) WAGE-EARNERS				
1948	..	..	..	..	(.00)	(—.12)	..
1949	..	. .	..	..	(.03)	(—.31)	..
1950	..	(—.16)	..	..	.08	.19	..
1951	..	(.34)	..	..	—.18	—.29	..
1952	—.19	(.36)	..	..	—.32	—.31	..
1953	—.38	.41	..	—.06	—.61	—.65	—.06
1954	—.19	—.06	..	(—.56)	—.52	—.50	(—.56)
1955	.29	.34	..	—.62	(—.40)	(—.36)	—.76
1956	.28	.04	..	—.52	—.53	—.59	—.56
1957	—.04	..	—.24	(—.63)	..	..	(—.70)
1958	..	..	—.40	..	..	..	..
1959	..	..	—.26	..	..	..	..
			b) SALARIED OR NON-PRODUCTION EMPLOYEES				
1948	..	..	..	..	.02	—.05	..
1949	..	..	..	..	.16	.11	..
1950	..	..	..	..	—.05	—.04	..
1951	..	..	..	..	—.28	—.34	..
1952	—.15	(.13)	..	..	—.11	—.10	..
1953	—.05	(.56)	..	..	.21	.29	..
1954	—.11	(.21)	..	..	—.09	—.16	..
1955	.15	.49	..	..	(—.07)	(—.04)	..
1956	.07	.10	..	..	—.02	—.04	..
1957	.06	.08	..	..	..	..	..
1958	..	.29	..	..	..	..	..
1959	..	..	..	..	..	..	..

1. *Sweden :* Sales value of firms employing 5 or more persons. *Norway :* Gross value of production of firms employing 6 or more persons. *Germany :* Turnover of firms with more than 10 employees. *Canada :* Gross value of production. *US :* Corporative Sales.
2. Annual earnings; 88 manufacturing industries.
3. Annual earnings (male wage-earners, both sexes for salaried employees); 20 manufacturing industries.
4. Hourly earnings of male workers, 28 manufacturing industries and one non-manufacturing.
5. Hourly earnings of male wage-earners, 13 manufacturing industries.
6. Annual earnings, 21 manufacturing industries.

NOTE. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I. Underlined figures are significant at the 5 per cent level.

i) the possibility of the exercise of monopolistic power by concentrated industries and the probability that firms which are potential entrants to large scale industries would have to pay union wage scales[1];

1. J. R. Meyer, " Wage Price, and National Income Relationships in the Light of Recent Findings on the Behaviour of Large Business Corporations " in Bradley (ed.), *The Public Stake in Union Power*, Charlottesville, University of Virginia 1959, pp. 274-275. See also M. Segal, " The Relation between Union Wage Impact and Market Structure, " *Quaterly Journal of Economics*, Feb. 1963, pp. 96-114.

ii) the probability that union coverage or bargaining power will cover a greater part of the industry;

iii) technological and economic factors which operate in such a way that the industries best placed to agree high wage increases are also most likely to be highly concentrated.

Most of the studies on this question deal with the United States[1]. Our own analysis of the period 1948-1961 confirms their findings of a marked association between the degree of concentration and the relative rate of production worker wage advance there[2]. In the United Kingdom, the relationship was in the same direction as for the United States, but is weak, and of limited practical significance[3]. Extension to other countries suggests rather different conclusions. For Germany, there has been a marked tendency for less concentrated industries to experience relative earnings gains. In France, Sweden and Canada, workers in more concentrated industries have done neither better nor worse than in less concentrated ones.

When the American and British data are examined more closely, it is found that the earnings structures in both countries widened over the period studied. This suggests that in both cases the concentration/wage change relationship may to some extent merely be a reflection of the greater earnings differentials, i.e. the forces which made for opening of the wage structure tended to divide up among industries in line with their degree of concentration. No conclusive answer can be given, but it is reasonable to attribute the deterioration of the earnings position in industries such as textiles and apparel as much to their unhappy profits and employment experience as to their low concentration. This would explain a significant amount of the apparent relationship between high concentration and relative wage gains, although it would be wrong to deny that the exercise of market power in specific instances has enabled some concentrated industries to implement wage increases which were higher than they otherwise would have been. However, it is by no means certain that this fact outweighs the influence of product market conditions, which happened to be least favourable to the least concentrated branches.

By contrast, there is in all six countries a positive association between an industry's concentration and its wage *level*, and for Germany, France and Canada, the association is quite strong. This could be thought to reflect a tendency for concentrated industries to use proportionately greater quantities of relatively skilled labour. But the German evidence indicates that this is not so: an almost identical association is observed when industry wage levels for skilled, semi-skilled or unskilled groups of workers are related to the degree of concentration. Further, the Canadian and Swedish data suggest that both wage earners and salaried employees, when considered separately, earn more in concentrated industries. Concentrated industries, it would seem, pay

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1. See, for example, D. G. Brown, " Expected Ability to pay and Inter-industry Wage Structure in Manufacturing, " *Industrial and Labour Relations Review*, October 1962; H. M. Levinson, " Postwar Movement of Prices and Wages in Manufacturing Industries, " *op. cit.*; W. G. Bowen, " Inter-industry Variations in the Unemployment Wage Relationship, " *op. cit.*; J. W. Garbarino, " A Theory of Inter-industry Wage Structure Variation, " *Quarterly Journal of Economics*, May, 1950.

2. The *average* level of the correlation coefficients over 3-year spans is as high as 0.52.

3. For the period 1948-54, the concentration/earnings change correlation coefficient for 79 industries is 0.15. For 1948-59 it is 0.34 and for 1954-1958, 0.28. The last two values are significant at the 5 per cent level, but they imply that at most 12 per cent of the differential movement of earnings is related to the degree of concentration.

better;[1] but they do not necessarily advance their earnings more rapidly, although they must have done so at some time in the past.

Interpretative Implications

Taken in combination, the product market and structural variables examined provide grounds for suggesting that some movements of the earnings structure result from influences other than employers' relative labour requirements. But the high interrelation of the majority of the explanatory variables makes it difficult to assess the relative importance of product and labour market influences on the development of relative earnings. Thus the data are at all times open to two alternative explanations. The first is that product market influences have operated to generate changes in relative earnings in the same direction as those which would have been observed had earnings been discharging an allocative function in the redistribution of labour; it would be reasonable to add that to the extent that this is true, the observed movements of the earnings structure have in general been such as to facilitate the required labour flows. The alternative is that the allocation of labour has been predominantly determined by changes in relative earnings. Corresponding movements of the product market variables would still be expected in this case, since a priori it is likely that the strongest employment gains will be registered in the most prosperous industries, i.e. those which are expanding production, profits, or both relatively more rapidly. While it is difficult to carry the analysis any further than this, two main conclusions can nevertheless be drawn from the material presented in this chapter:

a) There appears to be some association between changes in relative earnings and changes in relative employment. On the whole it is weak; but there is some evidence tnat a " limiting condition " exists, in the sense that exceptionally marked declines in employment tend to be associated with a deterioration of position in the earnings structure.

b) Other influences, acting jointly or independently, have been more important than relative labour requirements in determining the way earnings have moved.

SUMMARY

The findings of the present chapter are summarised below. Before presenting them, the difficulties of interpretation discussed at the beginning of the chapter may be recalled. In particular, it will be borne in mind that the absence of any statistical relationship between changes in earnings and employment is consistent with the frictionless operation of labour markets. The Group, however, does not incline to this view. Employment markets are sufficiently rigid for the demand for labour, as expressed in the form of higher wage offers, and the employment response to these offers, to be observed in the statistics. Even then, the meaningfulness of the results of the analysis is affected

1. Concentrated industries also tend to be more highly capitalised, so that productivity per worker is likely to be higher. On the other hand, as has already been noted (pages 110-112) productivity *changes* are not a very good direct explanatory variable of *changes* in the wage structure.

both by the technical properties of the methods applied and the ability of the data to represent the phenomena which they are intended to measure. The findings set forth below have been arrived at taking into consideration as far as possible these limitations of the materials.

1. When manufacturing industries are studied at two-digit level, some association is observed between changes in the net numbers of blue-collar workers employed and changes in their relative earnings. In general it is rather weak, but in Britain and Canada and the USA up to about 1957, there have been periods for which a quite strong relationship is observed.
2. In general no relationship with change in earnings is observed for inter-industry movement of white collar workers in manufacturing, or for blue or white collar worker movements between non-manufacturing industries.
3. For the majority of the groups studied there is some evidence that a higher association between changes in earnings and employment may be observed under full employment. But exceptions are by no means infrequent.
4. The blue collar relationship observed in manufacturing becomes attenuated when the same industries are studied at 3-digit level of detail (Canada, USA, UK and possibly Sweden). This suggests that what is being measured at two-digit level is the effect of forces which affect the prosperity, and therefore the employment and earnings, of branches of industry considered as units. With wage spread being propagated through institutional arrangements and customary relativities, individual three-digit industries have in general had to accept the prevailing rate of wage-change in their branch as a datum. The low correlation observed at this level indicates that they were able to expand or contract their employment as conditions dictated in the absence of any notable differential movements of earnings.
5. Other variables than labour requirements have been important in determining the way earnings have moved in recent years, and taken in conjunction, their influence has been predominant. In particular, confirmation of the prosperity effect can be inferred from the fact that profit rates and changes in profits appear to exercise considerable influence on the development of relative earnings. When the relationship between changes in earnings and in employment is recalculated on the assumption that no changes in profits took place, the degree of association is found to be still weaker. It is also noteworthy that the relationship between production changes and changes in employment is almost unaltered when recalculated on the assumption that no changes in relative earnings occurred.
6. Among the other variables making for higher (or lower) rates of wage advance are employment experience in a previous period, the degree of concentration, the rate of production growth, all of which are found to be important at certain times for certain employment groups, but not systematically. The ratio of labour costs to total costs appears to be an important background factor, but in individual cases its influence tends to be obscured by movements reflecting the impact of other variables. It was also found that concentrated industries tend to have a higher wage *level*.
7. Overall, changing wage differentials appear to play a very small role in inter-industry movements of labour. Industries have in general been able to expand their employment as necessary by increasing their interception of new entrants, the unemployed, and employed jobseekers. But there are circumstances in which differential wage changes may be of importance:
    1. Declining relative earnings appear to operate as an incentive to job-leaving (although the observed lag in earnings in those industries in

which employment declined most rapidly seems to be mainly a reflection on both earnings and employment of these industries' lack of prosperity);

2. An expanding industry which is poorly placed to intercept a recruitment stream because it is in a remote region or stands low in the earnings structure may find it necessary to implement an above-average wage increase for some or all grades of the labour required.

VII

THE OCCUPATIONAL ALLOCATION OF LABOUR

The interdependence of the industrial and occupational wage structures makes it difficult to consider either in isolation.[1] Industrial earnings averages may reflect the effect of factors responsible for changes in occupational differentials; thus some of the long-term tendency to contraction of the industrial wage-structure can be ascribed to the secular trend to closure of occupational wage differentials.[2] In the same way, changes in average occupational earnings may reflect differential rates of industry-wide wage increase in the branches in which the occupations in question are carried on.

Nevertheless, whether considered over the shorter or the longer term, occupational wage structures have displayed rather different types of movement to those of industrial wage structures. There is evidence that certain factors have operated on the one but only indirectly on the other type of structure. There is also some evidence that some employment/earnings relationships seen in an occupational context differ from the relationships noted in the study of the industrial deployment of labour. In considering the deployment of labour between industries, the allocation of labour between employers is a major issue. But in the study of the allocative role of earnings in an occupational context, the problem of the availability of sufficient labour to man a given occupation is frequently a distinct, and important, question. This is particularly true for certain occupations and professions for which the duration of training makes for a slow reaction of supply to changes in demand price. This raises a rather different set of problems in the context of policy, the more so as problems of a social as well as of an economic nature are involved.

Long-term Occupational Differentials

A number of different factors, some social, some economic, and some institutional appear to explain the long-term tendency to tightening of the occupational wage structure. It is impossible to disentangle their separate effects; at different times in different places one will have predominated over

1. This is particularly true of occupational differentials where, as already noted, the data typically relate to wage rates rather than earnings, and the categories of occupations covered are not necessarily classified in the most relevant way from the point of view of the present examination.

2. Mainly because of the narrowing of *intra*-industry differentials, but also because in industries where high average earnings reflect higher proportionate use of skilled labour, a lower rate of increase of this category's earnings has a greater weight, and average earnings in industries using unskilled labour tend to rise relatively more quickly.

another. A major social change has been associated with rising educational levels, which have not only affected the skill structure of the labour force, but have brought with them big changes in the status associated with certain types of employment, and made for similar aspirations for a high standard of living at all levels of the working population.[1] The impact of the spread of compulsory education, and later, the raising of the minimum school leaving age, has also been interpreted in economic terms; according to some writers[2] the reduction of the difference between the quality of skilled and unskilled labour, the increase in substitutability, and the relative decrease in the supply of unskilled labour which it implies, may also have been a factor causing unskilled rates to rise more quickly in particular periods. In some countries, measures to reduce immigration, historically a source of unskilled and uneducated labour, have been a further influence operating in the same direction. It is of interest to note that in Switzerland, which has kept its borders open to foreign workers, earnings differentials between industries typically employing foreign labour and industries mainly occupying Swiss personnel stayed roughly constant between 1949 and 1961.[3]

In general, those who stress the effect of economic factors hold that while the proportionate use of skilled labour has increased in line with the progress of economic development, demand for skilled categories has risen less rapidly than the supply, and skilled labour has accordingly been forthcoming at a price which represents a cheapening in terms of the price of unskilled labour. This tendency may have been reinforced by a greater degree of competitivity in the market for unskilled labour. Companies operating in localised labour markets may be reluctant to start wage bidding even where supply bottlenecks for particular skilled grades are being experienced. We return to this point on page 122 below.

A number of authors view unionism as a substantial long-term institutional force making for lower occupational differentials. Some consider the effect temporary, limited to periods when organisation was spreading from skilled to unskilled workers.[4] Others, stressing the egalitarian wage policy typically pursued by unions, also see it as a continuing influence.[5] Still others assert that unionism has only been a minor force in promoting the closure of occupational differentials.[6] In general, while there have clearly been important differences between countries and at different times, union policies appear to have been a significant factor in the concentration of the occupational wage structure, particularly in periods of rapidly rising prices, although to some extent they have merely served as a channel through which underlying economic pressures

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1. See for example E. E. Muntz, " The Decline in Wage Differentials based on Skill in the United States, " *International Labour Review*, June 1955.
2. See M. Reder, " The Theory of Occupational Wage Differentials, " *American Economic Review*, Dec. 1955, P. H. Douglas, *Real Wages in the United States*, 1890-1926 (Boston: Houghton Mifflin, 1930), pp. 246, 361-2; E. E. Muntz, *op. cit.*, H. P. Miller, " Changes in Industrial Distribution of Wages in the United States, 1939-1949, " *Studies in Income and Wealth*, v. 23 (Princeton, N.J.: Princeton University Press, 1958), at pp. 365-366.
3. For a full discussion, see V. Lutz, " Foreign Workers and Domestic Wage Levels with an Illustration from the Swiss Case, " *Banca Nationale del Lavoro*, March 1963.
4. L. G Reynolds, " Labour Economics and Labour Relations "; N. J. Samuels, "Wage Variations in the USA, " *Personnel*, Sept. 1952.
5. H. A. Turner, " Trade Unions, Differentials and the Levelling of Wages, " *Manchester School*, Sept. 1952.
6. C. Kerr, " Market and Power Forces, " in *The Theory of Wage Determination*, ed. Dunlop, Macmillan, 1957.

could make themselves felt. While the likelihood that unions will insist on greater percentage increases for unskilled workers is greatest when prices are rising, it is precisely at such times that employers will be most willing to put wage increases of this type into operation.

Specific Forces Affecting Occupational Differentials

In contrast to the behaviour of the industrial wage structure, major changes from unemployment to full employment, or disturbances such as those associated with wars and political upheavals have generally been periods of quite substantial narrowing of occupational differentials. Any reverse movement in recession periods has been far from sufficient to re-establish the initial structure; some observers have identified recession periods in which differentials continued to narrow, if at a slower rate than in the preceding boom.[1]

One might expect on certain assumptions that in periods of high unemployment, wages in general, and unskilled wages in particular, would fall until absorption of the excess labour supply had been completed. This hypothesis has always been open to question,[2] and in postwar years emphasis has been placed on appropriate modulation of the level of demand to ensure the maintenance of full employment. But even in the 1930's, downward wage moves were blocked under all but exceptional conditions by prevailing ideas of an acceptable minimum. Whether defined by custom, trade union policy or statute, this " social " minimum has operated, and operates, as a floor whose level can be raised but not lowered.[3]

Seen against this background, the observed movement of occupational differentials has been interpreted as reflecting the operation of both market and institutional forces. So far as market forces are concerned, it has been held that increasing demand for labour has a different impact at different skill levels.[4] The argument is put most clearly by Reynolds and Taft:

> " Shortages of skilled and semi-skilled workers are temporary shortages which can be made good by recruiting additional workers from lower grades. . . . (but) the supply of labourers can be replenished only through growth of the labour force. A point is eventually reached beyond which the supply of unskilled labour is completely inelastic with respect to wages or any other inducement, something which is not true of the higher occupations. This causes labourers' wages to be bid up at an unusually rapid rate and causes a shrinkage of occupational differentials. "

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1. For a fuller discussion, see H. Ober, " Occupational Wage Differentials, 1907-1947, " *Monthly Labour Review*, Aug. 1948. R. Ozanne, " A Century of Occupational Wage Differentials in Manufacturing, " *Review of Economics and Statistics*, Aug. 1962, (who contests the validity of some of Ober's data); P. Bell, " Cyclical Variations and Trends in Occupational Wage Differentials in American Industry since 1914, " *Review of Economics and Statistics*, Nov. 1951.

2. In particular, it ignores the dual aspect of wages as a cost and a component of demand. Periods of declining nominal earnings in this century have been rare and brief, and have tended to be accompanied by lower rather than higher employment levels.

3. Legislation (minimum wage laws, equal pay provisions) may act to hoist this floor quite rapidly. In France, for example the SMIG (occupational minimum wage) follows the cost of living and has occasionally been further adjusted to allow for increases in the standard of living. But examples of the floor being lowered are, nevertheless, not unknown: e.g. the 10 per cent wage cut imposed in Australia in 1931.

4. See for example, M. Reder, *op. cit.*; L. G. Reynolds and C. Taft, " The Evolution of Wage Structure, " *Yale University Press*, 1956. (The citation is from page 364).

This is perhaps on oversimplification of an extremely complex process. There is always some movement upward from lower grades (both within and between firms), which can be accelerated when there are shortages of skilled labour. At the same time, it would be wrong to suggest that the supply of promotional material is highly elastic. Training periods may be long, there is no guarantee that the requisite numbers of persons capable of being trained exist, and in the short term, the supply of skilled labour may be very inelastic.[1] In addition, the supply of unskilled labour is more elastic than the argument quoted above suggests; employers have been able to draw upon both the agricultural labour force, and those not in the labour force, for additional unskilled labour.[2]

In practise, while the interfirm circulation of skilled labour is a not unimportant component of total recruitment, a number of factors may cause competition for skilled labour to be expressed in terms other than the offer of increased wages. Employer reluctance to indulge in competitive bidding in certain cases has already been mentioned. Where the sought-for labour is organised in trade unions, the provisions of collective bargains may render it difficult to put differential increases into operation in some firms and not in others, except possibly on a very short term basis.

A related point is made by those authors who stress the division of the labour market into " outside " and " inside " segments, with " market-oriented " and " union-oriented " key occupational rates:[3]

> " The outside sector supplies labour primarily for starting jobs in production and for maintenance and clerical work. The inside one provides workers for the inner steps of the many promotional ladders . . . the labour market exerts its main force on internal wage rates through market oriented jobs. Beyond this, the dominant importance of promotional sequences means that there is a constantly available internal supply of labour for staffing most of the structure. . . . In skilled craft trades, unionism and collective bargaining, rather than market, impose the job and wage structure upon the employer."

Even accepting that employer competition for labour is concentrated on a number of strategic entry points, the question of the form this competition takes is still open. Wage increases may be a last method employed after all else has failed. For example, employers may schedule more overtime, widen their labour markets, improve working conditions and fringe benefits, offer more attractive promotional opportunities etc. These are more flexible instruments many of which can be retracted when the labour shortage situation has disappeared, whereas wage increases once put into effect are very difficult to revoke. In particular, industries may attract labour without necessarily offering higher pay grade for grade, by giving earlier promotion to those who join them than these could have obtained in their previous employment. To this extent, the main pressure to increase manpower is felt in terms of the rates for jobs at the lower end of the occupational spectrum.

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1. Shortages of skilled labour in upswings have been experienced in the majority of the countries studied, even when unemployment was at a high level.

2. See Alfred Tella, " The Relationship of Labour Force to Employment, " *Industrial and Labour Relations Review*, April 1964.

3. G. H. Hildebrand, " External Influences on the Determination of the Internal Wage Structure " in *Internal Wage Structures* (ed. Meij), North Holland Publishing Co., Amsterdam 1963, (the citation is from pp. 268 and 274); see also C. Kerr " Labour Markets, their Character and Consequences, " *American Economic Review*, Papers and Proceedings XL, May 1950.

It should be borne in mind that scarcities do not affect solely those firms which are expanding employment relatively. Firms whose employment requirements are not growing are nevertheless obliged to " stay with " the general movement of unskilled earnings, either because of union pressure to maintain earnings at prevalent levels or because they fear the loss of manpower through increases in quits.[1]

The " market " and " occupational " explanations of the short-term closure of occupational differentials are not mutually exclusive. Those who stress the " market " view emphasise the suggestion that in conditions of high demand for labour, the difference between market-oriented jobs, which are typically in starting grades and relatively unskilled on the one hand, and those to which access is by promotion on the other hand, has contributed to the more rapid rise of pay for unskilled occupations. Those who stress the influence of institutional factors in promoting the closure of differentials point out that rises in the price level have acted as a background factor breaking up the rule of custom and making it possible for forces to act which previously had been excluded. In this context, the two major changes which distinguish the modern scene from the conditions obtaining before the first world war are the unionisation of unskilled labour and the wider diffusion of education. And in many countries, the needs of wartime employment have been associated with wage compression resulting from a mixture of public policy and other considerations arising out of price inflation.

To summarise, the behaviour of occupational differentials since the beginning of the century has differed as between periods of rapidly increasing or full employment, when both economic and social factors have favoured their closure, and periods of low activity, when for reasons which are predominantly of a social nature, they have failed to reopen again. But there have been countries and periods in which differentials have not behaved in this way; for example, there was a tendency for the occupational structure to narrow in Canada through the 1930's, and to widen in the 1950's. More generally, as has already been pointed out, there has been no consistency in the way in which occupational differentials moved during the 1950's in the countries covered by the present study, despite the general experience of a high degree of full employment and generally satisfactory rates of economic growth.

Post-war Evidence on Occupational Differential Relationships

While the movement of production worker differentials after the early 1950's has been rather indeterminate, where changes have occurred, it was generally occupations in industries which were declining which lost ground, and vice versa, i.e. it was more a question of industries than of occupations. Confirmation of this point can be inferred from studies of the USA by Kanninen[2] and Jarrell[3], who find that specific occupational categories (e.g. office clerical, skilled maintenance, unskilled plant workers) tend strongly to receive higher wages in manufacturing than in non-manufacturing industries, and specifically in such (high wage) industries as metal working, chemicals, petrol-

1. The more so as voluntary labour mobility is highest in tight labour markets and among the unskilled.
2. T. P. Kanninen, " Wage Differences among Labour Markets, " *Monthly Labour Review*, June 1962.
3. A. N. Jarrell, " Job Pay Levels, Differentials and Trends in Twenty Labour Markets, " *Monthly Labour Review*, October 1959.

eum and rubber. More direct evidence is available from the data for earnings by skill group in German manufacturing. These data show that an industry which pays one group well tends to pay all groups well, and over the 5-year period studied (1957-1962), the earnings advance of individual skill groups in an industry was more closely aligned on the rate of earnings advance of the industry than on the rate of earnings advance for the group as a whole, although less so in the case of unskilled workers.

The preceding section has suggested that to the extent that market influences are operative, one would expect the earnings of unskilled workers to display rather higher sensitivity to employment requirements or to the industry's competitive position. Post-war data for the Netherlands and Germany appear relevant to this question and are presented in Table 36. They may be interpreted as supporting this point of view: no significant association appears for skilled or semi-skilled workers, but some association does appear for unskilled workers in both countries. But even so, the relation is rather a weak one.

TABLE 36. CORRELATION BETWEEN RELATIVE CHANGES IN EARNINGS AND EMPLOYMENT: MANUFACTURING INDUSTRIES,[1] GERMANY AND NETHERLANDS

PERIOD LENGTH	GERMANY 32 INDUSTRIES, 1957 TO 1962			NETHERLANDS 20 INDUSTRIES, 1954 TO 1960	
	SKILLED	SEMI	UN-SKILLED	SEMI-SKILLED	UN-SKILLED
1 year[2]	.10	.14	.30	..	..
3 years[3]	.13	.26	<u>.37</u>	..	..
Whole period:					
Hourly earnings	.23	.27	<u>.47</u>	.36	<u>.60</u>
Weekly earnings	..	..	..	.21	<u>.47</u>

1. Including 3 non-manufacturing industries for Germany.
2. Average of correlation coefficients over 1 year spans.
3. Average of correlation coefficients for three 3-year spans within the 5 year period.

NOTE. Underlined figures are significant at the 5 per cent level.

These data are of course open to the same ambiguities of interpretation as the material for all production workers examined in the preceding chapter. In particular their implication that a higher association is observed as successively lower levels of the skill hierarchy are examined is not in concordance with the finding in previous chapters that job acceptances by the unskilled are less likely to be based on comparisons of net advantage than those of more skilled workers. A further test was available using British data for earnings, net employment, and recruitment of boys, girls, women and men manual workers for the period 1948-49 to 1958-59. The first two groups can be considered unskilled—at least at time of recruitment. As the same data were also used to test whether there is any tendency for new entrants as such to respond to relative earnings opportunities, the full results of the study made are given below. The figures used cover 132 manufacturing and non-manufacturing 3-digit industries.

1. *Relative increases in earnings of boys, girls and women, and changes in the number of boys, girls and women (respectively) employed (whole period).* For boys and women there seems to be little association, but the data for girls show a preponderance of low rises among the industries which were reducing the number of girls employed.

2. *Relative increases in earnings of boys, girls and women and changes in an industry's total labour force, whole period.* For boys, there seems to be little association. For both women and girls there is a marked absence of more than average rises of earnings among industries whose labour force was contracting and a slight tendency to higher rises where the labour force expanded most.
3. *Relative changes in men's earnings and changes in employment of boys —whole period.* No association is observed, suggesting that potential earnings have little inducement value.
4. *Relative increases in earnings of boys and girls, and changes in the number of boy and girl entrants (respectively) aged 15-17, during 1 year.*[1] There seems to be no association between earnings movements and changes in new entrant intake for either sex.
5. *Relative increase in earnings of boys and girls and changes in the inter-industry distribution of boy and girl entrants (respectively)—long period, 17 2-digit industry groups.* There seems to be no association between relative earnings increases and changes in the share of total new entrants absorbed by an industry.[2]

It can be concluded from the last two results that changes in the distribution of new entrants took place independently of changes in the wages offered to the groups concerned. So far as changes in numbers employed are concerned, there is again no relationship, except a slight tendency for smaller numbers of girls to be kept on the books of industries in which girls' earnings rose least. These industries typically registered below-average earnings rises for women and boys too, sometimes with relative employment increases, so that the (rather weak) relationship observed may reflect technically induced changes in employment structure rather than the discouraging effect on new entrants of lower rates of earnings increase. In general, therefore, there is no confirmation of the deductions which might be drawn from the German and Dutch data.

But the slightly more significant, but still faint, association between girls' and women's earnings and changes in an industry's *total* labour force also calls for comment. To the extent that employers fill vacancies for qualified labour mainly by internal training and upgrading, competition to expand employment is concentrated not on the higher grades but on newcomers to the labour force—school leavers and married women returning to work. The fact that some young persons' earnings/total employment relationship exists is consistent with the assumption that this competition takes the form of an offer of a higher price for a resource in scarce supply. At the same time, the general absence of a young persons' earnings/young persons' employment relationship suggests that this employer reaction, however natural, may have been unnecessary, since new entrants did not distribute themselves according to the differential earnings opportunities which were made available. This is in line with the findings of the direct enquiries cited in Chapter V that earnings had a rather small influence on job-taking decisions by the unemployed and more particularly by new entrants.

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1. Earnings from Oct. 1957-1958; change in intake, 1958 on 1957.
2. It is of interest to note that the engineering industry, with a relatively high rate of wage increase for boys, significantly increased its share of new boy entrants. But the highest earnings increase for boys was registered by the construction industry, whose share of the new entrant labour force fell away more than in any other industry except textiles.

The British data are also consistent with the hypothesis that closure of occupational differentials during tight labour markets reflects, at least in part, employer attempts to appropriate sufficient quantities of a resource which has become scarce.[1] But the extent to which employment has responded to these differentials rather than to the availability of job-vacancies even in periods of full employment is open to discussion. The observed relationships are in fact consistent with the hypothesis put forward in Chapter IV that the wage structure acts to retain labour in its present occupation or to induce it to leave, rather than by drawing it towards industries or occupations which are recruiting. This, it will be remembered, was based on the association between high turnover rates and low earnings levels. The implication is that the response to *changes* in wage differentials may be assymetrical. If relative pay rises, the response may be uncertain, slow or small. On the other hand, if relative pay falls, the response may be definite, and, as will be discussed below, immediate and even large once a certain threshold has been crossed.

Specialised Occupational and Professional Categories

Turning to occupations for which the acquisition of skills or qualifications requires long periods of training or specialised education, there are almost no data available to throw light either on the inter-employer allocation of labour supplies or on the relation between numbers employed in a profession and changes in earnings, so much so that part of the discussion in the following paragraphs is in the realm of cautious speculation rather than based upon observed fact. Furthermore, the interpretation of observed earnings differences for professional people must be nuanced to allow for the fact that their earnings spread is much more likely to reflect differences in qualifications and ability than is the case for wages. The Canadian data on earnings in engineering and scientific professions presented in Table 37 illustrate this. There is little difference in median earnings as between branches of a profession, but the medians hide large variations reflecting educational qualifications and experience.[2] The professional earnings hierarchy is thus a rather fluid construction.

In some respects, the market for professional workers may be thought to correspond closely to a " competitive " model. Salaries are more likely to be settled on a personal basis than wages (although there are clear views of acceptable minima so far as potential recruits are concerned, and firms and governments have pay-scales, often determined as a function of changes in negotiated wages, which are more or less closely adhered to). Persons in a profession are potentially more mobile than other categories of the labour force, although in practise they seem to change jobs less often[3]; they are more likely to be aware of alternative job opportunities through professional associations or journals; and the market is more likely to be a national—or even an international—one.

1. The shortfall in numbers, resulting from the low birthrates of the 1930's, must be seen against the background of a structure of jobs designed to use the proportion of young people that used to be available. But it should be borne in mind that the absolute scarcities have been felt in terms of skilled labour, and there may be an effect on wage differentials from employers competing for entrants trainable for skilled or semi-skilled jobs.

2. Age has been taken as an indicator of experience. The figures in the lower part of the table are themselves medians, concealing a further spread of earnings within each of the classes.

3. *Cf.* the 1955 and 1961 USA Labour Surveys discussed in chapter IV.

TABLE 37. MEDIAN EARNINGS OF SELECTED CATEGORIES OF PROFESSIONAL PERSONS IN CANADA, 1958 AND 1962

Dollars per annum.

	ENGINEERING			SCIENTIFIC	
	1958	1962		1958	1962
Total	8,000	9,200	Total	7,300	8,800
BY SPECIALISATION					
Chemical	8,000	9,300	General	6,600	7,000
Civil	7,900	9,000	Chemistry	7,500	9,600
Electrical	8,100	9,200	Mathematics	7,100	9,400
Mechanical	8,000	9,000	Physics	7,700	9,800
BY EDUCATIONAL LEVEL					
No degree	8,500	9,300	No degree	..	..
Bachelor's	8,000	9,100	Bachelor's	6,700	7,900
Master's	8,500	9,800	Master's	7,400	9,000
Doctors	..	10,900	Doctors	8,500	10,600
BY AGE					
20-29	6,000	6,600	20-29	5,500	5,900
30-39	8,000	9,100	30-39	7,200	8,500
40-49	9,700	10,500	40-49	8,300	10,300
50-59	10,200	11,500	50-59	8,800	11,000

Source : " Employment and Earnings in the Scientific and Technical Professions, " *Reports of the Economics and Research Branch*, Dept. of Labour, Ottawa.

But here the resemblance ends. Because of the importance of personal characteristics, substitutability, particularly at upper levels of the profession, is limited.[1] Considerations of social standing, job interest, professional freedom on the job etc., may be relatively more important than comparisons of financial advantage; and to the extent that salary differentials are of significance, employers have at least up to a point an option to take on new recruits at a higher step in existing scales without modifying the scales themselves.[2] It may take some time for in-place employees to realise the situation and either exert pressure for an upward modification of the scales or leave themselves to profit by a " promotion."

One recent United States study concluded that " economic incentives have played an important role in attracting engineering students towards those fields in which demand has been high and increasing." The material on which this finding is based is reproduced in Table 38. In this table the ranking of engineering fields by rate of increase of mid-career salary over successive 5 or 7-year periods is compared with their ranking in respect of percentage increase in the share of first degrees in each. The two year lag used is to allow for flexibility in the early years of engineering school: a student is not heavily committed to a field until his second or third year. The data show a high

1. This also implies in many cases that the ratio of transfer earnings to current compensation may be relatively low.

2. Arrow and Capron point out that there is a time lag before earnings respond to shortages. A firm needs time to realise the situation, and to take the necessary administrative steps. If it recognises that it must raise salaries for existing employees, it will be all the less ready to bid up the price it is willing to offer to attract new personnel (" Dynamic Shortages and Price Rises; the Engineer-Scientist case, " *Quarterly Journal of Economics*, May 1959).

TABLE 38. RANKINGS OF ENGINEERING FIELDS BY PERCENTAGE INCREASE IN BASE SALARY OF ENGINEERS WITH NINE TO ELEVEN YEARS' EXPERIENCE, AND BY PERCENTAGE INCREASE IN SHARE OF FIRST DEGREES, VARIOUS PERIODS, 1929-1948

SALARIES 1929-1934	DEGREES 1932-1936	SALARIES 1934-1939	DEGREES 1936-1941	SALARIES 1939-1946	DEGREES 1941-1948
Civil	Chemical	Mechanical	Mechanical	Civil	Civil[2]
Electrical	Mechanical	Chemical	Chemical	Mechanical	Electrical
Mechanical	Civil	Electrical	Electrical	Electrical	Mechanical
Chemical	Electrical	Civil	Civil	Chemical	Chemical

1. Ranked from high positive increases to high negative increases.
2. The average share for 1947 and 1949 substituted for the share for 1948.
Source : Blank and Stigler, " The Demand and Supply of Scientific Personnel, " 1957, p. 81.

association between changes in salary differentials and the distribution of degrees in the late 1930's and the 1940's.[1] This material is suggestive. It would perhaps be unwise to draw any very firm conclusions from it in isolation, but the likelihood that future earnings levels do play a role in US engineering students' choice of career is confirmed by non-quantitative indications that students there show themselves to be very knowledgeable about starting salaries in their field.

Data for enrolment of engineering students for Canada over the 1950 decade can also be interpreted as exhibiting a response of students to labour market conditions. This material is reproduced in Table 39. Engineering enrolments rose each academic year to 1957-58, both in absolute terms and, more significantly, as a proportion of total enrolments, and then fell away in subsequent years. The number of vacancies for engineers, which was below the number of job-seekers through 1954, grew considerably in 1955 and 1956. On balance the data suggest that there was still some shortage in 1957 but not in later years. Starting salaries for engineers rose at roughly the same rate as wages and salaries in general through 1955, but the active demand of the 1955-56 period coincides with the opening of a differential in favour of young engineers which reached a peak during 1956-1957. In subsequent years, a vacancy/jobseekers ratio below 100 is observed at the same time as the differential started to close again.

On the demand side it seems clear that scarcities of engineers in the years 1955-1957 caused employers to raise starting salaries considerably. But on the supply side the link between enrolments and the state of the labour market for engineers is, as is so often the case, more difficult to interpret. The proportion of engineering enrolments may have risen because students were aware of the relative improvement in salaries, or because the tightness of the market suggested a greater probability of getting a good job. The data in the table are consistent with either hypothesis. It may be worth recalling that in the early post-war years there was much discussion of automation and the likely increase of demand for technicians and for engineers. This general consideration may have been relevant to student choice (or at least to the advice given

3. There is an inverse correlation in the first period (1929-34 for salaries and 1932-36 for degrees) which the authors attribute to the high unemployment levels obtaining at that time. They make the point that measurement of changing economic incentives must take account of the likelihood that a new graduate can obtain employment in his chosen field.

TABLE 39. ENGINEERS IN CANADA: FIRST YEAR ENROLMENTS, VACANCY/JOBSEEKERS RATIO, AND STARTING SALARY/GENERAL EARNINGS DIFFERENTIALS, 1950-1961

YEAR	FIRST YEAR ENGINEERING ENROLMENT[1]		VACANCY/ JOBSEEKERS RATIO IN ENGINEERING[2] (3)	YEAR TO YEAR CHANGE IN EARNINGS DIFFERENTIAL[3] (4)	CUMULATIVE DIFFERENTIAL SINCE 1952[4] (5)
	NUMBER (1)	PER CENT OF TOTAL UNIVERSITY ENROLMENTS (2)			
1950	1649	19.7	.40	..	..
1951	1862	24.9	.84	..	..
1952	2887	35.5	.74	—1.8	—1.8
1953	3062	33.7	1.01	+4.4	+2.7
1954	3259	31.6	.85	—2.4	+0.1
1955	3810	33.8	2.15	+6.1	+7.0
1956	4629	36.4	5.76	+4.3	+12.9
1957	5332	37.8	1.79	—1.9	+10.7
1958	4904	34.2	.55	—3.9	+5.7
1959	3412	30.0	.81	+0.4	+6.5
1960	4702	31.0	1.05	—0.2	+4.3
1961	4517	30.9	.74	..	..

1. Figures relate to academic year starting in October.
2. Vacancies for engineers as percent of the number of applicants about the 1st of the month; average of monthly ratios.
3. Number of percentage points by which July 1st index of engineers' starting salaries rose more (+) or less (—) than the July 1st index of average weekly wages and salaries, (previous July 1st = 100).
4. Same concept as column (3), but taking July 1st 1952 = 100.

Sources : Cols. (1) and (2)—Education Division, *Dominion Bureau of Statistics.* Col. (3) " Labour Demand and Supply, " *DBS*, monthly. Col. (4) Derived from (1) Industrial Composite of 9 leading industries: *Employment and Payrolls* (DBS, monthly) (2) *Annual Survey of Professional Salaries*, National Research Council.

by counsellors). Thus while the data are consistent with choices by students based on estimated relative future earnings they may in fact also represent the weight of job-security considerations based on some rather general employment market forecasting.

On the whole, the studies for the United States and Canada suggest that the market for highly qualified professional manpower is fairly competitive. Few similar studies have been made for European countries. In general, however, in public discussions of these issues in Europe more stress is laid on institutional factors related to the educational system and questions of social status, etc.

There are many types of occupations and activities where pay is proportional to status, and others where status is proportional to pay—it is difficult to say which follows from which. But in both Europe and North America, social status seems to be an important independent factor bearing on the earnings of certain important categories of less qualified professional manpower, such as teachers, nurses, civil servants, etc. It is here that the influence of prevailing social attitudes on the earnings hierarchy is particularly apparent:

> " There is the notion that social workers should be satisfied with a small financial reward—nurses are the classic, though by no means the most glaring example—the balance of which is to be reckoned in terms of the intrinsic satisfaction to be derived from their work . . . thus, certain notions have been evolved as to who should work " for love," who for the honour of it plus, perhaps, a small honorarium, and who, on the other hand may draw a large salary (with or without the honour)."[1]

1. H. R. Kahn, " The Element of Accident in the National Salary Structure, " *Manchester School*, May 1956.

On closer investigation, it is often found that many lower-paid groups have some social consistency and are pursuing a service-type occupation (e.g. teachers, nurses, the police, etc.), but have not up to now constituted an effective bargaining unit. Where this social consistency is absent, pressure to recover lost ground is much less likely to be felt, or if it is felt, to have much attention paid to it in the absence of marked employment shortages.[1] In pay disputes affecting particular sectors of the labour force, an attempt is frequently made to present a certain group as a socially coherent one, worthy of a better place in the sun—and the earnings hierarchy. Success is often dependent on the extent to which this image can be developed and made stick; and the chances of this happening are greater where average earnings of the group are relatively low and training periods of some length.

But the recognition of coherent interests is often slow to develop, for over quite a wide range, erosion of pay differentials of some groups may not outweigh considerations of status, ideals of service to the community, career interest and other non-economic reasons in deciding new entrants whether or not to train for a given profession or in deciding existing practitioners whether or not to leave. It is correspondingly difficult to say how far deterioration of relative earnings can go on without producing an embarrassing rate of outflow from the profession, possibly quite suddenly. Because of the indeterminacy of the response, attrition may go on for long periods without being recognised, since short-term employment requirements are being met.

We seem to be confronted here with a kinked supply curve. When relative pay rises above its existing level, the response may be vague and slow; but when it falls, at least beyond a certain point, the response, in the form of an outflow of manpower may be rapid and large.[2] It is only when such a " threshold " is crossed, either because of a change in the social climate or because, other things equal, the differential has at last grown too large (or too small) that recruitment stops, existing employees leave, and it is realised, usually with shock, surprise and publicity, that there is a problem in respect of a certain group, and that the existing pay structure is inequitable.[3]

SUMMARY

The findings of the present chapter are summarised below:

1. Similar conclusions to those set forth in chapter VI concerning inter-industry changes in relative employment apply to inter-occupation manpower allocation. It is true that the general absence of correlation between changes

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1. Galbraith suggests that wage claims of this type can be expected from groups which do not have what he calls " countervailing power, " and are attempting to develop some. (" American Capitalism, " *Penguin 1963*).

2. This point does not apply only to the relatively low-paid "infrastructural" occupations discussed here, but to the job-decisions of persons exercising any activity at any pay-level. It is related to the phenomenon mentioned earlier that the wage structure acts more in terms of inducing labour to stay in or leave a particular job than in relation to the subsequent choice between alternatives.

3. In the opposite direction, implicit social disapproval of a favourable differential can be a major factor in promoting its closure. When the National Health Service began in the United Kingdom in 1948, starting rates for dentists were set at levels which put them roughly in the top management bracket. " The situation was dealt with by a ruthless and immediate cut in piece rates, by which general practitioners' net incomes were halved. " (M. P. Fogarty, *op. cit.*, p. 45).

in earnings and employment tends to obscure the particular cases in which labour shortages or surpluses in respect of groups which are small in relation to an industry's total employment have had to be dealt with by changing wage differentials. But it seems that the balance of vacancies and applicants in particular occupations has been only one factor among a number that have brought about changes in the occupational pay structure, and that relative stability within that structure has been compatible with changes in the relative sizes of different occupations. As with the industrial pay structure, so here it seems that the existing structure may play an essential part in retaining labour in its present occupations and enabling the higher paying occupations to expand, without changes in differentials being indispensable to changes in allocation.

2. We have found two instances, however, of changes in relative pay taking a direct allocative effect between occupations. One is that where the pay of a particular occupation has lagged behind the general rise, a point is reached at which withdrawals of existing members and shortage of recruits bring about a sharp reduction of numbers. The other is that the choice of field by entrants into professional careers appears to be quite strongly influenced by relative earnings prospects, at least in the USA and Canada.

VIII

GEOGRAPHIC MOBILITY

Regional differences in average earnings may reflect differences in the industrial composition of employment: one would expect average earnings to be low in a region in which the predominant industries have below-average earnings (although the inverse may apply: low average earnings may be observed in an industry because it is concentrated in regions in which average earnings are low). However, when allowance is made for differences in industrial composition, inter-area earnings differences are found to subsist. Data for each of three skill groups in 9 German regions[1] indicate that average earnings of a group in a given region are about the same when it is assumed that the distribution of employment by industry is that of the German economy as a whole instead of the pattern obtaining in the region, and the inter-regional dispersion of earnings and of earnings changes is almost unaltered. Similar conclusions hold for the USA where a study by Hanna finds that "a division (region) paying sub-average rates in one industry tends to pay sub-average rates in all industries."[2] Regional low-wage or high-wage positions are therefore real, and can be traced to differences in factor endowment, population growth, etc.

Data on changes over time in regional earnings and employment over manufacturing as a whole have been examined using roughly the same techniques as those used in the study of earnings and employment by occupation or industry. The regional data share certain characteristics of the industry data examined earlier in this report. The rate of earnings advance in different areas has varied relatively little from the nationwide average, but employment trends by region have been widely disparate. The observed variability of earnings and employment changes declines significantly as longer time periods are considered; and employment always shows greater fluctuations about the average rate of change whatever the period length studied. Selected statistics for Germany, France, Canada and the USA are presented in Table 40.

Changes in regional earnings reflect the experience of the industries operating there, and as noted in Chapter VI, the by-industry association of earnings and employment changes is on the whole rather weak. However, while one might expect to observe a low regional correlation at the same time as a low industrial correlation, this does not follow automatically. For example, if (*a*) regions where earnings are advancing more rapidly are also increasing employ-

1. See Annex 1, Series 16151-2-3, 16161-2-3 and 16251-2-3.
2. F. A. Hanna, "Contribution of Manufacturing Wages to Regional Differences in per Capita Income," *Review of Economics and Statistics*, Feb. 1951.

TABLE 40. THE VARIABILITY OF REGIONAL EARNINGS AND EMPLOYMENT CHANGES

PERIOD STUDIED	USA 51 STATES TOTAL EMPLOYMENT MANUFACTURING INDUSTRY (ANNUAL EARNINGS) 1947-1961	GERMANY 9 REGIONS MALE WORKERS IN SELECTED INDUSTRIES (HOURLY EARNINGS) 1957-1962 I	II	III	FRANCE 89 DEPARTMENTS —TOTAL MALE EMPLOYMENT, ALL ACTIVITIES —MONTHLY EARNINGS 1955-1960	CANADA 10 PROVINCES TOTAL EMPLOYMENT MANUFACTURING INDUSTRY (ANNUAL EARNINGS) 1949-1959
1. Earnings Structure: coefficient of variation[1]						
First year	.16	.06	.06	.07	.16	.16
Last year	.17	.06	.06	.06	.17	.17
2. Variability of Earnings increases[2]						
1-year spans	2.1	1.4	1.3	1.5	6.5	1.7
3-year spans	1.1	.7	.7	.9	2.2	0.8
5-year spans	.9	.5	.4	.6	1.5	0.6
3. Variability of employment increases[2]						
1-year spans	4.4	4.6	4.9	6.1	11.2	3.0
3-year spans	3.1	2.4	3.2	3.9	4.8	2.0
5-year spans	2.8	1.9	2.3	2.9	4.5	1.7

1. Variability measured by standard deviation. The coefficient of variation is found by dividing the standard deviation of earnings by the average of earnings over all regions.
2. Average variability calculated over all periods of 1-, 3- or 5-year length included in whole period studied.
Unit: per cent per annum.
Source : Annex I.

ment more rapidly, but (*b*) within each region, the most rapid employment increases are being registered by industries which are increasing earnings relatively slowly, a strong positive regional correlation between changes in earnings and employment is compatible with a strong negative by-industry one.[1] Similarly, if in this case the employment-gaining industries are high in the wage structure but are situated in low-wage regions, employment will seem to be responding to high wages when seen in an industry context, and it may be tempting (and even correct) to attribute the negative regional relation to the inducement which low wage levels offer expanding firms to choose one region rather than another.[2] Interpretation of any regional association observed correspondingly requires great care: the phenomenon identified may be a rather different one to that measured when earnings and employment are looked at in an industrial breakdown.

On a year-to-year basis no relationship appears between employment *changes* in a region and relative changes in the region's earnings (although there

1. Reasoning of this type appears to hold for German unskilled workers. The association between earnings and employment of German unskilled workers grouped by industry was among the highest observed, but there is little sign of a regional association (see Table 41). This implies that there was no particular geographical concentration of industries which were raising employment of unskilled workers, although within each region, larger employment gains were being made by industries in which these workers' earnings were increased more rapidly.
2. The recent growth of industry in the province of Venetia (Italy) is only one of many practical examples which could be given (Report by Prof. Gasperini, *the Economic Development of Venetia*, Venice, June 1963).

are a number of statistically significant coefficients for the United States). But with lengthening of the period under study, a statistically significant and recurring association between regional employment and earnings changes appears for certain of the breakdowns examined, although not for others.[1] Comparison of the short-term (1-year) and longer-term (5-year) results is made in Table 41. Changes in average earnings by region in Canadian and US manufacturing are found to be consistently related to changes in total manufacturing employment over 5-year periods, and there also appears to be some association for German skilled, and possibly for semi-skilled workers. On the other hand, neither the French data nor the figures for German unskilled workers show any association.[2]

In all countries except Canada, the data show some tendency for a negative association of long-term employment changes and earnings *levels*. The association is rather weak, with only very few observations reaching the level of statistical significance, but it is consistently of negative sign. Thus in three of the four countries, employment has tended to rise most rapidly in regions in which manufacturing earnings were below the average for the country as a whole. This suggests that low relative earnings have in fact been an inducement to expanding industries to invest in regions with low wage levels and so bring employment. But clearly the availability of manpower reserves is a precondition of any such expansion, and the fact that the relationship observed for Canada is the opposite one, i.e. that employment rose most in high-wage regions can be attributed to the concentration of the Canadian population within a limited area in which infra-structural facilities are available, thus limiting the choice of region open to expanding industries.

Taken as a whole, therefore, the results are consistent with a kind of medium-term prosperity effect working rather upon the following lines: Existing regional wage differentials incite expanding producers to orient their investments toward low wage areas. The profitable operation of the new plants promotes greater local prosperity and a diminution of the pool of the unemployed. These factors provide a basis for a more rapid rise of wages than in other regions. The data suggest that the relationship takes some time to become apparent: as already noted there is no systematic association from year to year, whereas over-five-year periods the relation stabilises at high numerical and positive values.[3]

On the other hand, where high-wage areas—as in the case of the West Coast of the United States—have experienced above-average rates of increase in both immigration and earnings, this is also consistent with a prosperity effect. In such cases the prosperity may be due to high rates of migration rather than to low wage levels. In other instances, however, the relationship between changes in wages and employment has been more direct; and the latter appear to have been conditioned upon the former. The migration of workers from

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1. It will be remembered that there was no general tendency for strengthening of the by-industry relationships with increasing period length (Chapter VI).

2. The relationships described in this paragraph are hardly affected when the influence of the earnings level is held constant.

3. There may also be a contribution from long-term relationships. Higher birthrates in poorer regions promoting a relative increase in labour supply may impinge both on earnings levels and the labour intensiveness of the production techniques adopted. An increase in demand for such regions' products may imply a relatively rapid rate of employment growth, even where demand is increasing less rapidly than for products typifying high-wage, high productivity regions, whose recourse to capital-intensive production methods means that output gains will not increase labour requirements so rapidly.

TABLE 41. THE ASSOCIATION BETWEEN CHANGES IN REGIONAL EMPLOYMENT AND (1) CHANGES IN EARNINGS, (2) THE LEVEL OF EARNINGS, FOR SELECTED COUNTRIES, PERIODS AND LABOUR GROUPS

FIRST YEAR OF SPAN	EARNINGS CHANGES/EMPLOYMENT CHANGES[1]						EARNINGS LEVEL/EMPLOYMENT CHANGES					
	USA[2] 51 STATES	GERMANY[3] 9 REGIONS GROUP I	GERMANY[3] 9 REGIONS GROUP II	GERMANY[3] 9 REGIONS GROUP III	FRANCE[4] 89 DEPARTMENTS	CANADA[2] 10 PROVINCES	USA[2] 51 STATES	GERMANY[3] 9 REGIONS GROUP I	GERMANY[3] 9 REGIONS GROUP II	GERMANY[3] 9 REGIONS GROUP III	FRANCE[4] 89 DEPARTMENTS	CANADA[2] 10 PROVINCES
a) 1-YEAR SPANS												
1947	.15	..	..	..	..	..	—.17	..	..	..	..	..
1948	.54	..	..	..	..	..	—.06	..	..	..	..	..
1949	.55	..	..	..	..	(.17)	—.04	..	..	..	..	(.12)
1950	.45	..	..	..	..	(.12)	.21	..	..	..	..	(.72)
1951	—.08	..	..	..	..	—.12	.12	..	..	..	..	—.26
1952	.63	..	..	..	..	—.04	—.09	..	..	..	..	.43
1953	.26	.	..	..	..	.02	—.36	..	..	..	..	.27
1954	—.03	..	..	..	..	—.25	.15	..	..	..	..	.54
1955	.46	..	..	..	—.22	.15	—.18	..	..	..	—.09	.72
1956	.39	..	..	..	.25	—.23	.00	..	..	..	—.20	.52
1957	.16	.59	.24	.32	..	.32	—.12	—.19	.05	—.13	..	—.14
1958	.23	.30	.16	—.25	..	.15	—.29	—.37	—.61	—.81	..	—.37
1959	.77	.25	—.02	.50	—.34	..	.23	—.07	—.24	—.05	.17	..
1960	.54	.02	.44	—.81	..	..	—.28	—.47	—.43	—.11	..	..
1961	..	.21	—.12	.40	..	..	..	—.22	.07	—.13	..	..
b) 5-YEAR SPANS												
1947	.32	..	..	..	..	..	.01	..	..	..	..	..
1948	.63	..	..	..	..	..	—.06	..	..	..	..	..
1949	.57	..	..	..	..	(.68)	—.08	..	..	..	..	(.45)
1950	.41	..	..	..	..	(.78)	—.03	..	..	..	..	(.50)
1951	.22	..	..	..	..	.64	—.11	..	..	..	..	.39
1952	.36	..	..	..	..	.56	—.20	..	..	..	..	.63
1953	.36	..	..	..	..	.87	—.19	..	..	..	..	.57
1954	.36	..	..	..	..	.51	—.16	..	..	..	..	.45
1955	.50	..	..	..	—.05	..	—.17	..	..	..	—.04	..
1956	.51	..	..	..	..	..	—.17	..	..	..	..	..
1957	..	.75	.50	.08	..	..	..	—.70	—.65	—.48	..	..

1. Direct coefficients.
2. Total employment (Manufacturing) and average earnings, both sexes.
3. Employment (Industry) and average earnings of respectively (I) skilled workers, (II) Semiskilled workers, (III) Unskilled workers (men).
4. Total employment and earnings (men).

NOTE. Underlined coefficients are significant at the 5 per cent level. Bracketed figures are not comparable with the others. They were taken into account in the analysis only where it was possible to estimate the approximate effect of this lack of comparability. The problems met are discussed in the introduction to Annex I.

Source : Annex I.

TABLE 42. THE REGIONAL EMPLOYMENT/EARNINGS CHANGE RELATION IN PERIODS OF HIGH AND LOW UNEMPLOYMENT

COUNTRY	SERIES[1]	PERIOD	AVERAGE OF CORRELATION COEFFICIENTS OBSERVED OVER THE THREE[2] SINGLE YEARS		AVERAGE LEVEL OF UNEMPLOYMENT OVER THE THREE[2] YEARS	
			WITH HIGHEST UNEMPLOYMENT LEVEL	WITH LOWEST UNEMPLOYMENT LEVEL	IN WHICH RELATIONSHIP WEAKEST	IN WHICH RELATIONSHIP STRONGEST
USA	02250/02150	1948-62	.25	.27	4.4	5.1
Canada	01250/01150	1949-59	.07	—.05	3.4	4.6
Germany	16210/16110	1957-62	.45	.12	0.8	2.7
Germany	16220/16120	1957-62	.20	.16	1.3	1.8
Germany	16230/16130	1957-62	.04	—.21	1.8	1.3

1. For series identification see Table 27.
2. Over two years for Germany.

NOTE. This table is based on a comparison of bivariate correlation coefficients (calculated over 1-year spans) with average levels of unemployment.

Sources: Correlation coefficients: Annex I.
Unemployment Rates: Manpower Statistics 1950-1962 (OECD); Employment and Earnings.

West Germany to West Berlin following the exclusion of East Germany refugees in 1961 has been conditioned upon a relative rise in wages in West Berlin.[1]

The sparse material available further suggests that in contrast to what is observed in the study of industries, a higher degree of correlation between regional earnings changes and regional employment changes obtains when unemployment is high. This may be interpreted as providing indirect confirmation of a regional prosperity effect. When unemployment is high on average, some regions are more affected than others, and it is to be expected that the rate of increase of both employment and earnings will be lower in these regions than in relatively more prosperous ones, i.e. that in periods of high unemployment one would expect to see some relationship between employment and earnings changes on this score alone. As in the case of the industrial comparison, the difference in the relationship as between cyclically favourable and unfavourable years is not very marked, and there are exceptions; but it is striking that in four of the five cases in Table 42, the association should move in the opposite direction to that noted in the by-industry analysis.[2]

The results discussed in the preceding paragraphs relate to regional earnings and employment in manufacturing. Taken as a whole this sector has generally experienced a relatively less rapid rise of production worker employment than the remainder of the economy. The relationships existing for manufacturing are therefore only partial indicators of any relationship which may exist between regional earnings and changes in *total* employment. Further, to the extent that they suggest a flow of employment to low paying regions, they contradict the results of studies relating to *migration* and earnings, which indicate that migration has been away from low-wage zones. These studies are examined below.

The relationship between employment and migration is by no means a direct one. Not all migrants are in the labour market (e.g. elderly persons

1. *The Economist*, August 9, 1964, p. 574.
2. It should be borne in mind in reading the table that unemployment levels in Germany were very much lower than those in the two other countries studied in the 1950's.

retiring to regions with an agreeable climate, or the families of migrant workers), while for those who are, time may elapse between arrival at destination and the taking up of their first job. Further, over fairly short periods, rising employment implies immigration only to the extent that labour reserves in the area concerned are insufficient to provide the required increase. But, in the long run, migration tends to be correlated with changes in overall employment.

There is much evidence that in the broadest sense, geographic mobility has predominantly been away from low income areas in the direction of high income areas; the great waves of immigration to the USA, or more generally, the exodus from the countryside, furnish striking examples. Thus, intra-country studies usually show a strong association between migrational movements and revenue per capita. For example, Raimon's study of the USA[1] and Goreux's study of France[2] show positive, significant and high coefficients of rank correlation between per cent changes in population as the result of migration, and income levels. Raimon derives a (rank) correlation coefficient of 0.86 between population changes attributable to migration and average annual earnings of all employees for the period 1950-1958 in 38 states (excluding New England). Carrying the analysis further, the Secretariat has found a correlation coefficient of 0.89 (not rank) between migration and changes in earnings of all employees for the same states. If these results are compared with those already given for US regional employment in manufacturing, it can be seen that manufacturing employment rose most in regions in which manufacturing earnings were low, but increasing relatively rapidly, whereas the inflow of migrants was to regions where average earnings were high and increasing relatively rapidly.

It is far from easy to assess how far the observed association between migration and earnings reflects direct causality. A significant part of the observed statistical relationship may be ascribed to the drift from agriculture. Movements from predominantly farm regions towards predominantly urban zones are translated statistically into movements from low income regions with slow rates of earnings increase into high income regions with more rapid rates of increase. The motivation underlying this movement certainly has some social content (it is known in French as " L'attraction des grandes villes "—the attraction of city life). If economic causes only are considered, unemployment or under-employment as well as low standards of living obviously have an important influence in promoting out-migration. Decisions to pack up and move thus reflect the combined influences of increased employment opportunities and positive wage differentials.

Evidence on the extent to which rural-urban movement may have depended on changes in geographical wage relativities is conflicting. Most studies on this point relate to the United States. Some characteristics of rural-urban migration there suggest that changes in relative wages have not played a very great rôle. Historically, the principal economic determinant has been the level of activity in the relatively high income non-farm economy. More specifically, the rate of off-farm migration is significantly and negatively correlated with the unemployment rate of the civilian labour force. It is not, however, signi-

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1. R. L. Raimon, " Interstate Migration and Wage Theory, " *Review of Economics and Statistics*, Nov. 1962.

2. L. Goreux, " Les Migrations Agricoles en France depuis un Siècle et leur Relation avec certains Facteurs Economiques, " *Etudes et Conjoncture*, No. 4, April 1955. This study covers 85 to 90 " Departments " for intercensal periods between 1862 and 1953.

ficantly and negatively correlated with the ratio of farm to non-farm per capita income or with the relative earnings of farm to non-farm workers. According to one recent study of the period 1934-1958, " While unemployment measures are strongly related to the rate of off-farm migration, only a weaker correlation is found for measures of (relative) farm income."[1] Again, Bishop[2] finds a regression coefficient for relative farm income, omitting the years 1942-1947, which is both significant and *positive*, which he concludes " is consistent with the hypothesis that labour is under-employed in agriculture in the sense that more people stand ready to transfer from farm to non-farm areas at prevailing rates of return for farm and non-farm employment than jobs are available." In another study, Muney[3] reports positive correlation between parity ratios and the rate of civilian outmigration. These results are consistent with those obtained by Schultz[4] who found that, since the late nineteenth century, the periods of most rapid decline in the proportion of the working population in agriculture were also those during which industrial production increased most rapidly; moreover, they were characterised by increases in the ratio of agricultural to non-farm earnings as well as by rising agricultural terms of exchange. This is consistent with the operation of a job-vacancies mechanism working in conjunction with the existing wage structure. Under-employment in agriculture may disappear once the agricultural population drops below some critical level, but the outflow of labour may not cease if alternative employment can be had at a higher wage level.

More generally, it is clear that in looking for causal relationships, account must be taken of conditions in both the source and the receiving areas. When specific studies are made, they usually show that geographic mobility has been associated with earnings advance. But under closer examination, what appears on the surface to be a response to opportunities to increase earnings turns out to be equally consistent with the attraction of employment possibilities.[5] Thus Gegan and Thompson[6] find that 70 per cent of the migrants who had left a labour surplus area in West Virginia (USA) in 1953 not only found work, but increased their earnings much more than did non-migrants. Further, those who moved out of the state reported increases which were, on the average, over twice as great as the average increase among in-state migrants. Since West Virginia is an area of serious unemployment and under-employment, some of the reported mobility may have been " pushed " rather than " pulled." Similarly, the differentially favourable earnings experience of migrants may merely

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1. L. Sjaasted, " Occupational Structure and Migration Patterns " *in Labour Mobility and Population in Agriculture* (Ames, Iowa: Iowa State University Press, 1961), pp. 8-27.
2. C. E. Bishop, " Economic Aspects of Changes in Farm Labour Force, " *Labour Mobility and Population in Agriculture* (Ames, Iowa: Iowa State University Press, 1961), pp. 36-49.
3. G. A. Muney, " The Parity Ratio and Agricultural Out-Migration " Southern Economic Journal, July 1959, pp. 63-65.
4. T. W. Schultz, *Agriculture in an Unstable Economy* (New York: McGraw Hill, 1945).
5. Mobile persons are likely to have some vague notions of (a) regions in which income levels are higher and of (b) regions in which employment opportunities are more abundant. In terms of the association observed above, (a) is consistent with a flow towards high-wage areas while (b) is consistent with a flow to areas in which labour scarcities are inducing employers to raise earnings more rapidly. The region chosen for reasons (a) and (b) may of course be the same one, but where (b) is operative, the move to areas in which earnings are increasing more rapidly than average is primarily a response to job opportunities, and not to differential rates of earnings increase.
6. V. F. Gegan and S. H. Thompson, " Worker Mobility in a Labour Surplus Area, " *Monthly Labour Review*, Dec. 1957.

reflect the comparison between earnings levels and developments as between areas of higher and lower unemployment.

In the same way, the movement of Irish labour to industrial centres in the United Kingdom, and of Italian workers to Switzerland and Germany has resulted in higher earnings for those making the move, but the basic reason for emigrating may have been the difficulty of obtaining any employment at all in their country of origin. But the " push " of unemployment can only become effective where there is some possibility of getting employment. In a recent study on Puerto Rican migration to the United States,[1] the author finds movement highly correlated with United States unemployment and (less importantly) with the ratio of the cost of air transport to per capita income in Puerto Rico and the size of the Puerto Rican population in the United States. His conclusion is that " in the short run, relative hourly wage rates in the source and receiving areas appear to have but little effect on population flows, but employment rates and job availabilities have an important effect."

A geographical shift may be a necessary by-product of a mobile persons's decision to take a certain job, or the nature of the employment eventually taken may be the result of a decision to change place of residence. The majority of mobility studies relate to changes of job rather than spatial movements of persons. Where geographical mobility is given separate treatment, it is usually as an ancillary aspect of the employment changes considered. The material examined in Chapter IV evidences the strong reluctance of wage-earners—especially older workers—to leave their jobs. Reluctance to change one's place of residence as well as one's job is even more pronounced, although there is a marked contrast between the expression of reluctance and the frequency with which moves in fact take place.[2] Least mobile tend to be older workers, partly because of the strength of local ties, partly because the probable return on their transfer costs is relatively low. Below-average mobility is also exhibited by home owners in economically depressed areas.[3] At the other extreme, geographical mobility is exceptionally high among the unemployed and short-time workers, and also among the younger people in the labour force, particularly the unmarried.

While the discussion up to the present point has laid some stress on unemployment as a stimulus to outward mobility, this is perhaps to take too little account of the changes which have taken place in modern times, more particularly in the period since about 1945.

> " Since the war, economic progress has been much more consistent; in most countries it has been retarded from time to time by shortages of various sorts of skilled workers and in others has been so rapid that the reserves of manpower that ten years ago were a social and political embarrassment have been greatly depleted or exhausted . . . with labour as a comparatively scarce resource, we have to choose between a number of

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1. B. M. Fleischer, " Some Economic Aspects of Puerto Rican Migration to the United States, " *Review of Economics and Statistics*, Aug. 1963.

2. About 40 per cent of those surveyed had experienced at least one geographical change during their working careers (*The Mobility of Labour in England and Wales*, UK Social Survey, 1949.

3. " Labour Mobility in the United States " *International Labour Review*, March 1959. In a case study, "Employment Effects of a Plant Shutdown in a Depressed Area, " *Monthly Labour Review*, Oct. 1955, R. C. Wilcock writes: " property and personal ties rooted many to Mount Vernon despite unemployment, lower wages, and the necessity of making occupational and industrial shifts. "

ways of using it. In part, this involves a question of *how* it is to be used (occupational/industrial mobility) and in part, a question of where it is to be used (geographical mobility)."[1]

Rising employment levels have also been associated with a change in the rationale of geographic mobility. Reynolds in his 1951 study, writes:

" Movements between *areas*, like movements between employers, is typically of negative origin. It stems from a lack of adequate economic opportunity in one's present location . . . Once an individual's attachment to his home area has been disrupted in this way, his *direction* of movement seems to be determined largely by distance, by personal relationships, and by availability of jobs . . ."[2]

However, there is evidence that potential migrants have tended to become more aware of the differences in present and future prospects at home and elsewhere, and to document themselves, however vaguely, before deciding in which area to fix themselves. This may not be unrelated to the changing attitudes of young persons to which attention was drawn in Chapter V. A small but significant and growing amount of today's movement within and between countries is—or tends to be—" a calculated exodus decided on the basis of weighed and considered advisability."[3]

Discussing trends in Italian migration, Baglioni writes:

" Moreover, emigration in many cases is no longer determined, as in the past, by absolute necessity; the emigrant considers his home as the place he would like to live, if only a job, even with a modest wage, could be found there . . . the reasons for emigration to the industrial areas of the North are both economic and otherwise . . . agricultural manpower in the South migrates to the North not in quest of work in agriculture, even where employment in farming would offer concrete advantages, but rather in search of work in the secondary and tertiary sectors."[4]

But at the same time, in-migration to Northern Italy has coincided with emigration of Northern Italian labour to neighbouring countries, not for lack of employment opportunities, but because of the greater financial advantage associated with working abroad, temporarily or permanently. In some respects, this phenomenon corresponds with the inter-regional migrations of temporary workers which have long been a feature of the USA scene; but the movement also reflects the decisions of substantial numbers of workers who have decided to make a permanent career abroad. The striking point is that while historically, out-migration has been from depressed to more favoured areas in which employment could be had, some part of the observed movement of manpower within Europe today involves transfers of population from one relatively full employment zone to another, i.e. a reaction to existing earnings differentials as well as to employment opportunities.

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1. G. Routh, " Geographical Mobility of Manpower, " Report No. 2, *Joint International Seminar on Geographical and Occupational Mobility of Manpower*, Castelfusano, 19-23 Nov. 1963, sponsored by OECD.
2. L. G. Reynolds, *The Structure of Labour Markets, op. cit.*
3. V. R. Bauer, " La Premessa Culturale della Integrazione degli Immigrati in un Grande Centra Industriale " v.v. a.a. " *Immigrazione e Industria*, p. 111.
4. G. Baglione, " The Italian Workers Moving from the South to the North of Italy, " *Joint International Seminar on Geographical and Occupational Mobility of Manpower*, Castelfusano, 19th-23rd Nov. 1963, sponsored by OECD.

SUMMARY

The main points emerging from the discussion in the present chapter are summarised below:

1. The relationship between inter-regional earnings and employment developments is similar to that observed between inter-industrial earnings and employment. Earnings structures have not changed very greatly, and a generally similar rate of earnings advance has been associated with wide variations in the rate of employment growth.
2. There is a relatively strong positive statistical relationship between medium term changes in regional earnings and employment in manufacturing in certain of the countries studied, and an inverse relation between earnings levels and employment changes.
3. A positive statistical relationship is also found between migration and changes in earnings; and between migration and earnings (or income) levels.
4. These relationships suggest that low wages have acted as an inducement to expanding industries to fix themselves in the regions concerned. Simultaneously, low incomes and out-migration, and high incomes and in-migration appear to be associated. But the extent to which growing employment involves an increase in in-migration depends on the existing level of unemployment, and the relationship is further obscured by the fact that not all migrants are potential employees.
5. These associations are consistent with the pull of earnings prospects. They are also, particularly in a historical context, consistent with the pull of job opportunities; migration has also been from zones of low to high employment, and the unemployed are among the most mobile geographically.
6. Migration has also been in part a social phenomenon; explicable in terms of the attraction of city as against country life. But the drift from the land represents a movement from areas of low to areas of high income levels and growth, and this is felt to account for a significant proportion of the observed statistical relationships.
7. It would be wrong to suggest that relative earnings levels are irrelevant to geographical movements. Decisions to migrate which reflect the absence of sufficient employment opportunity nevertheless involve a choice of where to go. With equal chances of obtaining jobs, awareness of existing wage differentials is likely to influence the direction of the flow.
8. In more recent times, there is some evidence of migration between areas of relatively full employment in which differential wage advantage has had more influence.

STATISTICAL ANNEX

ORDER FORM (Please return to your bookseller or to O.E.C.D., 2, rue André-Pascal, Paris XVI[e], France).

Kindly forward _____ copy(ies) of the supplement to the report on "Wages and Labour Mobility" containing the abstracts from other earlier studies on the subject prepared for the Expert Group's work, and the basic statistical data used in the report.

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INTRODUCTORY NOTE

This annex is divided into three parts, containing:

Part 1. The full set of results which were used as the basis of the Expert Group's analysis of earnings and employment changes and related variables 152

Part 2. Definitions of the statistical series used to derive these results .. 227

Part 3. A description of the regularly published statistical material used in the study of gross labour flows. The relevant results were wholly reproduced in the text of the report, and are therefore not given again in annex. The corresponding definitions are therefore grouped separately so as to render crossreference between Parts 1 and 2 of the annex as easy as possible 255

The basic figures on which the results are based have not been reproduced; they would have involved the presentation of a further 80 or so pages of tables. They will however be supplied on request in a multigraph document which also contains the abstracts from the literature prepared during the course of the work. The attached form may be used to place your order for this document.

PART I

RESULTS OF STATISTICAL EXAMINATION

GUIDE TO CONTENTS

The various subjects examined are taken in the sequence below; within each subject the series order corresponds as far as possible to the order in which the definitions are presented in Part 2.

SUBJECT SEQUENCE

I. Earnings: Average Earnings, Earnings structure, Changes in Earnings and Variability of Change 152

II. Employment: Changes in Employment and Variability of Change 171

III. Correlation Coefficients 186

Simple (bivariate) coefficients 186

a) Changes in earnings and changes in employment
b) Changes in earnings and changes in employment lagged in either direction
c) Changes in earnings and changes in profits, lagged and unlagged
d) Changes in earnings and changes in production
e) Changes in earnings and concentration
f) Changes in earnings and profit rates
g) Changes in earnings and ratio of labour cost to turnover
h) Changes in earnings and earnings levels
i) Earnings structures at beginning and end of periods of variable length
j) Earnings levels and concentration
k) Earnings levels and profit rates
l) Earnings levels and ratio of labour costs to turnover.

Partial Coefficients 208

VARIABLES CORRELATED	VARIABLE(S) WHOSE INFLUENCE HELD CONSTANT
m) Changes in earnings and changes in employment	Earnings levels
n) Changes in earnings and changes in employment	Changes in profits
o) Changes in earnings and changes in employment	Concentration

p) Changes in earnings and changes in employment ..... Ratio of labour costs to turnover

q) Changes in earnings and changes in employment ..... Changes in production

r) Changes in earnings and changes in profits. Ratio of labour costs of turnover

s) Changes in earnings and ratio of labour costs to turnover ..... Changes in profits

t) Changes in earnings and changes in profits Changes in employment

u) Changes in earnings and changes in employment ..... Earnings levels and changes in profits

v) Changes in earnings and changes in employment ..... Earnings levels and changes in production

w) Changes in earnings and changes in employment ..... Earnings levels and concentration

x) Changes in earnings and changes in employment ..... Earnings levels and ratio of labour costs to turnover

Other Correlation Results 220

aa) Changes in employment and base year earnings (simple coefficients)

ab) Changes in employment and changes in profits (simple coefficients)

ac) Changes in employment and changes in production (simple coefficients)

ad) Changes in employment and changes in production, influence of changes in earnings held constant

Technical Remarks

The following technical points have bearing on the interpretation of the results.

Weighted and unweighted rates of change

Calculations of dispersion about the average rate of earnings and employment change were made giving each observation a weight of 1. Correspondingly, in I and II, the overall rate of change of earnings and employment is presented twice, once as the unweighted average of the rate of change observed in individual branches, and once taking account of the numbers employed in these branches. In general there is little difference between the results of the two calculations. In a limited number of cases, weighted calculations were made only in respect of the periods shown in Tables 3 and 8, and have not been repeated in the annex tables.

Statistical Significance

Coefficients of correlation which are significant at the 5 per cent level have been underlined.

Comparability

Footnotes in the tables draw attention to matters affecting the comparability of certain figures. Generally speaking the main difficulties met were (1) changes in countries' industry classifications over time (2) differences in the lists of industries (or regions) for which information was available for variables to be studied in conjunction. For example, it was often possible to study the relationship between profits and earnings only for a selection or aggregation of the industries for which the relationship between earnings and employment was examined (3) non-availability of a rate of change where a positive absolute figure had to be related to a subsequent negative figure (or vice versa). (4) Clear inconsistencies in the original data, discovered too late to be remedied. It was often possible to make rough estimates of the effect of incomparabilities, but the alternative figures are less solidly based and are not shown in these tables.

The Computation of Partial Correlation Coefficients

By reason of the data-processing methods used (automatic matching of observations prior to calculation of simple correlation coefficients), certain partial correlation coefficients are derived from simple coefficients which relate to non-identical sets of observations (see (2) above). These cases are noted in the appropriate tables.

In order to minimise the likelihood of using non-comparable results, bivariate coefficients were calculated for the full and restricted sets of observations for pairs of variables for which this option was available. The coefficients derived from the restricted set of observations were then compared with those from the full set. While partial correlation coefficients were calculated in all cases, irrespective of the underlying number of observations, and are shown in this annex, those based on non-identical sets of observations were used for analytical purposes only where the comparison of bivariate coefficients indicated that the full and restricted list coefficients gave substantially similar results.

Coding Conventions and Referencing

A 5-digit code is used to identify series. The two left hand positions identify the country; the middle one the nature of the series (1: earnings, 2: employment, 3 onwards: other variables). The last two positions are for specific series identification. In subject group III (Correlation Coefficients), the order of presentation is as in Table 27 of the main text. To identify component series in this section, Table 27 should be consulted first. This gives a general description of the component series. The more detailed definitions of the series will then be found in Part 2 of this annex under the component series code given in Table 27.

STATISTICAL TABLES

I. EARNINGS SERIES

AVERAGE EARNINGS, EARNINGS STRUCTURE, CHANGES IN EARNINGS AND VARIABILITY OF CHANGES

Changes at annual rates.

PERIOD LENGTH → / 1st YEAR ↓	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS				1 YEAR	3 YEARS	5 YEARS	
	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$					
1. USA: 10 SECTORS; ANNUAL COMPENSATION PER EMPLOYEE (IN $); REF. 02140																1. 1950 to 1960.
1948	2,832	0.24	3.0	2.2	1.36	1.1	5.0	0.22	1.1	5.1	0.22		2.4	5.4	5.3	
1949	2,894	0.24	2.5	5.1	0.48	1.5	6.2	0.24	1.3	5.2	0.24		5.9	6.4	5.3	
1950	3,054	0.25	2.8	8.0	0.35	1.4	6.0	0.24	1.0	5.1	0.11		7.9	6.1	5.1	
1951	3,302	0.26	1.2	5.5	0.22	1.3	4.3	0.30	1.2	4.5	0.26		5.6	4.3	4.6	
1952	3,485	0.26	2.0	4.7	0.21	1.3	4.0	0.33	1.1	4.3	0.26		5.0	4.1	4.4	
1953	3,663	0.27	1.9	2.8	0.67	1.3	4.1	0.31	1.1	4.1	0.26		2.3	4.1	4.0	
1954	3,772	0.27	1.7	4.5	0.38	1.1	4.7	0.23	0.9	4.6	0.20		4.9	4.9	4.6	
1955	3,951	0.28	1.8	4.9	0.36	1.2	4.4	0.26	0.8	4.5	0.18		5.1	4.3	4.4	
1956	4,162	0.29	0.8	4.7	0.17	0.8	4.5	0.18	0.7	4.2	0.16		4.7	4.4	3.9	
1957	4,360	0.29	1.9	3.5	0.26	0.8	4.3	0.19					3.1	4.0		
1958	4,518	0.29	1.0	5.4	0.19	0.6	4.2	0.15					5.3	3.9		
1959	4,768	0.29	1.0	4.0	0.25								3.7			
1960	4,957	0.29	0.9	3.2	0.28								2.8			
1961	5,120	0.29							0.8	4.8	0.17				4.8	
Whole period[1]																
2. USA: 61 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF PRODUCTION WORKERS (IN $); REF. 02100																NOTE. Weighted averages refer to all manufacturing figures, i.e. the 61 industries do not exhaust total manufacturing.
1951			1.7	4.6	0.37	1.4	4.2	0.33	1.0	4.2	0.24		5.8	4.5	4.6	
1952			2.2	5.1	0.43	1.6	3.8	0.42	1.1	4.1	0.27		5.5	4.1	4.4	
1953			1.9	2.8	0.68	1.0	3.8	0.26	1.0	3.7	0.27		2.3	3.9	3.9	
1954			1.9	3.4	0.56	0.9	4.3	0.21	1.0	3.9	0.26		4.5	4.8	4.2	
1955			1.5	5.3	0.28	1.0	4.2	0.24	0.8	3.9	0.21		4.8	4.3	4.0	
1956			1.3	4.1	0.32	1.2	3.7	0.32					5.1	3.9	3.5	
1957			1.7	3.2	0.53	1.0	3.3	0.30					2.9	3.3		
1958			1.6	3.7	0.43								3.8	3.2		
1959			1.3	3.0	0.43								3.2			
1960																

1948	1.32	0.14	1.8	4.1	0.44	1.0	5.4	0.18	1.0	5.2	0.20	3.8	5.5	5.5	1. 20 Industries only for the 5 year spans, where the branch "Ordinance and Accessories" is excluded (except for the weighted figures). 2. Average 1948-50 to average 1959-61.
1949	1.38	0.15	1.3	4.6	0.29	1.0	5.8	0.17	0.9	5.0	0.18	4.3	6.1	5.2	
1950	1.44	0.14	1.4	7.6	0.18	1.2	6.0	0.19	1.1	4.8	0.22	8.3	6.5	5.3	
1951	1.55	0.14	1.7	5.2	0.32	1.2	4.3	0.27	0.9	4.4	0.21	5.8	4.5	4.6	
1952	1.63	0.15	1.5	5.1	0.30	1.2	3.8	0.31	0.9	4.2	0.22	5.5	4.1	4.4	
1953	1.72	0.15	1.1	2.7	0.42	0.8	3.9	0.21	0.9	3.9	0.22	2.3	3.9	3.9	
1954	1.77	0.16	1.5	3.7	0.39	0.8	4.5	0.19	0.8	4.2	0.19	4.5	4.8	4.2	
1955	1.83	0.17	1.3	5.5	0.24	1.0	4.5	0.21	0.7	4.0	0.17	4.8	4.3	4.0	
1956	1.93	0.17	1.1	4.4	0.25	0.9	3.9	0.24	0.7	3.5	0.20	5.1	3.9	3.5	
1957	2.02	0.17	1.4	3.6	0.39	0.8	3.5	0.22				2.9	3.3		
1958	2.09	0.18	1.0	3.9	0.26	0.6	3.3	0.17				3.8	3.2		
1959	2.18	0.18	0.9	3.0	0.31							3.2			
1960	2.24	0.18	0.8	2.9	0.29							2.6			
1961	2.31	0.19													
Whole period									0.8	4.3	0.19			4.4	
Whole period[2]									0.8	4.4	0.18			4.6	

4. USA: 21 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF PRODUCTION WORKERS (IN $[1]); REF. 02120

1948	2,750	0.17	2.1[2]	0.8[2]	2.78[2]	1.6	5.8	0.27	1.4	5.7	0.24	0.4	6.1	6.1	1. Rounded to the nearest $10. 2. 20 Industries only; the branch "Products of Petroleum and Coal" is excluded (except for the weighted figures). 3. Average 1948-50 to average 1958-60.
1949	2,730[2]	0.16[2]	2.5[2]	8.4[2]	0.29[2]	1.8[2]	7.6[2]	0.23[2]	1.3[2]	5.7[2]	0.23[2]	8.7	8.1	6.0	
1950	3,010	0.17	4.6	8.5	0.54	2.0	6.4	0.31	1.3	5.1	0.26	9.4	7.2	5.4	
1951	3,270	0.19	1.9	5.9	0.32	1.2	4.0	0.30	0.8	4.4	0.17	6.1	4.0	4.5	
1952	3,470	0.19	1.9	5.0	0.38	1.2	3.8	0.31	0.8	4.0	0.21	6.0	3.9	4.1	
1953	3,650	0.20	2.0	1.0	1.93	0.9	3.7	0.24	0.8	3.7	0.22	0.0	3.5	3.4	
1954	3,680	0.20	2.7	5.5	0.48	1.0	4.7	0.20	0.7	4.5	0.15	5.7	4.9	4.4	
1955	3,890	0.20	1.9	4.8	0.40	1.1	4.1	0.26	0.8	3.7	0.21	4.9	3.9	3.7	
1956	4,070	0.20	1.9	3.9	0.48	0.8	4.1	0.19				4.2	3.9		
1957	4,240	0.21	2.3	3.5	0.64	1.2	3.3	0.36				2.6	3.1		
1958	4,390	0.21	1.5	4.8	0.32							4.8			
1959	4,600	0.21	2.1	1.6	1.35							2.0			
1960	4,670	0.21													
Whole period									0.8	4.4	0.18			4.5	
Whole period[2,3]									0.8	4.7	0.18			4.8	

5. USA: 21 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF NON-PRODUCTION WORKERS (IN $[1]); REF. 02130

1948	4,610	0.07	4.2	2.8	1.53	1.4	3.9	0.36	1.3	3.9	0.33	2.4	4.0	4.3	1. Rounded to the nearest $10. 2. Average 1948-50 to average 1958-60.
1949	4,730	0.07	5.5	2.3	2.42	1.7	4.2	0.40	1.1	4.0	0.28	2.8	4.7	4.4	
1950	4,840	0.08	5.3	7.1	0.75	2.1	5.0	0.43	1.0	4.7	0.21	6.9	5.4	5.0	
1951	5,170	0.07	2.1	3.7	0.57	1.0	3.7	0.26	1.1	4.2	0.26	4.3	4.2	4.7	
1952	5,360	0.08	3.9	4.3	0.88	1.1	4.2	0.25	1.0	3.9	0.24	4.9	4.5	4.3	
1953	5,590	0.08	2.7	3.2	0.84	1.7	4.3	0.39	1.1	3.5	0.31	3.2	4.7	3.8	
1954	5,760	0.07							0.9	4.0	0.21			4.4	

I. EARNINGS SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)											WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS									CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS						
1ST YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	1 YEAR	3 YEARS	5 YEARS	
5. USA, REF. 02130 *(continued)*															
1955	6,070	0.08	2.7	5.4	0.50	1.6	4.1	0.40	1.5	4.3	0.34	5.4	4.4	4.7	
1956	6,340	0.09	3.6	4.4	0.82	1.8	3.0	0.62	1.4	3.8	0.36	5.4	3.5	4.1	
1957	6,510	0.08	3.2	2.7	1.18	2.0	3.9	0.51				2.5	4.2		
1958	6,630	0.10	5.8	2.0	2.86	2.1	3.9	0.54				2.4	4.2		
1959	7,130	0.11	3.5	7.4	0.48							7.8			
1960	7,310	0.11	2.6	2.7	0.98							2.5			
Whole period ...															
Whole period[2] ...									0.9	3.9	0.23			4.2	
6. USA: 21 MANUFACTURING INDUSTRIES; ANNUAL COMPENSATION PER EMPLOYEE (IN $); REF. 02140															
1948	3,198	0.18	2.2	2.5	0.89	1.7	6.3	0.26	1.4	6.0	0.24	2.3	6.7	6.4	
1949	3,283	0.19	3.2	7.6	0.43	1.6	7.4	0.22	1.2	6.0	0.20	7.9	8.0	6.4	
1950	3,530	0.18	2.9	9.0	0.32	1.5	6.6	0.23	1.2	5.6	0.21	10.0	7.3	6.0	
1951	3,859	0.20	1.5	5.7	0.26	1.1	4.5	0.25	0.9	4.9	0.17	6.1	4.7	5.1	
1952	4,085	0.21	1.6	5.1	0.32	1.0	4.5	0.23	1.0	4.7	0.20	5.8	4.7	4.9	
1953	4,303	0.22	1.5	2.6	0.59	0.9	4.6	0.20	1.0	4.5	0.22	2.2	4.6	4.5	
1954	4,416	0.22	2.0	5.7	0.36	1.1	5.3	0.20	0.9	5.2	0.18	6.1	5.6	5.3	
1955	4,671	0.22	2.0	5.5	0.35	1.3	4.7	0.27	0.9	4.6	0.21	5.6	4.7	4.6	
1956	4,925	0.22	1.8	4.8	0.38	0.9	4.9	0.19	0.8	4.2	0.19	5.0	4.9	4.2	
1957	5,174	0.24	1.7	3.9	0.44	0.9	4.2	0.21				3.5	4.2		
1958	5,386	0.24	1.4	6.0	0.23	0.7	4.1	0.18				6.1	4.1		
1959	5,709	0.24	1.4	2.7	0.50							2.9			
1960	5,865	0.24	1.3	3.4	0.37							3.3			
1961	6,072	0.25													
Whole period[1] ...									0.9	5.1	0.18			5.3	
7. USA: 31 INDUSTRIES (21 MANUF.)[1]; HOURLY EARNINGS OF PRODUCTION WORKERS (IN $); REF. 02100															
1948	1.38	0.16	1.7	4.3	0.38	0.9	5.5	0.16	1.0	5.5	0.18				
1949	1.44	0.17	1.3	4.3	0.30	0.9	5.8	0.16	0.8	5.2	0.16				
1950	1.50	0.16	1.5	7.9	0.19	1.2	6.4	0.19	1.0	5.0	0.20				
1951	1.62	0.17	1.6	5.4	0.21	1.1	4.6	0.25	0.9	4.6	0.19				
1952	1.70	0.17	1.7	5.8	0.29	1.1	4.0	0.27	0.9	4.4	0.19				
1953	1.85	0.18	1.3	2.8	0.46	0.7	4.0	0.17	0.7	4.0	0.18				

1. 1950 to 1960.

1. Combination of the industries studied in two separate groups in sections 3 and 9.

1956	2.03	0.18	1.1	4.7	0.24	0.8	4.1	0.20	0.7	3.6	0.19				
1957	2.13	0.19	1.4	3.5	0.39	0.8	3.6	0.21							
1958	2.20	0.19	1.0	4.0	0.26	0.6	3.4	0.17							
1959	2.29	0.20	1.2	3.2	0.36										
1960	2.37	0.20	1.0	3.0	0.33										
1961	2.44	0.20													
Whole period									0.7	4.4	0.16				

8. USA: 60[1] INDUSTRIES (21 MANUF.)[2]; ANNUAL COMPENSATION PER EMPLOYEE (IN $); REF. 02140

1948	2,998	0.24	2.4[4]	3.1[4]	0.77[4]	1.8	5.4	0.33	1.6	5.4	0.30	2.4	5.4	5.3	
1949	3,091	0.24	3.7	5.9	0.63	1.9	6.3	0.31	1.6	5.5	0.28	5.9	6.4	5.3	
1950	3,281	0.25	3.6	7.5	0.48	2.1	6.0	0.34	1.3	5.3	0.25	7.9	6.1	5.1	
1951	3,535	0.26	2.2	5.8	0.38	1.4	4.7	0.31	1.1	4.8	0.23	5.6	4.3	4.6	
1952	3,743	0.27	2.5	4.8	0.51	1.5	4.4	0.34	1.1	4.6	0.25	5.0	4.1	4.4	
1953	3,932	0.28	3.2	3.5	0.91	1.3	4.4	0.30	1.2	4.4	0.26	2.3	4.1	4.0	
1954	4,073	0.28	2.2	4.9	0.44	1.3	4.9	0.28	1.1	4.8	0.22	4.9	4.9	4.6	
1955	4,276	0.28	2.5	4.9	0.51	1.4	4.6	0.31	1.0	4.5	0.22	5.1	4.3	4.4	
1956[1]	4,502	0.28	1.7	4.8	0.36	1.1	4.7	0.23	0.9	4.2	0.21	4.7	4.4	3.9	
1957[1]	4,722	0.29	2.1	4.0	0.53	1.0	4.3	0.23				3.1	4.0		
1958[1]	4,915	0.29	2.0	5.5	0.34	1.1	4.2	0.26				5.3	3.9		
1959[1]	5,194	0.29	1.9	3.5	0.54							3.7			
1960[1]	5,366	0.29	2.3	3.5	0.66							2.8			
1961[1]	5,567	0.30													
Whole period[1,3]									1.0	4.9	0.20			4.8	

1. For comparisons which include the years 1956 to 1961, 58 industries only. (The branches "Wholesale Trade" and "Retail Trade" are excluded.)
2. Combination of 2-digit industries studied in sections 6 and 10, with a further single observation for the total of the sectors agriculture, mining and construction.
3. 1950 to 1960.
4. 59 Observations only; the sector "Agriculture" is excluded.

NOTE. Weighted averages relate to all industries figures.

9. USA: 10 NON-MANUFACTURING INDUSTRIES AND TOTAL MANUFACTURING; HOURLY EARNINGS OF PRODUCTION WORKERS (IN $); REF. 02100

1948	1.47	0.17	1.2	4.8	0.26	0.5	5.6	0.09	0.6	5.9	0.09				
1949	1.54	0.17	0.9	3.6	0.24	0.7	6.0	0.12	0.5	5.6	0.10				
1950	1.59	0.17	1.4	8.6	0.16	0.9	7.1	0.12	0.6	5.5	0.10				
1951	1.73	0.17	1.3	5.9	0.22	0.8	5.2	0.15	0.4	5.0	0.09				
1952	1.89	0.17	1.2	6.9	0.18	0.7	4.4	0.15	0.4	4.9	0.08				
1953	1.96	0.17	1.5	3.0	0.49	0.2	4.1	0.06	0.2	4.2	0.06				
1954	2.02	0.17	1.1	3.5	0.31	0.7	4.8	0.15	0.5	4.4	0.10				
1955	2.09	0.17	1.5	5.8	0.26	0.5	4.8	0.10	0.4	4.4	0.09				
1956	2.21	0.17	0.9	5.3	0.17	0.4	4.3	0.09	0.5	3.4	0.14				
1957	2.33	0.18	1.3	3.4	0.37	0.7	3.7	0.18							
1958	2.41	0.17	1.0	4.2	0.25	0.6	3.6	0.16							
1959	2.51	0.18	1.4	3.5	0.40										
1960	2.59	0.18	1.2	3.1	0.38										
1961	2.67	0.17													
Whole period									0.3	4.7	0.07				
Whole period[1]									0.3	4.9	0.06				

1. Average 1948-50 to average 1959-61.

I. EARNINGS SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1st YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
10. USA: 36[1] SERVICE INDUSTRIES; ANNUAL COMPENSATION PER EMPLOYEE (IN $); REF. 02140																
1948	2,903	0.25	2.1	3.7	0.56	1.7	4.9	0.35	1.6	5.0	0.32		4.2	4.6	4.6	1. For comparisons which include the years 1956 to 1961, 32 industries only; the branches "Wholesale Trade" and "Retail Trade" are excluded (except for the weighted figures). 2. 1950 to 1960.
1949	3,012	0.25	3.6	4.9	0.73	1.8	5.6	0.32	1.6	5.2	0.32		4.1	5.0	4.5	
1950	3,171	0.27	3.5	6.2	0.56	2.2	5.6	0.40	1.3	5.0	0.26		5.6	5.0	4.5	
1951	3,374	0.28	2.5	5.9	0.43	1.5	4.9	0.31	1.1	4.8	0.24		5.2	4.2	4.3	
1952	3,574	0.28	2.8	4.7	0.59	1.6	4.4	0.36	1.1	4.5	0.25		4.1	3.8	4.2	
1953	3,746	0.29	3.7	4.2	0.88	1.4	4.4	0.32	1.2	4.5	0.26		3.3	4.1	4.2	
1954	3,910	0.29	2.1	4.4	0.47	1.4	4.6	0.30	1.1	4.7	0.23		4.2	4.2	4.5	
1955	4,086	0.29	2.7	4.7	0.59	1.5	4.5	0.32	1.1	4.6	0.22		4.8	4.5	4.5	
1956[1]	4,285	0.29	1.6	4.8	0.34	1.2	4.7	0.24	1.0	4.4	0.22		4.7	4.5	4.1	
1957[1]	4,489	0.29	2.2	4.3	0.52	1.0	4.5	0.23					4.2	4.3		
1958[1]	4,683	0.29	2.3	5.3	0.43	1.3	4.3	0.30					4.6	3.9		
1959[1]	4,939	0.30	2.1	3.9	0.53								4.1			
1960[1]	5,119	0.29	2.8	3.6	0.78								3.0			
1961[1]	5,324	0.30														
Whole period[1,2]									1.0	4.8	0.20				4.4	
11. USA: 51 STATES; ANNUAL EARNINGS PER EMPLOYEE IN MANUFACTURING (IN $); REF. 02150																
1947	2,638	0.16	2.8	9.5	0.29	1.2	6.0	0.20	1.0	6.7	0.16		8.8	5.7	6.5	
1948	2,892	0.17	2.5	2.0	1.25	1.7	5.9	0.28	1.2	5.8	0.21		1.8	5.9	5.9	
1949	2,948	0.16	2.1	6.8	0.32	1.3	7.4	0.17	1.0	5.9	0.17		6.8	7.4	5.9	
1950	3,142	0.15	2.4	9.0	0.27	1.2	6.9	0.18	0.9	5.6	0.17		9.4	7.1	5.7	
1951	3,426	0.15	2.3	6.5	0.35	1.1	4.6	0.23	0.9	4.8	0.19		6.1	4.5	4.9	
1952	3,653	0.16	1.8	5.1	0.36	1.1	4.1	0.26	0.8	4.4	0.19		5.7	4.4	4.5	
1953	3,839	0.16	1.7	2.2	0.78	0.9	4.2	0.21	0.8	4.1	0.19		1.6	4.1	4.0	
1954	3,921	0.16	1.7	5.1	0.33	1.0	4.9	0.21	0.7	4.7	0.15		5.7	5.0	4.8	
1955	4,121	0.16	3.0	5.3	0.56	1.1	4.4	0.25	0.9	4.3	0.20		5.1	4.3	4.2	
1956	4,344	0.17	2.0	4.3	0.47	1.0	4.4	0.23	0.7	3.9	0.19		4.2	4.4	3.7	
1957	4,527	0.16	2.0	3.6	0.56	0.8	3.9	0.21					3.5	3.8		
1958	4,690	0.16	1.2	5.3	0.22	0.9	3.8	0.22					5.6	3.5		
1959	4,938	0.16	2.0	2.8	0.72								2.5			
1960	5,081	0.17	1.2	3.5	0.35								2.6			
1961	5,256	0.17														

1950	44.29	0.15	2.7	10.3	0.26	1.8	8.3	0.22	0.7	6.3	0.12	11.0	8.5	6.3	1. Average 1950-52 to average 1959-61.
1951	48.89	0.15	3.1	8.7	0.36	0.9	6.0	0.16	0.8	5.5	0.15	8.7	5.7	5.2	
1952	53.20	0.16	1.6	6.1	0.27	0.8	4.3	0.19	0.6	5.0	0.12	5.7	3.9	4.5	
1953	56.38	0.16	1.3	3.3	0.39	0.6	4.3	0.14	0.5	4.6	0.12	2.6	3.9	4.1	
1954	58.18	0.16	1.3	3.5	0.36	0.8	5.2	0.16	0.7	4.8	0.14	3.4	4.8	4.5	
1955	60.20	0.16	1.9	6.0	0.31	0.7	5.4	0.12	0.6	4.8	0.12	5.5	4.9	4.4	
1956	63.82	0.16	1.0	6.0	0.16	0.9	4.8	0.19	0.6	4.3	0.15	5.4	4.5	3.9	
1957	67.71	0.16	1.4	4.2	0.32	0.9	4.1	0.22				3.7	3.7		
1958	70.55	0.16	1.8	4.1	0.43	0.7	3.7	0.19				4.3	3.5		
1959	73.48	0.16	1.0	3.8	0.25							3.2			
1960	76.28	0.16	0.8	3.3	0.23							3.0			
1961	78.75	0.16													
Whole period[1]									0.5	5.1	0.09			4.8	

13*a*. CANADA: 17 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01100

1949	1.06	0.11	1.7	7.3	0.23	1.3	9.4	0.14	1.1	7.2	0.15	6.5	9.4	7.1	1. Average 1949-51 to average 1958-60.
1950	1.14	0.12	3.9	14.9	0.26	1.3	8.5	0.15	1.1	6.3	0.17	14.9	8.8	6.6	
1951	1.31	0.13	2.0	6.3	0.32	1.1	4.7	0.23	0.8	4.6	0.17	6.9	4.8	4.8	
1952	1.40	0.13	1.5	4.6	0.33	1.0	3.7	0.28	0.8	4.4	0.19	5.0	3.9	4.6	
1953	1.46	0.13	1.4	3.2	0.45	0.8	4.0	0.20	0.7	4.1	0.16	2.7	4.1	4.1	
1954	1.51	0.14	1.6	3.2	0.49	0.9	4.7	0.18	0.7	4.3	0.16	4.0	5.0	4.5	
1955	1.56	0.15	1.1	5.7	0.20	0.6	4.7	0.12	0.5	4.3	0.12	5.7	4.7	4.2	
1956	1.65	0.15	1.8	5.2	0.35	0.8	4.3	0.18				5.4	4.2		
1957	1.73	0.15	0.9	3.4	0.28	0.6	3.6	0.16				2.9	3.3		
1958	1.79	0.15	1.4	4.2	0.32							4.4			
1959	1.87	0.16	1.3	3.1	0.43							2.7			
Whole period[1]									0.8	5.2	0.14			5.3	

13*b*. CANADA: 17 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01110

1949	46.84	0.10	2.2	7.4	0.30	1.0	8.6	0.11	1.0	6.2	0.16	7.6	8.7	6.2	1. Average 1949-51 to average 1958-60.
1950	50.31	0.11	6.2	10.9	0.57	1.6	7.1	0.23	1.0	5.7	0.17	10.9	7.2	5.6	
1951	55.91	0.14	4.1	8.0	0.52	1.2	4.3	0.28	0.7	4.6	0.14	7.8	4.3	4.6	
1952	60.13	0.12	2.6	2.8	0.91	1.0	3.3	0.29	0.9	3.4	0.26	3.1	3.2	3.5	
1953	61.94	0.13	2.2	2.4	0.91	0.6	4.1	0.15	0.5	3.8	0.13	2.0	4.1	3.7	
1954	63.47	0.13	2.8	4.8	0.59	1.0	4.0	0.25	0.6	4.3	0.14	4.5	4.1	4.4	
1955	66.46	0.13	1.3	5.1	0.25	0.7	3.9	0.19	0.7	3.7	0.18	5.7	3.9	3.7	
1956	69.84	0.13	3.3	2.2	1.50	1.0	3.9	0.25				2.2	3.9		
1957	71.49	0.15	2.0	4.5	0.44	0.7	3.8	0.19				3.9	3.6		
1958	74.60	0.14	1.5	5.1	0.28							5.6			
1959	78.49	0.14	1.8	2.0	0.91							1.4			
Whole period[1]									0.6	4.7	0.12			4.7	

I. EARNINGS SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1st YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
14. CANADA: 17 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE SALARIED EMPLOYEES (IN $); REF. 01105																
1949	65.05	0.08	1.6	6.0	0.26	2.3	8.3	0.28	1.2	7.0	0.17		6.1	8.1	6.8	1. Average 1949-51 to average 1958-60.
1950	68.94	0.07	2.5	12.1	0.21	2.1	7.8	0.27	1.4	6.2	0.23		11.8	7.6	6.2	
1951	77.28	0.08	6.7	7.0	0.95	1.8	5.6	0.33	1.3	4.9	0.27		6.5	5.5	5.0	
1952	82.77	0.11	1.6	4.7	0.35	1.1	4.1	0.26	0.8	4.8	0.17		4.6	4.2	4.8	
1953	86.59	0.10	1.5	5.4	0.28	0.8	4.4	0.18	0.6	4.4	0.14		5.3	4.6	4.6	
1954	91.22	0.10	1.7	2.4	0.71	0.7	4.6	0.14	0.7	4.2	0.18		2.8	4.8	4.4	
1955	93.47	0.11	1.5	5.3	0.29	0.9	4.8	0.19	0.6	4.4	0.13		5.9	5.0	4.5	
1956	98.41	0.11	2.3	6.2	0.37	0.9	4.5	0.21					5.6	4.4		
1957	104.50	0.11	2.5	3.0	0.82	0.9	3.5	0.26					3.5	3.6		
1958	107.61	0.11	2.2	4.4	0.50								4.1			
1959	112.33	0.11	1.1	3.3	0.33								3.2			
1960	116.08	0.12														
Whole period[1]									0.8	5.3	0.15				5.3	
15. CANADA: 17 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS PER EMPLOYEE (IN $); REF. 01140																
1950	46.68	0.16	2.3	10.7	0.21	1.0	8.1	0.13	0.8	6.3	0.12		11.2	8.4	6.4	1. Average 1950-52 to average 1959-61.
1951	51.75	0.17	1.6	8.9	0.19	0.7	5.7	0.13	0.6	5.1	0.12		9.1	5.8	5.2	
1952	56.40	0.18	1.2	5.0	0.23	0.6	4.0	0.14	0.6	4.3	0.15		5.2	4.0	4.4	
1953	59.24	0.18	1.1	3.3	0.32	0.7	3.9	0.17	0.6	4.2	0.14		3.1	4.0	4.2	
1954	61.22	0.18	0.7	3.8	0.19	0.7	4.5	0.16	0.6	4.4	0.13		3.8	4.6	4.4	
1955	63.58	0.18	1.0	4.6	0.22	0.7	4.6	0.14	0.6	4.3	0.13		5.1	4.6	4.3	
1956	66.57	0.19	1.3	5.0	0.25	0.7	4.6	0.16	0.5	4.1	0.11		4.8	4.4	3.9	
1957	69.98	0.19	1.0	4.2	0.25	0.5	4.0	0.13					3.9	3.8		
1958	72.91	0.19	1.2	4.5	0.26	0.4	3.8	0.11					4.4	3.6		
1959	76.30	0.20	1.0	3.3	0.30								3.1			
1960	78.86	0.20	0.8	3.5	0.22								3.2			
1961	81.59	0.20														
Whole period[1]									0.5	4.8	0.11				4.8	
16. CANADA: 53 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS PER EMPLOYEE (IN $); REF. 01140																
1950[1]	46.46	0.16	2.5	10.1	0.25	1.5	7.8	0.19	1.1	6.0	0.18		11.2	8.5	6.4	1. 50 observations only.
1951[1]	51.24	0.17	2.9	8.6	0.33	1.2	5.5	0.22	1.0	4.9	0.19		9.1	5.8	5.2	

1955	62.05	0.19	1.4	4.5	0.31	0.9	4.6	0.20	0.7	4.2	0.16	5.1	4.6	4.3	
1956	64.89	0.19	1.7	4.8	0.36	0.9	4.5	0.19	0.7	4.0	0.17	4.8	4.4	3.9	
1957	68.01	0.20	1.5	4.4	0.34	0.8	4.0	0.21				3.9	3.8		
1958	71.00	0.20	1.6	4.5	0.36	0.9	3.7	0.23				4.4	3.6		
1959	74.24	0.20	1.5	3.1	0.47							3.1			
1960	76.58	0.21	1.1	3.5	0.32							3.3			
1961	79.30	0.21													
Whole period[1]									0.7	7.0	0.14			5.2	

17. CANADA: 33 TO 38 INDUSTRIES[1] (17 MANUFACTURING); WEEKLY EARNINGS PER EMPLOYEE (IN $); REF. 01140

1950	45.58[3]	0.17[3]	2.3[3]	9.8[3]	0.24[3]	1.1[3]	7.8[3]	0.14[3]	0.8[6]	6.2[6]	0.13[6]				
1951	50.16[3]	0.18[3]	2.4[3]	8.5[3]	0.28[3]	1.0[3]	5.8[3]	0.17[3]	0.7[6]	5.1[6]	0.14[6]				
1952	54.49[3]	0.19[3]	1.9[3]	5.2[3]	0.36[3]	0.8[6]	4.2[6]	0.20[6]	0.7[6]	4.5[6]	0.15[6]				
1953	57.14[4]	0.18[4]	1.6[4]	3.7[4]	0.43[4]	0.9[3]	4.1[3]	0.23[3]	0.8[3]	4.4[3]	0.17[3]				
1954	59.66[3]	0.18[3]	0.9[3]	3.9[3]	0.24[3]	0.8[3]	4.6[3]	0.18[3]	0.7[6]	4.6[6]	0.14[6]				
1955	60.19	0.21	2.2	4.8	0.46	1.3	4.9	0.26	0.9[5]	4.6[5]	0.19[5]				
1956	63.03	0.21	1.3	5.4	0.23	0.9[5]	4.8[5]	0.19[5]	0.8[5]	4.3[5]	0.18[5]				
1957	66.45	0.21	1.7	4.6	0.38	0.9[5]	4.3[5]	0.20[5]							
1958	69.49	0.22	1.3[5]	4.7[5]	0.27[5]	0.8[5]	4.0[5]	0.21[5]							
1959	72.92	0.22	1.3	3.6	0.36										
1960	75.54	0.22	1.1	3.6	0.31										
1961	78.24	0.22													
Whole period[2]									0.6[6]	4.9[6]	0.11[6]				

1. Combination of industries studied in sections 15 and 18.
2. Average 1950-52 to average 1959-61.
3. 34 observations.
4. 35 observations.
5. 37 observations.
6. 33 observations.

18. CANADA: 16 TO 21 SERVICE INDUSTRIES; WEEKLY EARNINGS PER EMPLOYEE (IN $); REF. 01140

1950	44.48[2]	0.17[2]	2.0[2]	8.9[2]	0.22[2]	1.1[2]	7.5[2]	0.14[2]	0.8[5]	6.0[5]	0.14[5]				
1951	48.51[2]	0.18[2]	2.9[2]	8.2[2]	0.35[2]	1.1[2]	5.8[2]	0.20[2]	0.8[5]	5.2[5]	0.15[5]				
1952	52.58[2]	0.19[2]	2.3[2]	5.4[2]	0.43[2]	1.0[5]	4.4[5]	0.23[5]	0.7[5]	4.7[5]	0.14[5]				
1953	55.16[3]	0.18[3]	1.9[3]	4.2[3]	0.45[3]	1.1[2]	4.3[2]	0.26[2]	0.8[2]	4.7[2]	0.18[2]				
1954	58.10[2]	0.18[2]	1.1[2]	3.9[2]	0.28[2]	0.9[2]	4.8[2]	0.19[2]	0.7[5]	4.8[5]	0.14[5]				
1955	57.44	0.22	2.8	4.9	0.57	1.6	5.1	0.30	1.0[4]	4.8[4]	0.21[4]				
1956	60.17	0.22	1.1	5.7	0.20	1.0[4]	5.1[4]	0.19[4]	0.9[4]	4.5[4]	0.20[4]				
1957	63.59	0.22	2.1	4.8	0.43	1.0[4]	4.5[4]	0.23[4]							
1958	66.72	0.23	1.3[4]	4.8[4]	0.28[4]	1.1[4]	4.1[4]	0.26[4]							
1959	70.19	0.23	1.5	3.8	0.38										
1960	72.85	0.23	1.4	3.7	0.37										
1961	75.52	0.23													
Whole period[1]									0.6[5]	5.0[5]	0.11[5]				

1. Average 1950-52 to average 1959-61.
2. 17 observations.
3. 18 observations.
4. 20 observations.
5. 16 observations.

19. CANADA: 17 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE OFFICE AND CLERICAL WORKERS[1] (IN $); REF. 01106

1951	60.27	0.08				1.9	4.4	0.44	0.8[2]	4.4[2]	0.19[2]		5.4	5.0[2]	
1954	68.52	0.09				0.9	3.4	0.24					4.6		

1. Break in comparability in 1959.
2. 1951 to 1957.

I. EARNINGS SERIES *(concluded)*

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1st YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
19. CANADA, REF. 01106 *(continued)*																
1957	78.28	0.09														
1959	80.92	0.10	2.1	3.3	0.63								2.8			
1960	83.57	0.10														
20. CANADA: 17 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE MANAGERIAL AND PROFESSIONAL EMPLOYEES[1] (IN $); REF. 01107																
1951	99.14	0.09				2.6	3.9	0.67	1.5[2]	4.1[2]	0.37[2]			3.7	4.0[2]	1. Break in comparability in 1959.
1954	111.16	0.11				1.1	4.2	0.26						4.4		2. 1951-1957.
1957	126.03	0.12														
1959	129.47	0.12											3.1			
1960	133.90	0.13	1.3	3.4	0.39											
21. CANADA: 10 PROVINCES; ANNUAL EARNINGS PER EMPLOYEE (IN $); REF. 01150																
1949[1]	1,995	0.16	1.4	5.1	0.27	0.8	8.0	0.10	0.6	6.6	0.10					1. 9 observations only; the Province of Newfoundland is excluded.
1950[1]	2,095	0.16	1.7	10.5	0.16	0.5	8.5	0.06	0.6	6.3	0.09					
1951	2,323	0.16	1.9	7.9	0.23	0.9	5.8	0.15	0.6	5.3	0.12					
1952	2,507	0.16	1.8	6.2	0.28	0.7	4.2	0.16	0.5	4.9	0.11					
1953	2,658	0.15	3.0	3.5	0.86	0.8	4.1	0.20	0.6	4.5	0.13					
1954	2,755	0.16	1.6	3.1	0.53	0.6	5.0	0.12	0.8	4.7	0.17					
1955	2,841	0.17	0.9	5.8	0.15	0.8	5.2	0.16								
1956	3,007	0.16	1.6	6.1	0.27	0.9	4.8	0.18								
1957	3,186	0.16	2.5	3.8	0.66											
1958	3,310	0.17	1.0	4.6	0.22											
1959	3,461	0.17														
Whole period[1]									0.4	5.7	0.08					
***22a.* MONTREAL: 16 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01180**																
1949[1]	1.02	0.14	3.2	7.6	0.42	1.4	8.8	0.16	1.4	7.0	0.19		4.8	9.1	6.9	1. 14 Industries only; the branches "Furniture" and "Non-metallic mineral products" are excluded.
1950[1]	1.10	0.14	3.9	11.7	0.34	1.8	8.1	0.22	1.3	6.2	0.21		14.7	9.2	6.7	2. Average 1949-51 to average 1958-60.
1951[1]	1.23	0.15	3.2	7.3	0.44	1.9	5.3	0.36	1.3	5.0	0.27		8.0	5.1	5.1	NOTE. Weighted averages refer to all manufacturing figures, i.e. the 16 indus-
1952	1.30	0.15	3.8	5.3	0.71	1.6	4.0	0.41	1.3	4.6	0.28		5.2	3.8	4.3	
1953	1.37	0.16	2.9	3.6	0.82	1.1	4.2	0.26	1.0	4.4	0.23		2.1	4.1	4.0	
1954	1.41	0.15	2.6	3.3	0.78	1.0	4.7	0.21	0.9	4.6	0.20		4.1	4.8	4.5	
1955	1.46	0.16	2.4	5.6	0.43	1.3	5.0	0.26	1.1	4.6	0.23		6.0	4.6	4.3	

1958	1.69	0.16	2.1	4.9	0.43							4.6			
1959	1.77	0.17	2.1	3.2	0.64							2.8			
Whole period[1,2]									1.0	5.4	0.18			5.3	

22*b*. MONTREAL: 16 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01181

1949[1]	45.92	0.11	2.9	6.7	0.43	1.4	8.2	0.18	1.3	5.5	0.23	6.3	8.6	5.9	
1950[1]	48.95	0.11	8.0	7.7	1.04	1.7	6.7	0.26	1.0	5.6	0.18	10.4	7.7	6.1	
1951[1]	52.99	0.16	8.2	10.9	0.75	1.8	4.6	0.39	1.6	5.1	0.32	9.2	4.3	5.2	
1952	57.63	0.12	3.8	2.6	1.47	1.5	3.5	0.43	1.0	3.5	0.29	3.7	3.6	3.5	
1953	59.24	0.14	3.6	1.7	2.11	1.1	4.4	0.24	0.8	4.0	0.19	0.3	4.4	3.5	
1954	60.29	0.15	5.8	6.6	0.87	1.4	4.6	0.30	1.0	4.7	0.21	7.0	4.5	4.6	
1955	64.00	0.13	2.6	5.2	0.51	1.6	4.0	0.39	1.1	3.8	0.29	5.9	3.4	3.5	
1956	67.27	0.13	3.8	2.2	1.74	1.7	4.0	0.43				0.6	3.3		
1957	68.73	0.14	2.3	4.9	0.48	1.2	3.9	0.31				3.7	3.6		
1958	72.05	0.14	2.7	5.1	0.53							5.7			
1959	75.82	0.15	2.8	1.9	1.50							1.4			
Whole period[1,2]									0.6	4.9	0.12			4.8	

1. 14 Industries only; the branches "Furniture" and "Non-metallic mineral products" are excluded.
2. Average 1949-51 to average 1958-60.
NOTE. Weighted averages refer to all manufacturing figures, i.e. the 16 industries do not exhaust total manufacturing.

23. MONTREAL: 16 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE SALARIED EMPLOYEES (IN $); REF. 01185

1949[1]	64.06	0.10	4.4	4.5	0.97	1.5	6.6	0.22	1.1	6.0	0.18	5.1	7.3	6.6	
1950[1]	66.95	0.11	4.1	11.0	0.38	1.4	7.3	0.20	1.2	5.9	0.21	11.4	7.5	6.3	
1951[1]	74.26	0.11	3.0	4.8	0.63	1.1	5.0	0.23	1.1	4.8	0.24	5.6	5.5	5.3	
1952	77.85	0.10	2.8	5.9	0.47	1.5	4.4	0.33	0.7	4.9	0.15	5.6	4.9	5.2	
1953	82.45	0.10	3.5	3.9	0.90	1.3	4.2	0.31	0.7	4.6	0.14	5.3	5.1	4.9	
1954	85.66	0.11	2.7	3.6	0.76	0.8	4.9	0.16	0.9	4.8	0.19	3.9	5.0	4.8	
1955	88.78	0.12	3.5	5.3	0.65	1.5	5.2	0.29	0.9	4.9	0.18	6.1	5.1	4.7	
1956	93.50	0.12	4.5	6.1	0.73	1.5	5.0	0.29				5.1	4.7		
1957	99.00	0.11	3.9	4.3	0.91	1.5	4.4	0.35				4.2	4.0		
1958	103.13	0.11	2.7	4.9	0.54							4.8			
1959	108.32	0.12	3.1	4.1	0.76							3.1			
1960	112.47	0.11													
Whole period[1,2]									0.5	5.3	0.09			5.4	

1. 14 Industries only; the branches "Furniture" and "Non-metallic mineral products" are excluded.
2. Average 1949-51 to average 1958-60.
NOTE. Weighted averages refer to all manufacturing figures, i.e. the 16 industries do not exhaust total manufacturing.

24*a*. TORONTO: 13 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01190

1949[1]	1.12	0.12	2.2	8.3	0.26	1.7	9.5	0.17	1.2	7.2	0.17	8.8	10.1	7.7	
1950[1]	1.22	0.13	4.5	13.6	0.33	1.6	8.2	0.20	1.2	6.0	0.19	14.6	8.9	6.3	
1951[1]	1.38	0.13	2.3	6.9	0.33	1.2	4.8	0.24	0.7	4.5	0.16	7.1	5.2	4.5	
1952[1]	1.48	0.14	1.4	4.5	0.32	0.9	3.3	0.28	0.7	4.0	0.17	5.3	3.4	3.9	
1953	1.54	0.13	1.4	3.1	0.44	0.7	3.7	0.20	0.7	3.8	0.18	3.1	3.4	3.5	
1954	1.59	0.13	1.4	2.3	0.60	0.7	4.0	0.18	0.9	3.9	0.22	1.8	3.7	3.5	
1955	1.63	0.14	2.0	5.7	0.34	1.1	4.5	0.25	0.8	3.9	0.20	5.4	4.2	3.7	
1956	1.72	0.13	1.5	4.1	0.37	1.2	3.8	0.31				4.0	3.5		

1. 12 industries only; the branch "Non-ferrous metal products" is excluded.
2. Average 1949-51 to average 1958-60.
NOTE. The weighted averages refer to all manufacturing figures, i.e. the 13 industries do not exhaust total manufacturing.

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1ST YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
24a. TORONTO, REF. 01190 *(continued)*																
1957	1.79	0.13	2.0	3.7	0.55	1.0	3.2	0.30					3.3	3.0		
1958	1.85	0.12	3.2	3.7	0.87								3.2			
1959	1.92	0.12	1.1	2.4	0.45								2.6			
Whole period[1,2]									0.6	5.0	0.12				5.0	
24b. TORONTO: 13 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE WAGE-EARNERS (IN $); REF. 01191																
1949[1]	48.50	0.09	3.1	7.6	0.40	1.7	9.0	0.19	1.1	6.5	0.17		8.8	9.9	7.1	1. 12 industries only; the branch "Non-ferrous metal products" is excluded. 2. Average 1949-51 to average 1958-60. NOTE. The weighted averages refer to all manufacturing figures, i.e. the 13 industries do not exhaust total manufacturing.
1950[1]	52.22	0.10	4.3	10.6	0.41	1.4	7.5	0.19	0.9	5.6	0.15		11.3	8.2	6.0	
1951[1]	57.79	0.11	3.4	9.0	0.37	1.1	4.8	0.23	0.6	4.8	0.12		9.6	5.1	4.8	
1952[1]	62.98	0.11	2.7	3.1	0.87	1.2	2.9	0.41	0.9	3.0	0.30		4.0	3.2	3.1	
1953	64.99	0.11	2.0	2.6	0.79	1.1	3.9	0.28	0.6	3.5	0.18		2.0	3.5	3.3	
1954	66.59	0.10	1.8	3.2	0.57	1.0	3.1	0.33	0.8	3.8	0.20		3.6	3.1	3.6	
1955	68.77	0.11	2.8	5.9	0.47	0.8	4.0	0.21	0.7	3.4	0.19		5.1	3.6	3.2	
1956	72.80	0.11	3.4	0.5	7.19	1.3	3.4	0.39					0.7	3.0		
1957	73.15	0.12	2.4	5.3	0.41	1.4	3.6	0.38					5.1	3.4		
1958	77.24	0.10	3.2	4.0	0.80								3.4			
1959	80.25	0.10	2.2	1.1	2.06								1.8			
Whole period[1,2]									0.5	4.6	0.10				4.7	
25. TORONTO: 13 MANUFACTURING INDUSTRIES; WEEKLY EARNINGS OF MALE SALARIED EMPLOYEES (IN $); REF. 01195																
1949[1]	63.67	0.07	6.0	9.4	0.64	2.4	9.4	0.26	1.5	7.3	0.20		8.5	9.8	7.8	1. 12 industries only; the branch "Non-ferrous metal products" is excluded. 2. Average 1949-51 to average 1958-60. NOTE. The weighted averages refer to all manufacturing figures, i.e. the 13 industries do not exhaust total manufacturing.
1950[1]	69.56	0.07	3.5	12.4	0.28	1.5	7.4	0.21	1.1	5.9	0.19		12.0	8.4	6.8	
1951[1]	78.27	0.09	4.7	6.6	0.71	2.4	5.1	0.48	1.5	4.5	0.34		9.1	6.2	5.5	
1952[1]	83.24	0.08	2.0	3.7	0.53	1.6	3.7	0.42	1.1	4.3	0.25		4.3	4.4	4.7	
1953	86.97	0.07	3.6	5.1	0.71	1.5	3.9	0.40	1.1	4.3	0.24		5.4	4.8	4.8	
1954	91.27	0.06	3.3	2.7	1.24	1.0	4.2	0.23	1.1	4.1	0.26		3.5	4.6	4.5	
1955	93.70	0.07	3.3	4.1	0.82	1.2	4.7	0.26	1.1	4.3	0.25		5.5	5.0	4.6	
1956	97.48	0.07	2.8	6.1	0.46	1.0	4.5	0.22					5.0	4.4		
1957	103.37	0.07	2.6	4.0	0.65	1.4	3.8	0.37					4.6	4.2		
1958	107.50	0.07	2.3	3.5	0.67								3.8			
1959	111.19	0.06	3.3	4.0	0.83								4.1			
1960	115.75	0.08														

1950	1.25	0.14	2.4	15.3	0.16	1.1	8.5	0.13	0.9	6.9	0.13	15.6	8.6	7.1	
1951	1.44	0.15	1.8	6.0	0.30	0.9	4.5	0.20	0.8	5.9	0.13	6.8	4.5	6.0	
1952	1.53	0.16	1.4	4.4	0.31	0.8	4.6	0.18	0.7	6.6	0.10	3.8	4.4	6.6	
1953	1.59	0.16	1.0	3.2	0.33	0.8	6.4	0.12	0.6	7.4	0.08	3.0	6.5	7.4	
1954	1.65	0.17	1.3	6.3	0.22	0.8	8.6	0.09	0.6	8.0	0.07	6.5	8.7	8.0	
1955	1.75	0.17	1.0	9.9	0.10	0.8[3]	9.2[3]	0.08[3]	0.7	9.0	0.08	10.0	9.1	8.8	
1956	1.92	0.17	1.4	9.6	0.15	1.0	8.0	0.12				9.6	7.8		
1957	2.11	0.17	1.4	8.1	0.17	1.0	8.6	0.11				7.8	8.1		
1958	2.27	0.17	1.1	6.5	0.17							6.0			
1959	2.42	0.16	1.5	11.3	0.13							10.5			
1960	2.69	0.15													
Whole period[1]...									0.4	7.2	0.06			7.1	
Whole period[2]...									0.5	7.1	0.08			7.0	

1. 1951 to 1960.
2. Average 1951-53 to average 1958-60.
3. 26 industries only; the branch "Constructional Engineering" is excluded (except for the weighted figures).

27*a*. GERMANY: 32 INDUSTRIES (29 MANUF.); HOURLY EARNINGS OF MALE WAGE-EARNERS (IN PF.); REF. 16140

1957	223.7	0.09	2.3	7.1	0.32	1.0	6.9	0.15	0.8	8.8	0.08	6.3	6.3	8.3	
1958	239.3	0.09	2.1	5.4	0.38	1.3	8.4	0.15				4.7	7.4		
1959	252.3	0.10	2.8	8.2	0.34	1.2	10.6	0.11				8.0	10.2		
1960	272.5	0.08	3.4	11.6	0.30							9.7			
1961	302.4	0.08	2.9	12.2	0.23							13.1			

27*b*. GERMANY: 32 INDUSTRIES (29 MANUF.); INDEX OF STANDARD HOURLY EARNINGS OF MALE WAGE-EARNERS; REF. 16141

1957			2.2	7.3	0.30	1.0	6.9	0.15	0.8	8.8	0.10				
1958			2.3	5.3	0.44	1.4	8.2	0.17							
1959			2.7	8.1	0.34	1.3	10.6	0.12							
1960			3.4	11.5	0.30										
1961			3.0	12.2	0.24										

28. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 1 (IN PF.); REF. 16110

1951[1]	169.5	0.09							0.7[2]	6.2[2]	0.11[2]				
1957[1]	243.4	0.08													
1957	239.3	0.09	2.4	7.0	0.35	1.1	6.6	0.16	0.8	8.6	0.09	6.4	6.2	8.1	
1958	255.9	0.08	2.3	4.9	0.46	1.3	7.9	0.16				4.5	7.1		
1959	268.7	0.09	2.7	8.0	0.33	1.3	10.4	0.12				7.6	10.0		
1960	289.7	0.08	3.2	11.1	0.29							9.1			
1961	321.8	0.08	3.1	12.2	0.25							13.2			
1962	360.7	0.08													
1962[1]	368.7	0.07													
Whole period[1]...									0.5	7.3	0.06				

1. 19 industries only.
2. 1951 to 1957.

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1st YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
29. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 2 (IN PF.); REF. 16120																1. 19 industries only. 2. 1951 to 1957.
1951[1]	156.3	0.11							1.0[2]	6.2[2]	0.17[2]					
1957[1]	224.7	0.11														
1957	216.9	0.10	2.2	7.1	0.31	1.1	6.7	0.16	0.9	8.7	0.10		6.0	6.0	8.1	
1958	232.2	0.10	1.9	5.2	0.37	1.7	8.2	0.20					4.3	7.5		
1959	244.3	0.10	3.0	7.9	0.38	1.3	10.5	0.12					7.8	10.1		
1960	263.1	0.09	4.8	11.8	0.40								10.3			
1961	294.2	0.10	3.4	12.0	0.25								12.4			
1962	329.0	0.09														
1962[1]	339.0	0.09														
Whole period[1]									0.6	7.3	0.08					
30. GERMANY: 32 INDUSTRIES (29 MANUF.); HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 3 (IN PF.); REF. 16130																1. 19 industries only. 2. 1951 to 1957.
1951[1]	138.7	0.10							1.1[2]	5.7[2]	0.20[2]					
1957[1]	193.5	0.13														
1957	186.3	0.13	3.6	6.8	0.53	1.6	7.3	0.22	1.1	9.2	0.12		6.2	6.5	8.5	
1958	198.8	0.13	2.3	5.8	0.40	1.8	9.1	0.20					5.2	7.5		
1959	210.3	0.13	3.3	9.2	0.35	1.7	11.3	0.15					8.2	10.4		
1960	229.1	0.11	3.5	12.3	0.28								9.0			
1961	257.3	0.11	3.0	12.3	0.24								14.1			
1962	288.9	0.11														
1962[1]	297.3	0.09														
Whole period[1]									0.6	7.2	0.08					
31*a*. GERMANY: 9 REGIONS[1]; HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 1 (IN PF.); REF. 16110																1. Average earnings in each of 9 regions over the whole group of 32 industries studied in sections 27 to 30.
1957	241.9	0.06	0.7	6.9	0.10	0.9	7.0	0.13	0.5	8.8	0.06		6.4	6.2	8.1	
1958	258.5	0.06	1.4	5.3	0.26	0.6	7.6	0.08					4.5	7.1		
1959	272.4	0.07	1.7	8.9	0.19	0.6	10.5	0.06					7.6	10.0		
1960	296.6	0.07	1.9	8.5	0.22								9.1			
1961	321.8	0.06	1.3	14.3	0.09								13.2			
31*b*. GERMANY: 9 REGIONS[1]; STANDARD HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 1 (IN PF.); REF. 16111																1. Average earnings in
1957	242.3	0.06	0.6	6.6	0.09	0.8	7.1	0.11	0.4	8.7	0.04					

1960	297.8	0.07	1.6	8.7	0.19										studied in sections 27 to 30.
1961	323.5	0.07	0.8	13.9	0.05										

32*a*. GERMANY: 9 REGIONS[1]; HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 2 (IN PF.); REF. 16120

1957	221.3	0.06	0.9	6.6	0.13	0.7	6.8	0.10	0.4	8.7	0.05	6.0	6.0	8.1	1. See note 1 to section 31.
1958	235.8	0.06	1.0	5.3	0.20	0.7	7.9	0.08				4.3	7.5		
1959	248.3	0.06	1.3	8.7	0.15	0.6	10.6	0.05				7.8	10.1		
1960	269.9	0.06	2.2	9.7	0.23							10.3			
1961	296.1	0.06	0.9	13.5	0.07							12.4			

32*b*. GERMANY: 9 REGIONS[1]; STANDARD HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 2 (IN PF.); REF. 16121

1957	220.4	0.06	0.9	6.8	0.13	0.6	6.8	0.09	0.3	8.6	0.04				1. See note 1 to section 31.
1958	235.3	0.06	1.7	4.3	0.40	0.6	7.5	0.07							
1959	245.6	0.07	1.9	9.4	0.20	0.9	10.7	0.09							
1960	268.7	0.06	1.6	9.0	0.17										
1961	292.6	0.06	0.7	13.7	0.05										

33*a*. GERMANY: 9 REGIONS[1]; HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 3 (IN PF.); REF. 16130

1957	195.9	0.07	1.2	6.2	0.19	0.9	7.4	0.12	0.6	9.0	0.06	6.2	6.5	8.5	1. See note 1 to section 31.
1958	208.0	0.07	1.6	6.6	0.24	1.0	7.9	0.12				5.2	7.5		
1959	221.9	0.07	1.7	9.3	0.19	0.7	10.7	0.07				8.2	10.4		
1960	242.4	0.07	1.9	7.8	0.24							9.0			
1961	261.2	0.06	1.2	15.1	0.08							14.1			

33*b*. GERMANY: 9 REGIONS[1]; STANDARD HOURLY EARNINGS OF MALE WAGE-EARNERS, SKILL GROUP 3 (IN PF.); REF. 16131

1957	191.7	0.06	1.3	6.1	0.21	0.8	7.3	0.11	0.6	9.1	0.07				1. See note 1 to section 31.
1958	203.4	0.07	1.5	6.1	0.24	0.8	8.5	0.10							
1959	215.9	0.07	1.7	9.6	0.18	0.8	11.1	0.07							
1960	236.6	0.06	1.4	9.8	0.14										
1961	259.6	0.06	0.8	14.1	0.05										

34. UNITED KINGDOM: 109 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN PENCE); REF. 28100

1949	37.0	0.10	1.8	3.9	0.45	1.1	6.8	0.16	0.7	6.5	0.11				NOTE. For weighted averages see section 35.
1950	38.4	0.10	2.7	9.8	0.28	1.0	7.5	0.13	0.7	7.3	0.10				
1951	42.2	0.09	2.4	6.9	0.34	0.9	6.3	0.14	0.7	6.8	0.10				
1952	45.1	0.10	1.6	5.7	0.28	0.9	6.6	0.14	0.7	6.7	0.10				
1953	47.7	0.10	1.7	6.3	0.26	0.9	7.2	0.13	0.7	6.2	0.11				
1954	50.7	0.10	1.8	8.0	0.23	0.9	7.2	0.13							
1955	54.8	0.10	2.0	7.4	0.26	0.9	5.6	0.16							
1956	58.8	0.11	1.7	6.3	0.26										
1957	62.5	0.11	2.0	3.3	0.60										
1958	63.0	0.11													
Whole period ...									0.5	6.4	0.08				

Changes at annual rates.

PERIOD LENGTH → / 1st YEAR ↓	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
35. UNITED KINGDOM: 13 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN PENCE); REF. 28100																
1949			0.7	4.1	0.18	0.6	6.9	0.09	0.4	6.5	0.05		3.9	6.9	6.6	NOTE. Weighted averages refer to all manufacturing industries.
1950			2.2	9.8	0.23	0.7	7.4	0.09	0.6	7.3	0.08		9.6	7.5	7.5	
1951			1.3	6.7	0.19	0.6	6.2	0.09	0.6	6.8	0.09		7.3	6.6	7.1	
1952			0.8	5.6	0.14	0.6	6.6	0.08	0.5	6.7	0.08		5.6	6.9	7.0	
1953			0.6	6.2	0.10	0.8	7.2	0.10	0.6	6.2	0.09		6.7	7.5	6.5	
1954			1.1	8.0	0.14	0.8	7.2	0.11	0.7	5.8	0.11		8.4	7.5	5.9	
1955			8.0	7.4	0.27	0.7	5.6	0.12					7.4	5.8		
1956			1.5	6.4	0.23	0.6	4.5	0.14					6.9	4.7		
1957			1.0	3.3	0.31								3.1			
1958			1.1	4.1	0.27								4.0			
1959																
Whole period									0.4	6.1	0.07				6.3	
36. UNITED KINGDOM: 17 INDUSTRIES (14 MANUF.); HOURLY EARNINGS OF MALE WAGE-EARNERS (IN PENCE); REF. 28100																
1949	37.3	0.07	1.1	3.8	0.29	0.7	6.8	0.10	0.4	6.4	0.06		3.6	7.0	6.7	1. Average 1949-51 to average 1957-59. NOTE. Weighted averages relate to the 17 branches studied and also to "Mining and quarrying except coal" and "Public Administration."
1950	38.7	0.07	2.1	9.8	0.22	0.6	7.4	0.08	0.5	7.3	0.07		10.0	7.7	7.6	
1951	42.5	0.07	1.7	7.1	0.24	0.6	6.2	0.09	0.5	6.9	0.08		7.6	6.6	7.2	
1952	45.5	0.07	1.3	5.5	0.23	0.5	6.6	0.08	0.5	6.7	0.07		5.6	6.8	6.9	
1953	47.9	0.07	0.6	6.2	0.10	0.7	7.3	0.10	0.6	6.2	0.09		6.7	7.5	6.4	
1954	50.9	0.07	1.2	8.2	0.15	0.8	7.3	0.11	0.6	5.8	0.11		8.1	7.4	5.8	
1955	54.8	0.08	1.8	7.5	0.24	0.6	5.6	0.11					7.7	5.7		
1956	59.2	0.08	1.4	6.2	0.22	0.7	4.4	0.15					6.2	4.4		
1957	62.8	0.08	0.9	3.2	0.28								3.2			
1958	64.9	0.08	1.1	3.9	0.28								3.7			
1959	67.5	0.08														
Whole period									0.4	6.1	0.06				6.2	
Whole period[1]									0.4	6.5	0.07				6.6	
37. FRANCE: 20 INDUSTRIES (15 MANUF.); INDEX OF HOURLY EARNINGS OF WAGE-EARNERS; REF. 15100																
1946			3.1[3]	37.8[3]	0.08[3]	1.6[3]	33.2[3]	0.05[3]	1.1[3]	27.1[3]	0.04[3]		38.5	33.8	27.4	1. 1948 to 1962. 2. Average 1947-49 to average 1960-62. 3. 18 observations.
1947			2.2[3]	52.7[3]	0.04[3]	1.1[3]	23.5[3]	0.09[3]	0.8[3]	22.9[3]	0.03[3]		53.3	23.8	23.1	
1948			1.5[3]	12.5[3]	0.12[3]	0.8[3]	16.4[3]	0.05[3]	0.6[3]	13.5[3]	0.04[3]		12.7	16.5	13.6	

1950			[illegible]												
1951			1.1[3]	16.8[3]	0.07[3]	0.5[3]	8.6[3]	0.06[3]	0.4[4]	8.3[4]	0.04[4]	16.6	8.4	8.2	NOTE. Weighted averages always cover the total of the 20 branches studied.
1952			0.7[3]	2.3[3]	0.32[3]	0.6[5]	5.7[5]	0.10[5]	0.4[5]	6.5[5]	0.06[5]	2.3	5.5	6.6	
1953			1.1[3]	7.2[3]	0.15[3]	0.6[4]	7.7[4]	0.08[4]	0.4[5]	8.6[5]	0.05[5]	6.7	7.6	8.6	
1954			1.0[4]	7.7[4]	0.13[4]	0.7[5]	7.7[5]	0.09[5]	0.6[5]	8.4[5]	0.07[5]	7.7	8.1	8.4	
1955			1.2[4]	8.0[4]	0.15[4]	0.9[5]	9.2[5]	0.10[5]	0.7[5]	8.3[5]	0.08[5]	8.4	9.5	8.3	
1956			1.3[4]	7.5[4]	0.17[4]	1.0[4]	8.9[4]	0.11[4]	0.8[4]	8.1[4]	0.10[4]	8.2	8.7	8.1	
1957			1.5	12.2	0.12	0.9[3]	8.5[3]	0.10[3]	0.8	8.4	0.10	11.8	8.3	8.2	
1958			0.9	6.6	0.14	0.6	6.9	0.08				6.2	6.8		
1959			1.0	6.8	0.14	0.9	7.7	0.11				6.8	7.7		
1960			1.0	7.4	0.14							7.5			
1961			2.1	8.9	0.24							8.7			
Whole period[1]...									0.5[5]	10.0[5]	0.04[5]			9.9	
Whole period[2]...									0.3[5]	12.1[5]	0.03[5]			12.1	

38. FRANCE: 25 INDUSTRIES (14 MANUFACTURING); ANNUAL EARNINGS OF MALE WAGE-EARNERS (IN FR.)[1]; REF. 15120

1955	4,400	0.22	4.7	9.2	0.52				1.5	9.2	0.17	11.2	10.7	9.4	1. Rounded to nearest Fr.10.
1956	4,780	0.19	3.0	10.5	0.29	1.9	9.4	0.20				9.9	8.7		
1957	5,270	0.18				1.4	8.8	0.16				11.1	8.6		
1958												5.3			
1959	6,260		3.7	8.6	0.43							9.5			
1960	6,790														

39. FRANCE: 89 DEPARTMENTS; ANNUAL EARNINGS OF MALE EMPLOYEES (IN FR.)[1]; REF. 15150

1955	4,380	0.16	6.4	10.9	0.59				1.5	9.8	0.16	10.8	11.0	9.8	1. Rounded to the nearest Fr.10.
1956	4,850	0.16	6.6	11.1	0.60	2.2	9.2	0.24				10.8	9.5		
1957	5,380	0.16				2.1	9.1	0.23				11.3	9.1		
1958												6.6			
1959	6,300	0.16	6.5	10.9	0.59							9.4			
1960	6,980	0.17													

40. SWEDEN: 10 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF WAGE-EARNERS (IN KR.); REF. 25120

1952	7,342	0.12	1.3	5.5	0.23	1.6	6.2	0.25	0.7	6.2	0.12	4.6	5.5	6.0
1953	7,743	0.12	1.0	5.3	0.18	0.7	6.5	0.10	0.3	5.8	0.06	5.2	6.5	5.9
1954	8,154	0.11	3.2	7.9	0.40	0.7	6.8	0.10	0.4	5.3	0.07	6.9	6.8	5.5
1955	8,796	0.11	2.3	6.3	0.36	0.9	5.2	0.17	0.6	4.8	0.13	7.4	5.9	5.1
1956	9,345	0.12	1.2	6.1	0.20	0.6	4.1	0.14				6.2	4.4	
1957	9,912	0.11	1.4	3.3	0.42	0.7	3.9	0.18				4.0	4.0	
1958	10,237	0.11	1.2	3.0	0.40							2.8		
1959	10,546	0.12	1.0	5.6	0.17							5.1		
1960	11,127	0.11												
Whole period ...									0.5	5.3	0.09			5.3

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)												WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS										CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS							
1st YEAR ↓	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$		1 YEAR	3 YEARS	5 YEARS	
41. SWEDEN: 88 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF WAGE-EARNERS (IN KR.); REF. 25120																
1952	7,189	0.18	5.6	5.6	1.00	2.0	6.0	0.34	1.6	6.3	0.25					NOTE. For weighted averages, see section 40.
1953	7,563	0.17	3.9	5.3	0.73	1.6	6.4	0.25	1.2	5.8	0.21					
1954	7,961	0.17	4.6	7.2	0.64	1.9	6.9	0.28	1.1	5.3	0.20					
1955	8,535	0.17	4.5	7.0	0.64	1.8	5.6	0.33	1.0	5.0	0.19					
1956	9,119	0.17	7.2	6.9	1.04	1.7	4.2	0.41								
1957	9,722	0.16	3.8	3.2	1.17	1.7	3.9	0.43								
1958	10,026	0.16	3.9	2.6	1.47											
1959	10,296	0.17	4.0	6.0	0.66											
1960	10,898	0.17														
Whole period									0.9	5.4	0.16					
42. SWEDEN: 10 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF SALARIED EMPLOYEES (IN KR.); REF. 25130																
1952	11,614	0.06	1.7	3.5	0.49	0.8	4.7	0.18	0.5	5.2	0.09		3.4	4.6	5.2	
1953	12,023	0.06	0.7	3.2	0.21	0.6	5.8	0.10	0.6	5.5	0.10		3.1	5.8	5.8	
1954	12,405	0.06	1.8	7.6	0.24	0.8	6.5	0.12	0.5	5.7	0.09		7.5	6.6	5.9	
1955	13,347	0.07	1.5	6.6	0.22	0.9	5.7	0.16	0.6	6.1	0.11		6.9	6.1	6.4	
1956	14,211	0.06	1.4	5.4	0.26	0.7	4.9	0.13					5.3	5.0		
1957	14,968	0.05	1.6	5.1	0.31	0.7	6.2	0.11					6.1	6.6		
1958	15,733	0.05	1.1	4.1	0.28								3.8			
1959	16,380	0.06	1.2	9.3	0.13								10.1			
1960	17,905	0.06														
Whole period									0.3	5.6	0.06				5.7	
43. SWEDEN: 88 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF SALARIED EMPLOYEES (IN KR.); REF. 25130																
1952	11,587	0.12	5.6	3.5	1.62	2.6	5.0	0.53	1.8	5.4	0.32					NOTE. For weighted averages, see section 42.
1953	11,972	0.12	4.5	3.7	1.23	2.4	6.1	0.40	1.8	5.9	0.30					
1954	12,396	0.11	6.0	8.2	0.73	2.2	6.7	0.33	1.6	6.2	0.25					
1955	13,409	0.13	4.5	6.8	0.66	2.2	6.0	0.36	1.9	6.2	0.31					
1956	14,279	0.12	3.9	5.5	0.71	2.7	5.5	0.49								
1957	15,046	0.12	6.1	6.2	0.98	3.0	6.4	0.48								
1958	15,969	0.12	6.3	5.1	1.23											

Whole period ...									1.4	5.7	0.24				

44. SWEDEN: 11 INDUSTRIES (10 MANUFACTURING); HOURLY EARNINGS OF MALE WAGE-EARNERS (IN KR.); REF. 25100

1954	4.23	0.11				0.3	7.4	0.03	0.2	6.5	0.03		7.6	6.7	
1955[1]															
1956	4.96	0.11	0.7	5.7	0.13	0.5	5.4	0.08				5.9	5.6		
1957	5.24	0.11	0.7	5.7	0.13							6.2			
1958	5.54	0.12	0.7	4.8	0.14							4.6			
1959	5.80	0.11													

1. Not available.

45. SWEDEN: 30 MANUFACTURING INDUSTRIES; HOURLY EARNINGS OF MALE WAGE-EARNERS (IN KR.); REF. 25100

1952	3.79	0.11	1.4	4.6	0.30	0.8	5.8	0.13	0.5	6.3	0.08				
1953	3.96	0.11	2.0	4.7	0.42	1.0	7.0	0.14	0.7	6.6	0.10				
1954	4.14	0.11	1.4	8.3	0.17	0.6	7.4	0.09	0.5	6.6	0.08				
1955	4.48	0.11	1.3	8.1	0.16	0.7	6.6	0.11	0.5	6.3	0.08				
1956	4.85	0.11	0.8	5.8	0.14	0.6	5.5	0.11	0.4	6.3	0.07				
1957	5.13	0.11	1.5	6.1	0.24	0.7	5.9	0.11							
1958	5.44	0.11	0.8	4.7	0.18	0.6	6.6	0.09							
1959	5.68	0.11	1.3	7.0	0.19										
1960	6.09	0.11	1.1	8.2	0.13										
1961	6.59	0.11													
Whole period ...									0.4	6.4	0.06				

46. NORWAY: 20 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF MALE WAGE-EARNERS (IN KR.); REF. 22120

1950[1]	7,211	0.06	2.5	12.7	0.20	1.1	10.2	0.11	0.8	7.9	0.10	13.3	10.5	8.1	
1951[1]	8,120	0.06	2.5	12.0	0.21	1.0	7.4	0.13	0.7	7.0	0.10	12.2	7.6	7.2	
1952[1]	9,094	0.06	1.8	6.0	0.30	1.1	5.1	0.21	0.7	5.6	0.12	6.3	5.1	5.7	
1953	9,679	0.06	1.9	4.2	0.45	0.8	5.6	0.13	0.7	5.3	0.13	4.5	5.9	5.6	
1954	10,085	0.06	3.2	4.7	0.67	1.2	5.8	0.21	0.8	5.6	0.15	4.5	6.0	5.7	
1955	10,564	0.07	2.6	7.9	0.33	1.3	5.8	0.21				8.7	6.4		
1956	11,391	0.06	2.2	4.7	0.47	0.9	5.1	0.18				4.7	5.2		
1957	11,927	0.06	2.6	4.9	0.52							5.7			
1958	12,511	0.06	2.6	5.7	0.45							5.1			
1959	13,229	0.07													
Whole period[1] ...									0.6	6.9	0.09			7.2	

1. 19 industries only; the branch " Manufactures of Products of Petroleum and Coal " is excluded (except for the weighted figures).

47. NORWAY: 20 MANUFACTURING INDUSTRIES; ANNUAL EARNINGS OF SALARIED EMPLOYEES (IN KR.); REF. 22130

1950[1]	9,071	0.09	4.4	13.7	0.32	1.9	11.0	0.17	1.4	8.5	0.16	12.8	10.8	8.6	
1951[1]	10,302	0.09	2.8	13.7	0.20	1.2	8.2	0.15	1.0	7.7	0.14	13.8	8.3	7.9	
1952[1]	11,700	0.08	1.8	5.8	0.31	1.8	5.2	0.35	0.8	6.2	0.12	5.9	5.5	6.3	
1953	12,442	0.08	1.9	4.9	0.39	1.2	6.2	0.19	0.8	5.6	0.14	5.2	6.7	5.7	
1954	13,051	0.08	6.2	3.8	1.63	1.1	6.6	0.16	0.8	5.8	0.13	5.4	6.7	5.8	

1. 19 industries only; the branch " Manufactures of Products of Petroleum and Coal " is excluded (except for the weighted figures).

Changes at annual rates.

PERIOD LENGTH →	STANDARD DEVIATIONS AND MEANS (UNWEIGHTED)											WEIGHTED AVERAGES			NOTES
	EARNINGS LEVEL		CHANGES IN EARNINGS									CHANGES IN EARNINGS			
			1 YEAR			3 YEARS			5 YEARS						
1ST YEAR	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	σ	$\bar{x}$	$\sigma/\bar{x}$	1 YEAR	3 YEARS	5 YEARS	
↓															
1955	13,536	0.09	6.5	10.4	0.63	2.2	6.5	0.34				9.5	6.0		
1956	14,906	0.09	3.4	6.2	0.55	1.2	5.1	0.24				5.3	4.7		
1957	15,811	0.09	3.3	3.4	0.97							3.2			
1958	16,340	0.08	2.5	5.7	0.44							5.6			
1959	17,278	0.09													
Whole period[1]									0.7	7.4	0.10			7.4	
48. NORWAY: 25 INDUSTRIES (20 MANUFACTURING); HOURLY EARNINGS OF MALE WAGE-EARNERS (IN KR.); REF. 22100															1. 1955 to 1959.
1955	5.02	0.10	4.0	9.0	0.44	1.7	6.8	0.24	1.1[1]	6.9[1]	0.16[1]	9.1	6.9	7.1[1]	
1956	5.48	0.13	3.1	7.1	0.44	1.8	6.3	0.28				6.7	6.4		
1957	5.88	0.14	2.2	4.5	0.48							4.9			
1958	6.14	0.13	3.9	7.3	0.53							7.7			
1959	6.56	0.10													
49. BELGIUM: 11 SECTORS; DAILY EARNINGS OF MALE WAGE-EARNERS (IN FR.); REF. 11100															1. 1949 to 1962.
1949	162.2	0.14							0.4	3.5	0.11				
1955	199.0	0.13							0.4	4.1	0.11				
1962	263.6	0.14													
Whole period[1]									0.3	3.8	0.08				
50. BELGIUM: 23 MANUFACTURING INDUSTRIES; DAILY EARNINGS OF MALE WAGE-EARNERS (IN FR.); REF. 11100															1. 1949 to 1962. 2. 1949 to 1955. 3. 1955 to 1962.
1949	158.8	0.10							0.6[2]	3.4[2]	0.17[2]				
1955	194.7	0.11							1.2[3]	4.4[3]	0.26[3]				
1962	265.0	0.16													
Whole period[1]									0.8	4.0	0.21				
51. NETHERLANDS: 20 MANUFACTURING INDUSTRIES; HOURLY (*a*) OR WEEKLY (*b*) EARNINGS OF MALE SEMI-SKILLED WORKERS (IN GLD.); REF. 21120-21121															1. 1954 to 1960.
a) 1954	1.43	0.08							0.6[1]	6.4[1]	0.09[1]				
a) 1960	2.07	0.06													
b) 1954	59.48	0.05							0.6[1]	6.5[1]	0.10[1]				
b) 1960	101.52	0.04													
52. NETHERLANDS: 20 MANUFACTURING INDUSTRIES; HOURLY (*a*) OR WEEKLY (*b*) EARNINGS OF MALE UNSKILLED WORKERS (IN GLD.); REF. 21130-21131															1. 1954 to 1960.
a) 1954	1.34	0.05							0.8[1]	6.4[1]	0.12[1]				
a) 1960	1.94	0.04													
b) 1954	65.04	0.04							0.8[1]	6.4[1]	0.12[1]				
b) 1960	94.48	0.03													

II. EMPLOYMENT SERIES

A. Changes in Employment and Variability of Changes (Unweighted Figures)
B. Changes in Employment (Weighted Averages)

Changes at annual rates.

Period length → / 1st year ↓	A: 1 year σ	A: 1 year $\bar{x}$	A: 3 years σ	A: 3 years $\bar{x}$	A: 5 years σ	A: 5 years $\bar{x}$	B: 1 year	B: 3 years	B: 5 years	Notes
1. USA: 10 Sectors; Full and part-time employees (ref. 02240)										1. 1950 to 1960.
1948	4.1	—2.3	3.8	2.0	3.0	1.7	—2.5	3.0	2.7	
1949	4.2	2.4	4.0	3.2	2.8	1.6	3.4	4.7	2.6	
1950	6.8	6.2	3.3	2.8	2.5	1.7	8.4	4.2	2.5	
1951	3.0	1.3	2.5	0.0	1.9	1.2	2.4	0.5	1.5	
1952	2.6	1.0	2.3	0.3	1.8	1.0	2.0	0.6	1.1	
1953	3.9	—2.3	2.1	1.2	2.3	0.3	—2.8	1.0	0.2	
1954	2.5	2.4	1.6	2.1	1.9	1.0	2.8	2.2	1.4	
1955	1.6	3.5	2.1	0.4	1.9	0.7	3.1	0.4	1.2	
1956	1.7	0.3	2.4	—0.3	2.3	—0.1	0.6	0.3	0.6	
1957	4.7	—2.4	2.6	—0.1			—2.4	0.7		
1958	2.8	1.4	2.1	0.6			2.8	1.6		
1959	2.0	0.8					1.7			
1960	2.8	—0.3					0.1			
Whole period[1]					2.0	1.2			1.8	
2. USA: 61 Manufacturing Industries; Production Worker employment (ref. 02200)										
1951	9.3	1.0	4.4	—0.6	3.0	0.1				
1952	5.9	3.4	3.3	—2.0	2.9	—0.3				
1953	6.7	—6.7	3.2	—0.9	4.0	—1.6				
1954	5.3	2.8	3.4	0.9	2.7	—0.1				
1955	5.4	1.5	4.4	—2.3	2.7	—1.0				
1956	5.1	—1.9	3.5	—1.7						
1957	7.5	—7.7	3.3	—1.1						
1958	6.1	4.4								
1959	4.6	—0.6								
1960	4.2	—4.3								
Whole period					2.6	—0.7				
3. USA: 21[1] Manufacturing Industries; Production Worker employment (ref. 02200)										1. 20 industries only for the 5 year spans in A; the branch "Ordinance and Accessories" is excluded. 2. Average 1948-50 to average 1959-61.
1948	4.5	—8.5	8.0	2.6	2.7	1.2	—8.7	1.2	1.7	
1949	6.4	6.4	18.0	7.6	2.5	1.5	6.2	4.3	1.7	
1950	32.8	13.2	20.3	7.6	2.3	1.0	6.7	3.9	1.2	
1951	26.1	5.2	5.9	—0.1	1.6	0.1	—0.1	—1.4	0.1	

II. EMPLOYMENT SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	A						B			NOTES
	1 YEAR		3 YEARS		5 YEARS		1 YEAR	3 YEARS	5 YEARS	
1st YEAR ↓	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$				
1952	7.7	5.8	2.8	—0.5	1.6	—0.2	5.2	—0.2	—0.3	
1953	7.3	—8.5	4.6	—2.0	1.8	—2.6	—8.8	—1.5	—3.1	
1954	5.8	2.5	3.3	0.2	1.7	—0.2	3.7	1.0	—0.3	
1955	3.4	0.6	2.2	—3.1	1.7	—1.0	1.1	—3.4	—1.1	
1956	2.9	—2.4	1.9	—1.7	1.7	—2.0	—1.8	—2.1	—2.2	
1957	5.1	—7.2	2.2	—0.9			—9.0	—1.6		
1958	4.1	5.0	2.4	0.4			5.0	0.1		
1959	2.5	—0.1					—0.3			
1960	3.1	—3.5					—4.1			
Whole period					2.9	0.0			—0.5	
Whole period[2]					3.2	0.6			0.0	

4. USA: 21 MANUFACTURING INDUSTRIES; PRODUCTION WORKER EMPLOYMENT (REF. 02220)

1948	5.2[1]	—7.7[1]	2.8	1.7	3.8	2.0	—8.5	1.3	1.8	1. 20 Industries only; the branch "Products of Petroleum and Coal" is excluded.
1949	6.2[1]	6.2[1]	6.0[1]	4.9[1]	3.7[1]	2.1[1]	6.1	4.5	1.7	2. Average 1948-50 to average 1959-61.
1950	11.4	8.0	7.1	4.3	3.5	1.6	7.2	4.0	1.2	
1951	8.9	0.8	3.6	—1.0	2.2	0.2	0.3	—1.4	0.0	
1952	5.2	4.5	1.9	—0.1	2.2	—0.1	4.6	—0.4	—0.4	
1953	4.8	—7.5	1.8	—1.3	2.1	—3.0	—8.7	—1.5	—3.3	
1954	5.0	3.5	3.0	1.1	1.5	—0.5	3.6	0.9	—0.5	
1955	4.1	0.8	2.9	—3.4	1.8	—1.3	1.0	—3.7	—1.3	
1956	8.5	—0.7	1.8	—2.2			—2.0	—2.4		
1957	7.5	—9.5	3.7	—1.9			—9.8	—1.8		
1958	4.5	4.9					5.1			
1959	3.3	—0.3					—0.1			
Whole period					1.6	—0.1			—0.3	
Whole period[2]					1.9[1]	0.2[1]			—0.1	

5. USA: 21 MANUFACTURING INDUSTRIES; NON-PRODUCTION WORKER EMPLOYMENT (REF. 02230)

1948	3.0	—0.4	3.6	4.6	4.0	5.3	—0.7	4.4	5.6	1. Average 1948-50 to average 1958-60.
1949	4.0	3.9	5.5	7.4	4.1	5.3	2.9	7.6	5.8	
1950	9.2	11.0	6.6	7.9	4.2	5.1	11.5	8.7	5.7	
1951	8.3	7.7	4.4	4.0	3.5	4.0	8.5	4.9	4.7	
1952	4.0	5.3	2.5	2.5	2.5	2.3	6.2	3.0	3.9	
1953	3.6	—0.6	2.6	2.4	2.1	2.0	0.2	2.9	2.3	
1954	1.9	2.9	2.7	4.0	2.0	2.6	2.7	4.4	2.9	

1956	6.0	4.5	2.6	1.8			4.7	2.0		
1957	3.1	—1.3	2.3	1.2			—1.6	1.6		
1958	3.0	2.4					3.1			
1959	3.1	2.6					3.4			
Whole period					2.3	3.4			3.8	
Whole period[1]					2.7	3.8			4.2	

6. USA: 21 MANUFACTURING INDUSTRIES; FULL AND PART-TIME EMPLOYEES (REF. 02240)

1948	4.6	—6.3	2.9	2.1	3.9	2.6	—7.2	1.9	2.5	
1949	4.9	5.4	5.8	5.1	3.8	2.7	5.5	5.1	2.5	
1950	10.9	8.4	7.0	5.0	3.7	2.3	8.0	4.9	2.1	
1951	8.8	2.1	3.8	0.0	2.5	1.0	1.8	—0.2	1.0	
1952	4.8	4.7	1.7	0.5	1.9	0.5	4.9	0.3	0.5	
1953	4.3	—6.1	1.7	—0.5	2.0	—1.9	—7.0	—0.6	—2.1	
1954	4.0	3.5	2.1	1.4	1.6	0.2	3.4	1.7	0.2	
1955	4.0	1.7	2.8	—2.2	1.8	—0.4	2.1	—2.2	—0.3	
1956	3.5	—0.8	1.8	—1.3	1.9	—1.4	—0.5	—1.4	—1.3	
1957	4.7	—7.0	2.3	—0.9			—7.9	—1.0		
1958	3.9	4.3	2.4	0.4			4.6	0.7		
1959	3.0	0.4					0.7			
1960	3.0	—3.3					—3.0			
Whole period[1]					2.2	0.9			0.9	

1. 1950 to 1960.

7. USA: [illegible] INDUSTRIES (21 MANUF.)[1]; PRODUCTION WORKER EMPLOYMENT (REF. 02200)

1948	5.3	—6.5	6.9	2.3	2.9	1.1				
1949	6.2	4.9	15.2	5.9	2.7	1.9				
1950	27.3	10.6	17.0	5.7	2.9	0.9				
1951	21.8	3.4	5.6	—0.5	2.5	0.2				
1952	7.4	3.9	3.4	—0.5	2.2	0.0				
1953	7.4	—7.0	4.5	—1.1	2.5	—2.1				
1954	5.3	2.4	3.1	0.8	2.3	—0.2				
1955	4.2	2.0	2.6	—2.5	2.1	—0.9				
1956	3.2	—1.8	2.8	—2.0	2.3	—2.1				
1957	5.5	—7.0	2.9	—1.4						
1958	5.4	3.5	2.9	—0.2						
1959	3.9	—0.1								
1960	3.4	—3.9								
Whole period					3.0	—0.1				

1. Combination of the branches studied in sections 3 and 9.

8. USA: 60[1] INDUSTRIES (21 MANUF.)[2]; FULL AND PART-TIME EMPLOYEES (REF. 02240)

1948	5.3[4]	—2.4[4]	3.7	2.4	3.6	2.4	—2.5	3.0	2.7	
1949	5.0	3.3	5.2	4.2	3.6	2.4	3.4	4.7	2.6	
1950	10.1	7.1	5.6	3.9	3.4	2.5	8.4	4.2	2.5	

1. For comparisons which include the years 1956 to 1961, 58 industries only; in A the branches " Wholesale

II. EMPLOYMENT SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	A						B			NOTES
	1 YEAR		3 YEARS		5 YEARS		1 YEAR	3 YEARS	5 YEARS	
1st YEAR ↓	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$				
8. USA, REF. 02240 *(continued)*										
1951	6.8	2.5	3.6	0.8	3.1	1.8	2.4	0.5	1.5	Trade" and "Retail Trade" are excluded.
1952	4.3	2.6	2.9	1.1	3.0	1.5	2.0	0.6	1.1	2. See also note 2 to section 8 of *I*.
1953	5.1	—2.4	3.5	1.4	3.5	0.4	—2.8	1.0	0.2	3. 1950 to 1960.
1954	4.3	3.5	3.4	2.6	3.1	1.6	2.8	2.2	1.4	4. 59 observations only; the sector "Agriculture" is excluded.
1955	4.9	3.5	3.9	0.4	3.1	1.2	3.1	0.4	1.2	
1956[1]	3.9	0.9	3.2	0.3	3.2	0.4	0.6	0.3	0.6	
1957[1]	5.9	—2.9	3.4	0.6			—2.4	0.7		
1958[1]	4.1	3.1	3.1	1.5			2.8	1.6		
1959[1]	3.5	1.9					1,7			
1960[1]	4.2	—0.4					0.1			
Whole period[1,3]					2.9	1.8			1.8	
9. USA: 10 NON-MANUFACTURING INDUSTRIES AND TOTAL MANUFACTURING; PRODUCTION WORKER EMPLOYMENT (REF. 02200)										
1948	4.5	—2.8	3.4	1.6	3.2	1.0	—5.2	1.7	1.8	1. Average 1948-50 to average 1959-61.
1949	4.3	2.3	3.6	2.5	2.9	2.6	4.4	3.7	1.7	
1950	4.2	5.6	3.3	1.9	3.7	0.7	6.1	3.3	1.5	
1951	4.5	—0.2	4.7	—1.3	3.5	0.5	0.7	—0.6	1.0	
1952	4.5	0.5	4.1	—0.6	2.7	0.3	3.3	0.3	0.4	
1953	6.3	—4.2	3.5	0.7	3.1	—1.2	—5.5	0.4	—1.6	
1954	3.7	2.2	2.3	1.9	3.0	—0.2	3.3	1.4	0.4	
1955	4.3	4.7	2.9	—1.3	2.6	—0.7	3.5	—1.9	—0.2	
1956	3.2	—0.8	4.0	—2.5	3.1	—2.5	—8.5	—1.6	—1.5	
1957	6.2	—6.9	3.7	—2.3			—6.3	—0.6		
1958	6.3	0.8	3.2	—1.5			4.3	0.5		
1959	5.5	—0.1					0.4			
1960	3.6	—4.7					—3.0			
Whole period					3.0	—0.5			0.2	
Whole period[1]					3.0	—0.1			0.6	
10. USA: 36[1] SERVICE INDUSTRIES; FULL AND PART-TIME EMPLOYEES (REF. 02240)										
1948	4.3	0.0	4.0	2.8	3.4	2.6	—0.2	5.0	3.3	1. For comparisons which include the years 1956 to 1961, 32 industries only; in A the branches "Wholesale Trade" and "Retail Trade" are excluded.
1949	4.4	2.3	4.6	3.9	3.3	2.6	2.9	5.2	3.1	2. 1950 to 1960.
1950	9.8	6.6	4.6	3.7	3.2	2.9	9.5	4.6	3.1	
1951	5.5	3.1	3.4	1.5	3.3	2.5	3.3	1.2	1.9	
1952	3.5	1.7	3.3	1.7	3.3	2.4	1.1	0.9	1.5	
1953	4.3	—0.1	3.8	2.7	3.5	2.0	—0.9	1.7	1.0	

1955	5.3	4.6	3.6	2.1	3.3	2.4	3.4	1.7	2.0	
1956[1]	3.9	2.2	3.5	1.5	3.2	1.8	1.6	1.3	1.6	
1957[1]	5.1	—0.3	3.6	1.8			0.0	1.7		
1958[1]	4.0	2.7	3.3	2.4			2.4	2.2		
1959[1]	3.3	3.1					2.6			
1960[1]	3.9	1.4					1.6			
Whole period[1,2]					3.0	2.6			2.5	

11. USA: 51 States; All employees (ref. 02250)

1947	3.8	0.6	2.1	—0.3	2.7	2.1	0.5	—0.6	1.5	
1948	4.1	—6.1	3.1	2.3	3.1	2.7	—7.3	1.8	2.4	
1949	4.4	5.2	4.0	5.5	3.1	2.9	5.5	5.0	2.5	
1950	5.2	8.6	4.2	5.1	3.1	2.7	7.8	4.9	2.1	
1951	5.6	3.0	3.4	0.3	2.9	1.7	1.8	—0.2	1.1	
1952	4.2	3.6	2.7	0.8	2.5	1.1	5.0	0.3	0.7	
1953	4.0	—5.2	3.1	0.6	2.9	0.0	—7.0	—0.4	—1.5	
1954	4.3	4.3	2.9	2.5	2.6	2.1	3.5	1.9	0.9	
1955	5.1	3.3	3.5	0.4	2.6	1.5	2.6	—1.2	0.3	
1956	3.6	0.0	3.3	1.0	2.6	0.6	—0.3	—0.5	—0.6	
1957	6.5	—1.7	3.0	1.5			—5.7	—0.2		
1958	3.6	5.0	2.3	1.7			4.6	1.0		
1959	4.0	1.4					0.6			
1960	3.4	—1.2					—2.2			
Whole period					2.1	1.3			0.6	

12. Canada: 10 Sectors: All employees (ref. 01240)

1950	8.8	8.2	1.9	2.9	1.3	2.3	6.9	3.5	2.0	
1951	6.3	2.6	4.3	0.3	2.3	2.3	2.6	0.2	2.0	
1952	6.2	—1.3	2.5	0.5	2.2	2.2	1.1	0.3	1.8	
1953	3.4	—0.2	1.2	3.5	2.7	1.7	—2.8	2.2	0.8	
1954	1.4	3.4	1.6	4.3	2.3	2.2	2.7	3.7	1.7	
1955	2.7	7.5	4.1	1.9	2.3	1.5	6.9	1.5	1.0	
1956	5.1	2.2	4.2	0.1	3.4	—0.2	1.6	—0.3	—0.4	
1957	7.5	—3.5	2.5	—0.6			—3.8	—1.1		
1958	1.5	1.9	1.9	0.2			1.5	0.1		
1959	2.9	0.3					—0.8			
1960	5.1	—1.4					—0.5			
Whole period[1]					2.4	1.4			1.1	

13. Canada: 17 Manufacturing industries; Male wage earners (ref. 01200)

1949	5.9	6.6	4.1	3.0	2.9	1.6	7.3	4.8	1.8	
1950	8.4	0.5	4.5	1.2	2.5	1.0	4.3	2.2	1.4	
1951	5.4	2.5	3.1	0.4	2.1	1.5	2.9	—0.8	1.3	
1952	6.3	1.0	3.0	0.8	2.2	0.8	—0.4	—0.1	0.2	

1. Average 1950-52 to average 1959-61.

1. Average 1949-51 to average 1958-60.

II. EMPLOYMENT SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH →	A						B			NOTES
	1 YEAR		3 YEARS		5 YEARS		1 YEAR	3 YEARS	5 YEARS	
1st YEAR ↓	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$				
13. CANADA, REF. 01200 *(continued)*										
1953	6.5	—1.7	2.5	1.5	2.4	—0.2	—4.7	1.3	—1.0	
1954	5.2	3.7	1.5	1.8	1.9	1.0	5.0	2.0	0.7	
1955	5.3	3.0	3.0	—0.8	3.0	0.1	4.0	—1.6	—0.4	
1956	5.2	—1.0	3.8	—0.5			—2.7	—1.7		
1957	6.2	—3.9	4.1	—0.5			—5.9	—1.1		
1958	4.4	3.8					3.8			
1959	7.1	—0.9					—0.9			
Whole period[1]					1.8	0.2			0.4	
14. CANADA: 17 MANUFACTURING INDUSTRIES; MALE SALARIED EMPLOYEES (REF. 01205)										
1949	12.2	14.7	5.3	11.0	4.8	7.2	16.1	12.4	8.5	
1950	10.8	8.3	6.0	7.8	4.7	5.8	11.3	8.5	6.7	
1951	22.1	12.5	8.2	5.0	5.4	5.7	9.8	5.1	5.9	
1952	6.6	4.4	4.3	3.5	4.0	3.6	4.4	4.2	4.4	
1953	7.2	—0.4	3.6	4.4	2.9	3.2	1.4	5.2	3.4	
1954	5.5	6.8	3.5	4.8	3.1	3.3	7.0	5.4	2.8	
1955	3.6	7.2	3.2	3.4	3.3	2.6	7.3	2.9	2.2	
1956	7.0	0.7	4.4	0.9			2.3	0.0		
1957	7.6	2.7	4.5	1.9			—0.6	0.6		
1958	6.9	—0.2					—1.4			
1959	4.0	3.5					3.8			
Whole period[1]					3.2	4.6			4.8	
15. CANADA: 17 MANUFACTURING INDUSTRIES; ALL EMPLOYEES (REF. 01241)										
1950	6.5	4.4	4.2	2.8	2.6	1.5	6.6	3.7	1.6	
1951	5.6	0.7	3.0	0.2	2.1	1.6	1.7	—0.2	1.4	
1952	3.9	3.4	2.5	0.9	1.8	1.5	2.8	0.0	1.1	
1953	5.5	—3.2	2.5	1.4	2.3	0.2	—5.0	0.8	—0.6	
1954	3.0	2.8	1.3	2.6	1.7	1.2	2.3	2.6	0.7	
1955	2.8	4.9	2.4	0.6	2.0	0.4	5.5	0.0	—0.1	
1956	2.9	0.3	2.8	—0.5	2.2	—0.6	0.0	—1.4	—1.2	
1957	5.5	—3.1	2.8	—1.0			—5.2	—1.8		
1958	3.9	1.7	2.0	0.0			1.2	—0.3		
1959	2.8	—1.4					—1.4			
1960	2.3	0.1					—0.6			

1. Average 1949-51 to average 1958-60.

1. Average 1950-52 to average 1959-61.

1950[1]	12.3	7.1	9.0	3.4	4.8	1.4	6.6	3.7	1.6	1. For comparisons which include the years 1950 or 1951, 50 observations only.
1951[1]	12.0	1.6	5.6	—0.8	3.5	1.0	1.7	—0.3	1.4	
1952	7.4	2.4	3.7	—0.2	2.8	0.8	2.8	0.0	1.1	
1953	7.2	—4.9	3.5	0.6	2.9	—0.5	—5.0	0.8	—0.6	
1954	5.1	2.5	2.7	2.4	2.4	0.9	2.3	2.6	0.7	
1955	5.0	4.9	2.9	0.1	2.4	0.0	5.5	0.0	—0.1	
1956	4.8	0.2	3.6	—0.8	2.6	—1.1	0.0	—1.4	—1.2	
1957	6.2	—4.2	3.6	—1.5			—5.2	—1.9		
1958	6.5	2.1	2.8	—0.4			1.2	—0.3		
1959	4.2	—2.1					—1.4			
1960	3.4	—0.8					—0.6			
Whole period[1]					2.4	0.5			0.7	

17. CANADA: 33 TO 38 INDUSTRIES (17 MANUF.)[1]; ALL EMPLOYEES (REF. 01240)

1950	6.1[3]	4.5[3]	3.8[3]	3.2[3]	3.4[6]	2.6[6]				1. Combination of the branches studied in sections 15 and 18.
1951	5.2[3]	2.5[3]	3.9[3]	1.8[3]	3.7[6]	3.0[6]				2. Average 1950-52 to average 1959-61.
1952	3.8[3]	2.9[3]	4.3[6]	2.1[6]	3.9[6]	3.0[6]				3. 34 observations.
1953	7.3[4]	0.4[4]	4.9[3]	3.4[3]	4.2[3]	2.2[3]				4. 35 observations.
1954	4.6[3]	3.5[3]	3.8[3]	4.2[3]	3.2[6]	2.4[6]				5. 37 observations.
1955	4.7	6.6	3.6	2.7	2.8[5]	1.7[5]				6. 33 observations.
1956	4.2	2.9	3.3[5]	0.9[5]	2.7[5]	0.5[5]				
1957	5.0	—1.1	3.0[5]	—0.1[5]						
1958	3.6[5]	1.6[5]	2.6[5]	0.5[5]						
1959	3.6	—0.4								
1960	3.0	0.5								
Whole period[2]					2.9[6]	1.9[6]				

18. CANADA: 16 TO 21 SERVICE INDUSTRIES; ALL EMPLOYEES (REF. 01240)

1950	5.7[2]	4.5[2]	3.2[2]	3.7[2]	3.7[5]	3.8[5]				1. Average 1950-52 to average 1959-61.
1951	4.0[2]	4.3[2]	3.9[2]	3.4[2]	4.4[5]	4.5[5]				2. 17 observations.
1952	3.5[2]	2.3[2]	5.3[5]	3.5[5]	4.8[5]	4.5[5]				3. 18 observations.
1953	7.2[3]	3.7[3]	5.9[2]	5.4[2]	4.7[2]	4.3[2]				4. 20 observations.
1954	5.7[2]	4.3[2]	4.7[2]	5.7[2]	3.8[5]	3.5[5]				5. 16 observations.
1955	5.4	8.0	3.6	4.4	3.0[4]	2.9[4]				
1956	4.1	4.9	3.1[4]	2.1[4]	2.8[4]	1.5[4]				
1957	3.9	0.5	3.0[4]	0.7[4]						
1958	3.3[4]	1.6[4]	2.9[4]	0.8[4]						
1959	4.0	0.4								
1960	3.3	1.0								
Whole period[1]					3.5[5]	3.1[5]				

II. EMPLOYMENT SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH → / 1st YEAR ↓	A: 1 YEAR σ	A: 1 YEAR $\bar{x}$	A: 3 YEARS σ	A: 3 YEARS $\bar{x}$	A: 5 YEARS σ	A: 5 YEARS $\bar{x}$	B: 1 YEAR	B: 3 YEARS	B: 5 YEARS	NOTES
19. CANADA: 17 MANUFACTURING INDUSTRIES; MALE OFFICE AND CLERICAL WORKERS[1] (REF. 01206)										1. Break in comparability in 1959. 2. 1951 to 1957.
1951			11.3	0.6	7.0[2]	2.0[2]		0.9	2.4[2]	
1954			3.9	3.5				4.0		
1957										
1959	6.0	4.1					2.4			
20. CANADA: 17 MANUFACTURING INDUSTRIES; MALE MANAGERIAL AND PROFESSIONAL EMPLOYEES[1] (REF. 01207)										1. Break in comparability in 1959. 2. 1951 to 1957.
1951			8.8	11.7	5.2[2]	8.7[2]		10.3	8.5[2]	
1954			4.6	6.0				6.8		
1957										
1959	5.2	3.5					4.7			
21. CANADA: 10 PROVINCES; TOTAL MANUFACTURING EMPLOYMENT (REF. 01250)										1. For comparisons which include the years 1949 or 1950, 9 observations only. The Province of Newfoundland is excluded.
1949[1]	2.5	0.5	1.8	2.8	1.6	1.2				
1950[1]	3.5	4.5	2.0	3.2	1.9	1.5				
1951	3.5	3.9	1.8	0.4	1.6	1.3				
1952	2.2	1.6	2.1	—0.1	1.9	0.5				
1953	3.5	—4.1	2.2	0.4	1.7	—0.6				
1954	2.5	2.5	2.2	1.8	1.4	0.6				
1955	2.0	2.9	1.9	—0.4						
1956	4.0	0.0	2.0	—0.8						
1957	3.0	—3.9								
1958	2.8	1.8								
Whole period[1]					1.4	0.9				
22. MONTREAL: 16[1] MANUFACTURING INDUSTRIES; MALE WAGE-EARNERS (REF. 01280)										1. For comparisons which include the years 1949, 1950 or 1951, 14 industries only; in A the branches "Furniture" and "Non-metallic mineral products" are excluded. 2. Average 1949-51 to average 1958-60. NOTE. Weighted averages (B) refer to all manufacturing figures, i.e. the 16 industries do not exhaust total manufacturing.
1949[1]	6.4	2.4	4.4	2.2	2.2	0.5	1.4	4.4	0.9	
1950[1]	13.3	3.7	5.4	1.5	2.4	0.4	9.6	4.7	1.5	
1951[1]	11.1	1.9	3.3	—0.9	2.3	0.2	2.4	—2.1	0.4	
1952	7.7	0.5	3.9	—0.0	2.5	1.0	2.4	—1.4	0.2	
1953	8.7	—3.3	3.5	0.5	3.0	—0.2	—10.5	—0.8	—2.4	
1954	6.0	3.5	2.5	2.9	2.1	1.6	4.7	3.3	1.1	
1955	5.5	2.1	2.4	—0.1	2.4	1.1	4.0	—1.8	0.5	
1956	4.5	3.5	3.5	1.0			1.2	—1.0		

1959	7.0	1.0					1.7			
Whole period[1,2]					1.5	0.5			0.5	

23. Montreal: 16[1] Manufacturing Industries; Male salaried employees (ref. 01285)

1949[1]	17.2	13.5	10.0	11.8	8.4	8.0	10.5	12.1	7.9	1. For comparisons which include the years 1949, 1950 or 1951, 14 industries only; in A the branches "Furniture" and "Non-metallic mineral products" are excluded.
1950[1]	15.2	11.4	9.1	8.8	5.7	5.9	11.5	9.2	7.4	2. Average 1949-51 to average 1958-60.
1951[1]	15.0	12.4	8.1	5.6	4.4	5.4	14.3	5.9	6.3	NOTE. Weighted averages (B) refer to all manufacturing figures, i.e. the 16 industries do not exhaust total manufacturing.
1952	6.4	3.3	5.0	4.1	4.1	2.5	2.3	3.9	3.9	
1953	12.2	2.7	4.6	4.8	3.7	2.1	1.5	5.2	2.5	
1954	10.9	7.5	7.1	2.5	4.8	2.4	8.0	5.3	3.4	
1955	5.2	5.5	4.8	0.7	5.3	1.6	6.1	2.7	2.6	
1956	12.9	—3.9	5.8	—0.1			1.8	1.0		
1957	8.1	1.8	5.4	2.5			0.4	1.7		
1958	6.0	3.2					0.9			
1959	12.3	3.5					3.9			
Whole period[1,2]					2.6	3.7			5.1	

24. Toronto: 13[1] Manufacturing Industries; Male wage-earners (ref. 01290)

1949[1]	9.4	8.4	9.8	4.6	6.2	2.4	6.1	5.2	3.2	1. For comparisons which include the years 1949, 1950, 1951 or 1952, 12 industries only; in A the branch "Non-ferrous metal products" is excluded.
1950[1]	11.6	—0.8	9.3	2.4	4.1	0.4	2.5	4.4	1.4	2. Average 1949-51 to average 1958-60.
1951[1]	15.5	7.1	5.1	1.6	2.5	1.2	7.0	2.6	1.4	NOTE. Weighted averages (B) refer to all manufacturing figures, i.e. the 13 industries do not exhaust total manufacturing.
1952[1]	6.1	1.8	3.4	—0.9	2.4	—0.2	3.8	—0.7	—0.1	
1953	4.7	—3.1	2.7	—0.7	2.6	—1.1	—2.9	—1.2	—1.0	
1954	7.5	—0.6	2.9	0.1	5.1	—0.7	—2.9	—0.4	—1.1	
1955	9.5	2.2	1.9	—0.5	4.5	—0.9	2.2	0.2	—0.6	
1956	7.1	—0.5	7.3	—1.3			—0.5	—1.5		
1957	5.6	—2.3	6.7	—1.7			—1.1	—1.6		
1958	15.4	0.2					—2.9			
1959	8.9	—1.5					—0.9			
Whole period[1,2]					1.5	0.2			0.7	

25. Toronto: 13[1] Manufacturing Industries; Male salaried employees (ref. 01295)

1949[1]	15.9	19.2	9.6	13.7	7.2	8.8	22.7	16.1	11.1	1. For comparisons, which include the years 1949, 1950, 1951 or 1952, 12 industries only; in A the branch "Non-ferrous metal products" is excluded.
1950[1]	23.0	17.9	9.4	10.0	6.1	6.5	12.0	11.4	7.6	2. Average 1949-51 to average 1958-60.
1951[1]	13.5	7.1	6.6	3.4	4.2	4.2	13.8	7.2	6.4	NOTE. Weighted averages (B) refer to all manufacturing figures, i.e. the 13 industries do not exhaust total manufacturing.
1952[1]	5.0	7.0	3.6	3.4	3.1	3.1	8.4	4.2	4.2	
1953	9.0	—3.2	3.5	2.9	3.7	1.2	—0.1	3.5	2.2	
1954	7.7	7.2	3.6	4.1	5.1	1.0	4.4	4.3	0.3	
1955	5.3	5.5	4.0	0.9	4.6	—0.3	6.1	2.2	0.0	
1956	6.8	0.1	7.0	—2.3			2.5	—2.9		
1957	8.2	—2.3	7.8	—2.0			—1.8	—2.8		

II. EMPLOYMENT SERIES *(continued)*

Changes at annual rates.

PERIOD LENGTH → / 1st YEAR ↓	A: 1 YEAR σ	A: 1 YEAR $\bar{x}$	A: 3 YEARS σ	A: 3 YEARS $\bar{x}$	A: 5 YEARS σ	A: 5 YEARS $\bar{x}$	B: 1 YEAR	B: 3 YEARS	B: 5 YEARS	NOTES
25. TORONTO, REF. 01295 *(continued)*										
1958	17.8	—2.7					—9.0			
1959	6.2	0.9					2.8			
Whole period[1,2]					2.8	3.4			4.5	
26. GERMANY: 27 INDUSTRIES (26 MANUFACTURING); WAGE-EARNERS (REF. 16200)										
1950	6.3	13.2	4.6	7.3	3.9	7.7	11.3	5.9	6.3	
1951	5.8	3.7	4.0	5.4	3.4	6.2	2.7	4.0	5.2	
1952	5.5	5.6	4.0	7.3	3.4	6.2	3.9	5.8	5.3	
1953	4.3	7.2	3.6	7.3	3.2	5.2	5.3	6.5	4.5	
1954	5.1	9.2	3.4	6.0	3.5	3.8	8.4	5.8	3.3	
1955	3.3	5.7	3.3[3]	3.2[3]	3.5	2.7	5.8	3.0	2.4	
1956	3.7	3.3	4.1	1.3			3.3	0.9		
1957	4.6	0.7	4.3	1.5			—0.1	1.0		
1958	5.2	0.4					—0.5			
1959	5.1	3.5					3.6			
Whole period[1]					3.1	4.3			3.6	
Whole period[2]					3.3	4.5			3.9	
27. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); MALE WAGE-EARNERS (REF. 16240)										
1957	4.8	0.2	5.4	—1.8	3.2	—0.8	—0.7	—1.4	—1.1	
1958	11.6	—3.5	4.9	—1.5			—2.2	—1.0		
1959	5.1	—1.4	3.2	—0.4			—1.2	—0.9		
1960	4.6	1.4					0.6			
1961	5.6	—1.0					—1.9			
28. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); MALE WAGE-EARNERS, SKILL GROUP 1 (REF. 16210)										
1957	5.4	0.8	6.0	—0.9	4.2	—0.2	0.2	—0.6	—0.6	
1958	12.1	—2.0	5.3	—0.5			0.8	—0.9		
1959	4.7	—0.5	3.4	0.4			—2.7	—1.3		
1960	4.8	1.9					—0.5			
1961	6.5	0.2					—0.6			
29. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); MALE WAGE-EARNERS, SKILL GROUP 2 (REF. 16220)										
1957	7.3	1.2	5.9	—1.9	4.2	—0.9	—1.6	—2.0	—1.2	
1958	12.1	—4.4	5.6	—1.5			—5.7	—0.6		

1. 1951 to 1960.
2. Average 1951-53 to average 1958-60.
3. 26 industries only; the branch "Constructional Engineering" is excluded.

1961	5.8	—0.6					—2.5			

30. GERMANY: 32 INDUSTRIES (29 MANUFACTURING); MALE WAGE-EARNERS, SKILL GROUP 3 (REF. 16230)

1957	15.7	—0.3	7.9	—5.4	6.3	—4.9	1.4	—5.5	—5.3	
1958	13.2	—8.4	7.0	—6.1			—3.7	—6.9		
1959	9.7	—5.4	6.6	—4.5			—11.1	—7.0		
1960	8.9	—3.2					—5.7			
1961	8.5	—4.3					—4.1			

31. GERMANY: 9 REGIONS; MALE WAGE-EARNERS, SKILL GROUP 1 (REF. 16210)

1957	4.5	1.1	2.1	1.2	1.9	1.0	0.2	—0.6	—0.6	
1958	4.9	2.7	2.8	1.6			0.8	—0.9		
1959	6.8	0.1	2.4	0.5			—2.7	—1.3		
1960	3.2	2.2					—0.5			
1961	3.5	—0.6					—0.6			

32. GERMANY: 9 REGIONS; MALE WAGE-EARNERS, SKILL GROUP 2 (REF. 16220)

1957	4.2	0.2	2.5	0.3	2.3	—0.1	1.6	—2.0	—1.2	
1958	6.5	—1.4	4.1	1.0			—5.7	—0.6		
1959	3.9	2.4	2.9	0.4			1.3	0.5		
1960	6.2	2.4					2.8			
1961	3.8	—3.3					—2.5			

33. GERMANY: 9 REGIONS; MALE WAGE-EARNERS, SKILL GROUP 3 (REF. 16230)

1957	5.0	0.8	3.9	—3.0	2.9	—3.1	—1.4	—5.5	—5.3	
1958	7.0	0.4	4.0	—4.1			—3.7	—6.9		
1959	9.9	—9.1	3.9	—5.5			—11.1	—7.0		
1960	4.4	—2.6					—5.7			
1961	4.0	—3.9					—4.1			

34. UNITED KINGDOM: 109 MANUFACTURING INDUSTRIES; MALE EMPLOYEES (REF. 28240)

1949	4.1	2.4	6.5	2.3	4.4	2.4				
1950	20.3	6.8	11.7	3.4	5.0	2.2				
1951	8.9	—1.0	4.0	1.2	3.0	3.2				
1952	5.9	2.7	3.5	2.2	2.8	1.2				
1953	4.5	2.1	2.9	1.2	2.8	0.7				
1954	5.1	1.6	10.0	—0.3						
1955	4.2	—0.2	3.2	—0.4						
1956	5.1	0.0								
1957	5.2	—1.4								
Whole period					3.3	1.2				

NOTE. For weighted averages of changes in employment referring to all manufacturing see section 35.

Changes at annual rates.

PERIOD LENGTH →	A						B			NOTES
	1 YEAR		3 YEARS		5 YEARS		1 YEAR	3 YEARS	5 YEARS	
1st YEAR ↓	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$				
35. UNITED KINGDOM: 13 MANUFACTURING INDUSTRIES; MALE EMPLOYEES (REF. 28240)										
1949	1.4	2.2	3.0	1.1	2.1	1.4	2.1	2.0	2.0	
1950	6.7	2.8	2.6	1.1	2.4	1.3	3.9	1.9	2.1	
1951	3.3	—1.6	1.4	0.8	1.5	0.6	—0.1	1.4	1.3	
1952	2.1	2.4	1.7	1.8	1.4	1.2	2.0	2.3	1.6	
1953	2.6	1.6	2.1	0.7	1.9	0.2	2.4	1.6	0.9	
1954	2.9	1.3	1.8	0.6	1.5	0.1	2.4	1.3	0.7	
1955	2.0	—0.7	1.6	—0.6			0.1	—0.1		
1956	1.8	1.2	1.5	0.0			1.3	0.4		
1957	2.5	—2.4					—1.7			
1958	2.6	1.4					1.5			
Whole period					1.7	0.8			1.4	
36. UNITED KINGDOM: 17 INDUSTRIES (14 MANUFACTURING); MALE EMPLOYEES (REF. 28240)										
1949	1.9	8.0	3.1	0.9	2.4	1.1	1.6	1.3	1.4	
1950	7.0	1.9	2.8	0.8	2.6	0.9	1.8	1.2	1.6	
1951	3.1	—1.1	1.7	0.5	1.6	0.5	0.5	1.2	1.2	
1952	2.6	1.7	2.1	1.3	1.6	0.9	1.4	1.8	1.3	
1953	3.0	1.0	2.1	0.7	1.8	0.1	1.8	1.4	0.7	
1954	2.8	1.4	1.6	0.6	1.4	0.1	2.3	1.1	0.6	
1955	2.0	—0.3	1.5	—0.5			0.1	—0.2		
1956	1.8	0.9	1.3	—0.1			0.9	0.2		
1957	2.3	—2.0					—1.7			
1958	2.6	0.8					1.4			
Whole period					1.7	0.6			1.0	
Whole period[1]					1.7	0.5			1.0	
37. FRANCE: 20 INDUSTRIES (15 MANUFACTURING); ALL EMPLOYEES (REF. 15240)										
1946	4.2[3]	7.6[3]	2.6[3]	3.8[3]	1.9[3]	3.0[3]	5.8	3.4	2.6	
1947	2.8[3]	3.4[3]	2.4[3]	1.7[3]	1.9[3]	1.5[3]	2.8	1.6	1.6	
1948	3.6[3]	0.7[3]	2.4[3]	1.5[3]	2.0[3]	0.6[3]	1.6	1.5	0.8	
1949	2.6[3]	1.1[3]	1.9[3]	1.2[3]	1.8[3]	0.7[3]	0.5	1.2	0.7	
1950	2.3[3]	2.8[3]	2.1[3]	0.5[3]	1.8[4]	0.8[4]	2.4	0.6	0.8	
1951	2.6[3]	0.1[3]	2.0[3]	0.1[3]	1.9[4]	0.5[4]	0.6	0.2	0.5	

1. Average 1949-51 to average 1957-59.

1. 1948 to 1962.
2. Average 1947-49 to average 1960-62.
3. 18 observations.
4. 16 observations.
5. 15 observations.

1954	2.1[4]	1.1[4]	1.3[5]	1.8[5]	1.5[5]	0.8[5]	1.0	1.7	0.9
1955	1.8[4]	1.4[4]	1.3[5]	1.5[5]	1.4[5]	0.7[5]	1.3	1.6	0.8
1956	0.9[4]	2.6[4]	1.5[4]	0.5[4]	1.2[4]	0.6[4]	2.7	0.7	0.7
1957	1.7	0.8	1.4[3]	0.1[3]	1.2	0.5	0.8	0.0	0.4
1958	2.4	—1.7	1.4	0.1			—1.5	—0.1	
1959	1.3	0.9	1.2	1.1			0.6	0.9	
1960	1.6	1.1					0.7		
1961	1.5	1.5					1.4		
Whole period[1]					0.8[5]	1.6[5]			0.8
Whole period[2]					1.0[5]	1.2[5]			1.0

38. FRANCE: 25 INDUSTRIES (14 MANUFACTURING); MALE WAGE-EARNERS (REF. 15220)

1955	6.9	0.1			2.6	2.1	0.3		2.7
1956	9.7	5.9	3.9	2.4			9.6	2.7	
1957			3.0	1.7				1.2	
1958									
1959	11.6	4.0					4.9		

39. FRANCE: 89 DEPARTMENTS; MALE EMPLOYEES (REF. 15250)

1955	10.1	4.7			4.5	3.3	1.3		2.6
1956	8.3	8.4	3.9	2.6			6.5	2.0	
1957			5.7	1.4				1.8	
1958									
1959	15.2	5.5					5.7		

40. SWEDEN: 10 MANUFACTURING INDUSTRIES; WAGE-EARNERS (REF. 25220)

1952	2.0	—1.7	1.2	1.4	1.4	0.3	—2.7	1.4	0.7
1953	3.3	4.0	1.7	1.8	1.9	0.4	4.0	2.3	0.9
1954	2.4	2.1	2.1	—0.2	1.6	—0.3	3.0	0.7	0.3
1955	2.5	—0.5	2.0	—1.3	1.5	0.0	—0.1	—0.8	0.7
1956	3.2	—1.9	1.6	—1.0			—0.8	—0.5	
1957	2.1	—1.5	1.0	0.9			—1.6	1.4	
1958	1.3	0.6					0.8		
1959	1.8	3.5					5.1		
Whole period					1.2	0.5			0.9

41. SWEDEN: 88 MANUFACTURING INDUSTRIES; WAGE-EARNERS (REF. 25220)

1952	7.7	—3.6	4.7	0.5	4.1	—0.5			
1953	9.9	4.8	4.8	1.3	4.1	—0.3			
1954	6.6	1.2	4.5	—1.0	3.7	—1.1			
1955	6.4	—1.4	4.1	—2.2	4.0	—0.8			
1956	6.2	—2.5	4.2	—1.5					

NOTE. For weighted averages see section 40.

II. EMPLOYMENT SERIES *(concluded)*

Changes at annual rates.

PERIOD LENGTH → / 1st YEAR ↓	A: 1 YEAR σ	A: 1 YEAR $\bar{x}$	A: 3 YEARS σ	A: 3 YEARS $\bar{x}$	A: 5 YEARS σ	A: 5 YEARS $\bar{x}$	B: 1 YEAR	B: 3 YEARS	B: 5 YEARS	NOTES
41. SWEDEN, REF. 25220 *(continued)*										
1957	5.3	—2.4	4.8	0.2						
1958	6.9	0.6								
1959	7.7	2.7								
Whole period					3.9	—0.3				
42. SWEDEN: 10 MANUFACTURING INDUSTRIES; SALARIED EMPLOYEES (REF. 25230)										
1952	0.9	0.5	1.3	2.5	1.6	2.3	0.4	3.2	3.2	
1953	1.8	4.2	1.8	3.1	1.8	2.3	5.1	4.3	3.4	
1954	2.1	2.7	2.2	2.2	2.0	1.[illegible]	4.3	3.5	2.9	
1955	2.6	2.2	2.2	1.6	2.1	2.4	3.5	2.5	3.3	
1956	2.3	1.8	2.1	1.5			2.6	2.3		
1957	2.1	0.9	2.1	2.7			1.5	3.5		
1958	2.5	2.1					2.8			
1959	2.8	5.4					6.4			
Whole period					1.7	2.5				
43. SWEDEN: 88 MANUFACTURING INDUSTRIES; SALARIED EMPLOYEES (REF. 25230)										
1952	6.5	—0.9	5.6	1.6	4.8	1.4				NOTE. For weighted averages see section 42.
1953	7.5	4.9	6.0	2.5	4.9	1.6				
1954	9.5	1.5	6.0	1.1	4.9	1.0				
1955	7.3	1.8	5.4	0.8	5.0	1.6				
1956	6.7	1.3	5.0	0.9						
1957	6.4	0.3	5.1	2.0						
1958	7.8	1.8								
1959	7.4	4.3								
Whole period					4.4	1.6				
44. SWEDEN: 11 INDUSTRIES (10 MANUFACTURING); MALE WAGE-EARNERS (REF. 25200)										
1954			2.3	—0.6	1.8	—0.7		0.6	0.2	
1955										
1956	2.7	—1.2	1.5	—1.0			—0.3	—0.3		
1957	2.0	—1.0					—0.7			
1958	2.7	—0.9					—0.1			
46. NORWAY: 20 MANUFACTURING INDUSTRIES; MALE WAGE-EARNERS (REF. 22200)										
1950[1]	6.6	3.7	4.1	0.3	2.9	1.5	4.5	1.5	2.7	1. For comparisons which include the years 1950, 1951 or 1952,
1951[1]	7.1	—2.6	3.2	0.1	2.3	0.8	0.0	1.1	1.8	

1952[1]	2.9	—0.2	2.1	2.3	1.7	1.3	0.0	3.0	1.9	Manufactures of Products of Petroleum and Coal " is excluded.
1953	3.3	2.5	2.4	2.2	2.4	0.6	3.5	3.0	1.5	
1954	4.4	4.2	2.5	1.3	2.4	0.3	5.5	2.0	0.7	
1955	4.3	1.0	3.2	—1.1			0.1	—0.5		
1956	2.9	—0.2	3.0	—0.9			0.4	—0.7		
1957	6.8	—2.8					—2.1			
1958	3.6	0.4					—0.3			
Whole period[1]					2.3	0.4			1.3	

47. NORWAY: 20 MANUFACTURING INDUSTRIES; SALARIED EMPLOYEES (REF. 22230)

1950[1]	7.4	3.0	3.3	2.2	2.5	3.4	5.3	3.6	4.2	1. For comparisons which include the years 1950, 1951 or 1952, 19 industries only; in A the branch " Manufactures of Products of Petroleum and Coal " is excluded.
1951[1]	5.8	1.7	2.7	2.3	2.7	3.0	3.1	3.1	3.7	
1952[1]	2.8	2.2	3.4	4.2	2.6	3.2	2.4	4.2	3.6	
1953	3.8	3.5	3.0	3.6	3.0	3.5	3.7	4.3	4.3	
1954	7.3	7.4	3.4	3.7	2.8	3.0	6.6	4.0	4.2	
1955	7.5	0.6	4.5	2.3			2.8	3.7		
1956	6.8	3.8	3.8	2.5			2.6	3.9		
1957	10.3	3.2					5.6			
1958	6.0	1.2					3.4			
Whole period[1]					2.6	2.7			3.9	

48. NORWAY: 25 INDUSTRIES (20 MANUFACTURING); MALE WAGE-EARNERS (REF. 22200)

1955	5.9	1.1	4.0	—0.5	3.8[1]	—0.5[1]	0.3	—0.6	—0.6[1]	1. 1955 to 1959.
1956	4.3	—0.1	4.9	—0.0			0.3	—0.9		
1957	8.6	—4.9					—2.4			
1958	5.6	—0.9					—0.5			

49. BELGIUM: 10 NON-MANUFACTURING INDUSTRIES AND TOTAL MANUFACTURING; MALE WAGE-EARNERS (REF. 11200)

1949					2.5[2]	0.9[2]			1.0[2]	1. 1949 to 1962.
1955					3.9[3]	1.0[3]			0.3[3]	2. 1949 to 1955.
1962										3. 1955 to 1962.
Whole period[1]					2.9	0.9			0.6	

50. BELGIUM: 23 MANUFACTURING INDUSTRIES; MALE WAGE-EARNERS (REF. 11200)

1949					3.3[2]	1.5[2]			0.9[2]	1. 1949 to 1962.
1955					2.6[3]	0.8[3]			0.9[3]	2. 1949 to 1955.
1962										3. 1955 to 1962.
Whole period[1]					2.4	1.1			0.9	

51. NETHERLANDS: 20 MANUFACTURING INDUSTRIES; MALE SEMI-SKILLED WORKERS (REF. 21220)

1954					6.4[1]	0.4[1]				1. 1954 to 1960.

52. NETHERLANDS: 20 MANUFACTURING INDUSTRIES; MALE UNSKILLED WORKERS (REF. 21230)

1954					6.6[1]	—1.7[1]				1. 1954 to 1960.

III. COEFFICIENTS OF CORRELATION

Bivariate coefficients.

PERIOD LENGTH	1st YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT													NOTES
		1 USA 02140	2 USA 02100	3a USA 02100	3b USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	7 USA 02100	8 USA 02140	9 USA 02100	10 USA 02140	11 USA 02150	12 CANADA 01140	
No. of observations ..		*10*	*61*	*21*	*20*	*21*	21	*21*	*31*	*60*	*11*	*36*	*51*	*10*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.63*	*.25*	*.43*	*.44*	*.43*	.43	*.43*	*.36*	*.25*	*.60*	*.33*	*.28*	*.63*	2. 1950 to 1960.
1 year	1948	.64		—.03	.04	.43[3]	—.22	.15	.22	.40[4]	.60	.41	.54[7]		3. 20 observations; the branch "Products of Petroleum and Coal" is excluded.
	1949	.16		—.25	—.32	.07[3]	—.44	.27	.00	.41	.42	.01	.55		4. 59 observations; the sector "Agriculture" is excluded.
	1950	—.34		.41	.52	.76	—.24	.66	.28	.09	.11	—.22	.45	.64	5. 58 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
	1951	.23	.29	.20	.20	—.01	.29	—.05	.16	.12	.33	.20	—.08	—.23	6. 34 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
	1952	—.12	.14	.20	.26	.32	.44	.38	—.09	.08	—.25	—.03	.63	.21	7. .15 for 1947-48.
	1953	.44	.27	—.01	.44	.59	—.32	.51	.27	.42	.71	.36	.26	.79	8. .39 for 1947-50.
	1954	—.52	.20	.34	.53	.56	.07	.55	.24	—.08	—.15	—.38	—.03	—.66	9. .32 for 1947-52.
	1955	.18	—.05	—.23	—.13	.29	.46	.26	—.13	—.07[5]	—.14	—.15[6]	.46	.77	10. 1947 to 1961.
	1956	—.17	.35	.09	.27	.26	.71	.28	.18	—.02[5]	.11	—.21[6]	.39	.03	
	1957	.30	—.09	—.31	—.37	.11	—.46	—.40	.63	.05[5]	.71	.14[6]	.16	.51	
	1958	—.31	—.18	—.12	—.03	—.01	.30	.06	—.30	.19[5]	—.47	.25[6]	.23	—.75	
	1959	.17	.14	.06	.00	—.30	—.20	.07	.20	.06[5]	.29	—.10[6]	.77	.17	
	1960	.31	.21	.23	.02			.31	.45	.25[5]	.77	.27[6]	.54	.43	
3 years	1948	.20		.45	.30	.44	.04	.33	.42	—.02	.29	—.19	.58[8]		
	1949	—.09		.39	.43	.42[3]	.15	.25	.32	.10	.09	—.07	.52		
	1950	—.27		.32	.40	.58	.16	.50	.16	.20	—.12	.04	.60	—.37	
	1951	.27	.21	.32	.34	.19	.42	.23	.27	.26	.40	.24	.25	—.31	
	1952	—.02	.10	.19	.50	.40	.41	.49	.20	.14	.35	.09	.23	.80	
	1953	—.07	.10	—.13	.27	.24	.17	.04	—.12	—.04[5]	—.36	—.04[6]	.18	.37	
	1954	—.06	—.01	—.16	.13	.05	.71	.07	—.12	—.32[5]	—.23	—.41[6]	.42	.47	
	1955	—.10	.43	—.21	—.04	.31	.21	.17	—.06	—.18[5]	.04	—.34[6]	.49	—.05	
	1956	.19	—.10	—.31	—.39	—.35	—.13	—.19	—.15	—.02[5]	.13	—.00[6]	.49	.61	
	1957	.30	—.12	—.17	—.31	—.26	.07	—.26	.12	.09[5]	.62	.09[6]	.36	.53	
	1958	.09		—.02	—.13			—.27	.16	.11[5]	.67	.16[6]	.33	.25	
5 years	1948	.25			.30	.30	.35	.28	.20	.12	.09	—.02	.63[9]		
	1949	.01			.42	.35[3]	.25	.27	.27	.11	—.31	.02	.57		
	1950	—.14			.49	.48	.30	.48	.30	.19	.21	.08	.41	—.51	
	1951	.15	.08		.39	—.05	.60	.20	.19	.09[5]	—.06	.04[6]	.22	—.01	
	1952	.02	.14		.37	.15	.56	.29	.14	—.08[5]	—.52	—.20[6]	.36	.39	
	1953	.06	.15		.10	.20	.03	.02	.16	—.10[5]	.36	—.19[6]	.36	.56	
	1954	—.26	—.13		—.19	—.38	.32	—.21	—.27	—.31[5]	—.54	—.31[6]	.36	.59	
	1955	.13	.11		—.08	—.16	.42	.02	—.03	—.11[5]	—.01	—.22[6]	.50	.29	
	1956	.33			—.15			—.02	.13	.13[5]	.63	.08[6]	.51	.55	
Whole period		.01[3]	.05	.40	.23	.17	.46	.42[3]	.35	.13[5,6]	.45	.05[5,6]	.39[10]		
Whole period[1]				.40	.31	.23[3]	.47				.14			.31	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1st YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT *(continued)* 13a CANADA 01100	13b CANADA 01100	13c CANADA 01110	14 CANADA 01105	15 CANADA 01140	16 CANADA 01140	17 CANADA 01140	18 CANADA 01140	19 CANADA 01106	20 CANADA 01107	21 CANADA 01150	22a MONTREAL 01180	22b MONTREAL 01181	23 MONTREAL 01185
No. of observations ..		*17*	*13*	*17*	*17*	*17*	*53*	*38*	*21*	*17*	*17*	*10*	*16*	*16*	*16*
Significance limit (5%)		*.48*	*.55*	*.48*	*.48*	*.48*	*.27*	*.32*	*.43*	*.48*	*.48*	*.63*	*.50*	*.50*	*.50*
1 year	1949	.20		.08	—.41							.17[10]	.15[14]	.42[14]	—.65[14]
	1950	—.07		.07	—.40	.12	.24[9]	—.14[4]	—.50[5]			.12[10]	.34[14]	.45[14]	—.19[14]
	1951	.17		.47	.97	.26	.26[9]	—.31[4]	.57[5]			—.12	.11[14]	.30[14]	.07[14]
	1952	.65		.70	—.31	.38	.28	—.05[4]	—.27[5]			—.04	.55	.36	.40
	1953	.09	.35	.08	—.42	.66	.48	.49[4]	.32[5]			.02	.10	.27	.29
	1954	.32	.23	.04	—.33	.29	.30	.37[4]	.40[5]			—.25	—.32	—.13	—.21
	1955	.54	.56	.09	.02	.64	.20	—.10	—.25			.15	.16	.04	—.22
	1956	.39	.69[8]	.36	—.47	.59	.25	.41	.16			—.23	.50	.46	—.50
	1957	.22	—.01[8]	.49	—.65	.02	.10	.21	.27			.32	.22	.38	—.48
	1958	—.31	—.46	—.16	—.54	—.16	.14	—.29[9]	—.41[10]			.15	—.43	.05	—.60
	1959	.05	.02	.16	—.09	.42	.09	—.13	—.43	—.11	—.45		—.14	—.09	—.52
	1960					—.12	—.19	—.11	—.12						
	1961														
3 years	1949	—.06		—.18	.17							—.21[10]	—.09[14]	—.14[14]	—.51[14]
	1950	.14		.13	.34	.24	.36[9]	.19[4]	.26[5]			—.21[10]	.21[14]	.51[14]	—.16[14]
	1951	.38		.21	.79	.46	.30[9]	.45[4]	.48[5]	.63	.61	.95	.22[14]	.14[14]	—.10[14]
	1952	.61		.68	—.41	.51	.32	.32[7]	.20[11]			.58	.49	.51	—.11
	1953	.36	.30	—.05	.03	.70	.28	.35[4]	.20[5]			.41	.12	.03	.09
	1954	.62	.47[8]	.40	—.42	.61	.27	.14[4]	—.06[5]	.32	—.63	.12	—.20	—.42	—.54
	1955	.17	.03	.28	—.16	.57	.32	.21	.03			.32	.25	.49	—.34
	1956	.22	.20	.17	—.38	.29	.15	.21[9]	.04[10]			.71	—.07	.14	—.72
	1957	.15	.12[8]	.31	—.28	—.00	.02	—.03[9]	—.16[10]				—.38	—.55	—.37
	1958					—.56	—.08	—.43[9]	.47[10]						
	1959														
5 years	1949	.45		.38	.22							.68[10]	.43[14]	.64[14]	—.51[14]
	1950	.48		.25	.19	.52	.26[9]	.42[7]	.51[11]			.78[10]	.20[14]	.31[14]	—.08[14]
	1951	.45		.01	.71	.59	.27[9]	.45[7]	.41[11]	.81[10]	.30[10]	.64	.13[14]	.03[14]	.23[14]
	1952	.68		.70	—.58	.71	.35	.30[7]	.07[11]			.56	.39	.49	—.38
	1953	.30	.25	.33	—.10	.60	.40	.57[4]	.47[5]			.87	.17	.37	.22
	1954	.25	—.06	.23	—.43	.31	.25	.25[7]	.11[11]			.51	—.46	—.49	—.51
	1955	.15	.07	.15	—.07	.43	.25	.15[9]	—.06[10]				—.07	—.11	—.50
	1956					.20	.11	.10[9]	—.08[10]						
	1957														
Whole period							.28[9]					.81[10]			
Whole period[1]		.50		.43	.33	.66		.52[7]	.44[11]				.13[14]	.16[14]	.29[14]

NOTES

1. Average of the first and the last three terminal years.
2. 12 observations; the branch "Products of Petroleum and Coal" is excluded.
3. 50 observations.
4. 34 observations.
5. 35 observations.
6. 37 observations.
7. 33 observations.
8. 17 observations.
9. 18 observations.
10. 20 observations.
11. 16 observations.
12. 1951 to 1957.
13. 9 observations; the Province of Newfoundland is excluded.
14. 14 observations; the branches "Furniture" and "Non-metallic Mineral products" are excluded.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT *(continued)* 24*a* TORONTO 01190	24*b* TORONTO 01191	25 TORONTO 01195	26 GERMANY 16190	27*a* GERMANY 16140	27*b* GERMANY 16141	28*a* GERMANY 16110	28*b* GERMANY 16110	29*a* GERMANY 16120	29*b* GERMANY 16120	30*a* GERMANY 16130	30*b* GERMANY 16130	31*a* GERMANY 16110	31*b* GERMANY 16111	NOTES
No. of observations ..		*13*	*13*	*13*	*27*	*29*	*29*	*32*	*29*	*32*	*29*	*32*	*29*	*9*	*9*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.55*	*.55*	*.55*	*.38*	*.37*	*.37*	*.35*	*.37*	*.35*	*.37*	*.35*	*.37*	*.67*	*.67*	2. 12 observations; the branch "Non-ferrous metal products" is excluded.
1 year	1949	.00[2]	.19[2]	—.15[2]												3. 26 observations; the branch "Constructional Engineering" is excluded.
	1950	.72[2]	.43[2]	—.39[2]	—.10											4. 1951 to 1960.
	1951	.07[2]	.44[2]	.62[2]	.41											5. Average 1951-53 to average 1958-60.
	1952	.61[2]	.39[2]	—.25[2]	.13											
	1953	.05	.30	—.54	—.19											
	1954	.41	—.01	.05	—.36											
	1955	.24	.12	—.32	—.35											
	1956	.40	.18	—.56	.00											
	1957	—.06	—.46	—.52	—.20	.11	.11	—.09	—.10	.09	—.01	.26	.36	.59	.65	
	1958	.62	.58	—.05	.43	.63	.58	.07	.50	—.08	.52	.23	.51	.30	.29	
	1959	.04	.32	—.09	.43	.07	.09	—.14	—.04	.07	.13	.09	.16	.25	.13	
	1960					.33	.30	.40	.27	.24	.16	.53	.43	.02	.13	
	1961					.33	.30	.24	.24	.36	.30	.37	.23	.21	.63	
3 years	1949	.71[2]	.72[2]	.29[2]												
	1950	.80[2]	.69[2]	.47[2]	.05											
	1951	.33[2]	.09[2]	.03[2]	.03											
	1952	.61[2]	.61[2]	—.43[2]	—.35											
	1953	.46	.46	.16	—.45											
	1954	.28	—.05	.35	—.43											
	1955	.18	—.19	—.12	—.29[3]											
	1956	.73	.65	.01	—.02											
	1957	.82	.60	—.31	.18	.09	.12	.25	.13	.15	.10	.39	.40	.46	.45	
	1958					.43	.41	—.04	.35	.15	.55	.25	.31	.63	.68	
	1959					.37	.37	.17	.21	.48	.47	.47	.35	.47	—.05	
5 years	1949	.72[2]	.49[2]	—.01[2]												
	1950	.88[2]	.68[2]	.41[2]	—.15											
	1951	.25[2]	—.20[2]	.50[2]	—.18											
	1952	.57[2]	.63[2]	—.06[2]	—.44											
	1953	.56	.41	—.12	—.13											
	1954	.80	.82	—.45	—.24											
	1955	.69	.74	—.08	.02											
	1956															
	1957					.36	.36	.23	.27	.27	.44	.47	.43	.75	.56	
Whole period					—.12[4]											
Whole period[1]		.79[2]	.65[2]	.26[2]	—.33[5]											

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT *(continued)* 32a GERMANY 16120	32b GERMANY 16121	33a GERMANY 16130	33b GERMANY 16131	34 UK 28100	35 UK 28100	36 UK 28100	37a FRANCE 15100*	37b FRANCE 15100	37c FRANCE 15100[2]	38 FRANCE 15120	39 FRANCE 15150	40 SWEDEN 25120
No. of observations ..		*9*	*9*	*9*	*9*	*109*	*13*	*17*	*20*	*19*	*20*	*25*	*89*	*10*
Significance limit (5%)		*.67*	*.67*	*.67*	*.67*	*.19*	*.55*	*.48*	*.44*	*.46*	*.44*	*.40*	*.21*	*.63*
1 year	1949					.35	.00	.31	.45[3]		.22[3]			
	1950					.08	.43	.25	.34[3]	.32[3]	.32[3]			
	1951					.47	.73	.68	.28[3]	.31[3]	.30[3]			
	1952					.25	.26	.44	.23[3]	.30[3]	.29[3]			.09
	1953					.13	.38	.36	—.32[3]	—.31[3]	—.39[3]			.04
	1954					.24	.84	.53	—.21[4]	—.26[4]	—.05[4]			.20
	1955					.28	.62	.57	.09	.11[4]	—.03[4]	.31	—.22	.19
	1956					.34	.30	.40	.14[4]	.25[4]	.07[4]	.06	.25	—.91
	1957	.24	.50	.32	.25	—.11	.72	.70	.17	.18	.26			—.15
	1958	.16	—.10	—.25	—.34		.39	.24	.48	.47	.56			—.05
	1959	—.02	.32	.50	.43				.45		.54	.57	—.34	.04
	1960	.44	.55	—.81	—.76				.41		.35			
	1961	—.12	.02	.40	—.04				.17		.14			
3 years	1949					.10	.23	.33	.20[3]		.01[3]			
	1950					.20	.51	.32	17[3]	.19[3]	.13[3]			
	1951					.29	.50	.52	.38[3]	.40[3]	.43[3]			
	1952					.14	.45	.18	—.07[5]	—.18[5]	.01[5]			—.17
	1953					.31	.71	.44	—.23[4]	—.22[5]	—.12[4]			.01
	1954					.19	.85	.63		.22[5]				—.49
	1955					.15	.85	.77	.12[5]	.16[4]	.15[5]			.11
	1956						.59	.54	.22[4]	.22[4]	.27[4]	.55	.49	—.22
	1957	.69	.51	.42	.32				.35[3]		.39[3]	.43	—.27	.22
	1958	.42	.44	.29	.24				.41		.41			
	1959	.37	.52	.01	—.13				.32		.30			
5 years	1949					.11	.54	.45	.39[3]		.41[3]			
	1950					.26	.80	.50	.14[5]	.12[5]	.15[4]			
	1951					.34	.71	.51	.21[4]	.22[5]	.25[4]			
	1952					.26	.63	.27	—.09[5]	—.07[5]	—.12[5]			—.57
	1953					.21	.90	.67	.18[5]	.49[5]	.30[5]			—.36
	1954						.83	.61	.37[5]	.38[5]	.45[5]			—.21
	1955								.28[5]		.26[5]	.34	—.05	.13
	1956								.34[4]		.34[4]			
	1957	.50	.44	.08	—.07				.31		.31			
Whole period						.21	.80	.59	.34[6]		.33[3]			—.26
Whole period[1]								.62	.41[7]		.41[7]			

NOTES

1. Average of the first and the last three terminal years.
2. Change in earnings and change in index of activity (15300).
3. 18 observations.
4. 16 observations.
5. 15 observations.
6. 1948 to 1962 (15 observations).
7. Average 1947-49 to average 1960-62 (15 observations).
8. 17 observations.

* Correlation coefficients for 18 observations for other periods are:
1946-47: .27.
1947-48: *.51*.
1948-49: .03.
1946-49: .39.
1947-50: .13.
1948-51: .10.
1946-51: .28.
1947-52: .17.
1948-53: .12.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT *(continued)*													NOTES
		41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	44 SWEDEN 25100	46 NORWAY 22120	47 NORWAY 22130	48 NORWAY 22100	49 BELGIUM 11100	50 BELGIUM 11100	51*a* NETHER-LANDS 21120	51*b* NETHER-LANDS 21121	52*a* NETHER-LANDS 21130	52*b* NETHER-LANDS 21131	
No. of observations ..		*88*	*10*	*88*	*11*	*20*	*20*	*25*	*11*	*23*	*20*	*20*	*20*	*20*	1. 19 observations only; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
Significance limit (5%)		*.21*	*.63*	*.21*	*.60*	*.44*	*.44*	*.40*	*.60*	*.41*	*.44*	*.44*	*.44*	*.44*	
1 year	1949														
	1950					.01[1]	—.54[1]								2. 1955-1959.
	1951					.51[1]	.06[1]								3. 1949-1955.
	1952	—.34	—.32	—.09		—.37[1]	—.02[1]								4. 1955-1962.
	1953	—.14	—.15	—.40		.11	—.62								5. 1949-1962.
	1954	—.22	.24	—.36		—.11	—.54								6. 1954-1960.
	1955	.35	—.03			—.24	—.55	.59							
	1956	—.21	—.07		.58	—.35	.26	—.40							
	1957	—.10	.01	—.25	—.03	.12	.21	.12							
	1958	.07	—.39	—.03	—.14	.12	.20	.55							
	1959	—.19	.16	—.09											
	1960														
3 years	1949														
	1950					.17[1]	—.26[1]								
	1951					.32[1]	.17[1]								
	1952	—.18	—.18	—.40		—.14[1]	—.60[1]								
	1953	.00	.38			.30	—.09								
	1954	—.22	.35	—.05	.43	.32	.17								
	1955	—.08	.03	—.39		.04	—.17	.43							
	1956	.02	.32		.21	.14	—.19	—.16							
	1957	.11	.26	—.07											
	1958														
5 years	1949								.03[5]	—.04[5]					
	1950					.26[1]	—.33[1]								
	1951					.51[1]	.15[1]								
	1952	—.27	.17	—.23		.28[1]	.07[1]								
	1953	—.09	.52	—.24		.38	—.34								
	1954	.06	.58	—.09	.27	.16	—.12				.36[6]	.21[6]	.60[6]	.47[6]	
	1955	.08	.14	—.17				.32[5]	—.32[4]	—.06[4]					
	1956														
Whole period		—.13	.53	—.19		.36[1]	—.29[1]		—.21[5]	—.13[5]					

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

1ST YEAR	CHANGES IN EARNINGS AND EMPLOYMENT CHANGES IN THE FOLLOWING YEAR										
	1 USA 02140	2 USA 02100	3 USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	12 CANADA 01140	13 CANADA 01100	15 CANADA 01140
No. of observations	*8*	*61*	*19*	*21*	*21*	*21*	*42*	*19*	*10*	*11*	*17*
Significance limit (5%)	*.71*	*.25*	*.46*	*.43*	*.43*	*.43*	*.30*	*.46*	*.63*	*.60*	*.48*
1948	.20		—.09	.03[1]	.41	.17	.16	.30			
1949	—.26		.13	—.41[1]	.27	—.11	—.02	.10			
1950	—.65		—.12	.51	—.05	.46	.26	.15	—.56		—.05
1951	.23	.19	.33	.29	.25	.29	.28	.41	—.65		—.08
1952	—.49	—.03	—.03	—.20	.37	.13	.05	.23	—.30		.01
1953	.36	—.10	—.26	—.27	—.12	—.22	.14	.53	—.24	—.25	.29
1954	—.44	.01	.16	—.29	.44	—.12	—.11[4]	.12[6]	—.73	.03	.06
1955	—.83	—.01	—.23	—.08	.50	.18	—.06[4]	—.38[6]	—.33	—.42	.31
1956	.00	—.11	—.25	—.35	.26	—.02	—.02[4]	—.18[6]	—.14	.14	.52
1957	.33	—.21	.00	—.11[6]	.00[8]	.06[6]	.12[8]	.07[6]	—.28	.52	.02
1958	—.20	.09	.00	—.13[6]	.49[8]	—.14[6]	—.34[8]	—.43[6]	—.61	.24	—.30
1959		.19	.34						—.20		.00

1ST YEAR	17 CANADA 01140	18 CANADA 01140	21 CANADA 01150	27a GER-MANY 16140	27b GER-MANY 16141	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	34 UK 28100	36 UK 28100	37 FRANCE 15100
No. of observations	*38*	*21*	*10*	*32*	*32*	*32*	*32*	*32*	*109*	*17*	*19*
Significance limit (5%)	*.32*	*.43*	*.63*	*.35*	*.35*	*.35*	*.35*	*.35*	*.19*	*.48*	*.46*
1948									—.09	—.10	
1949			—.48[11]						—.06	—.40	—.21[10]
1950	—.20[7]	—.12[9]	—.77[11]						—.11	—.50	.15[9]
1951	.30[7]	.55[9]	.38[11]							.03	.56[9]
1952	—.09[7]	—.21[9]	.21						—.10	.29	—.60[10]
1953	.40[7]	.40[9]	.64						—.30	.30	—.02[10]
1954	.23[7]	.28[9]	.33						—.06	.06	.05[14]
1955	.01	—.12	.14						.09		.08[10]
1956	.45	.25	.39								.31
1957	.07[9]	.10[10]	.45	.19	.02	.24	.11	.18			.25
1958	—.35[9]	—.43[10]		.12	.18	.18	.15	.00			
1959	—.14	—.25		—.21	—.19	—.16	.08	—.15			
1960				—.07	—.06	.03	—.05	.00			

NOTES

1. 20 observations; the branch "Products of Petroleum and Coal" is excluded.
2. 20 observations; the branch "Instruments" is excluded.
3. 19 observations; the branches "Instruments" and "Automobiles and Automobiles Equipment" are excluded.
4. 40 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
5. 39 observations; the branches "Instruments", "Wholesale Trade" and "Retail Trade" are excluded.
6. 17 observations; the branches "Wholesale" Trade" and "Retail Trade" are excluded.
7. 34 observations.
8. 37 observations.
9. 17 observations.
10. 20 observations.
11. 9 observations; the Province of Newfoundland is excluded.
12. 16 observations.
13. 15 observations.
14. 14 observations.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

1ST YEAR	CHANGES IN EARNINGS AND PREVIOUS YEAR'S EMPLOYMENT CHANGES									
	1 USA 02140	3 USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	12 CANADA 01140	13 CANADA 01100	15 CANADA 01140
No. of observations	*8*	*19*	*21*	*21*	*21*	*42*	*19*	*10*	*11*	*17*
Significance limit (5 %)	*.71*	*.46*	*.43*	*.43*	*.43*	*.30*	*.46*	*.63*	*.60*	*.48*
1949	—.40	—.04	—.07[1]	—.40	—.26	—.33	.21			
1950	.16	.45	.20[1]	.06	.08	.08	—.28			
1951	.36	.41	—.05	.45	.04	.16	.36	.56		.11
1952	—.45	—.12	—.08	.27	.20	.04	—.12	.54		.30
1953	.66	.17	—.08	—.41	—.04	.05	.39	.44		.18
1954	—.71	—.19	—.41	.09	—.49	—.43	.12	.68	.06	.20
1955	—.65	—.55	—.65	—.04	—.70	—.22[2]	.33[5]	.63	.18	—.01
1956	—.21	—.01	—.20	—.23	—.13	—.16[3]	—.26[5]	.67	—.54	—.01
1957	.34	.39	.02	—.35	.36	.16[3]	—.13[5]	.33	.05	.15
1958	—.33	—.55	—.11[3]	.06[3]	—.19[3]	—.36[4]	—.29[5]	.72	.00	—.13
1959	.13	—.02	—.32[3]	.03[3]	—.18[3]	—.15[4]	.05[5]	.39	—.50	—.43
1960		.30						.19		—.44

	17 CANADA 01140	18 CANADA 01140	21 CANADA 01150	27*a* GER-MANY 16140	27*b* GER-MANY 16141	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16120	36 UK 28100	37 FRANCE 15100
No. of observations	*38*	*21*	*10*	*32*	*32*	*32*	*32*	*32*	*17*	*19*
Significance limit (5 %)	*.32*	*.43*	*.63*	*.35*	*.35*	*.35*	*.35*	*.35*	*.48*	*.46*
1950			.41[11]							
1951	.17[6]	.23[8]	.02[11]						.24	.00[8]
1952	.07[6]	—.14[8]	.36						—.26	.39[9]
1953	.10[6]	.12[8]	.51						—.16	—.12[8]
1954	.31[6]	.38[8]	.24						—.02	.33[10]
1955	—.20[6]	—.28[8]	.21						—.16	.46[10]
1956	.05	—.07	—.40						—.18	—.26[12]
1957	.29	.27	.21						.16	—.31[10]
1958	—.22[8]	—.45[10]	.42	.31	.29	.38	.08	.19		.13
1959	—.37[9]	—.37[10]		.11	.18	.07	.12	.16		—.18
1960	—.07	.03		.32	.31	.31	.21	.38		
1961				—.16	—.13	—.13	—.10	—.01		

NOTES

1. 20 observations; the branch " Products of Petroleum and Coal " is excluded.
2. 20 observations; the branch " Instruments " is excluded.
3. 40 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
4. 39 observations; the branches " Instruments ", " Wholesale Trade " and " Retail Trade " are excluded.
5. 17 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
6. 34 observations.
7. 37 observations.
8. 17 observations.
9. 20 observations.
10. 15 observations.
11. 9 observations; the Province of Newfoundland is excluded.
12. 14 observations.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN PROFITS												NOTES
		1 USA 02140	3a USA 02100[1]	3b USA 02100[3]	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	13 CANADA 01100	35 UK 28100	37 FRANCE 15100	45 SWEDEN 25100	
No. of observations ..		*8*	*19*	*19*	*21*	*21*	*21*	*42*	*19*	*13*	*13*	*19*	*30*	1. Changes in earnings and in profit rates.
Significance limit (5%)		*.71*	*.46*	*.47*	*.43*	*.43*	*.43*	*.30*	*.46*	*.55*	*.55*	*.46*	*.36*	2. 18 observations; the branch " Instruments " is excluded.
1 year	1948	.56	.48	.55	.74[4]	.65	.64	.43	.39					3. Changes in earnings and in profit rates, holding influence of profit rates constant.
	1949	.31	—.24	—.18	.15[4]	.03	.16	.19	—.27		.05			4. 20 observations; the branch " Products of Petroleum and Coal " is excluded.
	1950	—.01	.36	.36	.68	—.35	.77	.22	.20		.53	.39[11]		5. 20 observations; the branch " Instruments " is excluded.
	1951	.62	—.23	.35	.58	—.38	.14	.19	.17		.57	.46[11]		6. 19 observations; the branches " Instruments " and " Automobiles and Automobiles equipment " are excluded.
	1952	.07	.01	.20	.43	.26	.65	.28	.03		.41	—.15[11]	—.04	7. 40 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1953	.12	.58	.51	.58	—.11	.56	.22	.25	.40	.26	—.04[11]	.11	8. 39 observations; the branches " Instruments ", " Wholesale Trade " and " Retail Trade " are excluded.
	1954	.35	—.25	.15	.36	—.11	.25	.20[7]	.06[9]	—.47	.42	.51[12]	.14	9. 17 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1955	.16	.17	.05	.44	.52	.46	.33[7]	.32[9]	.44	.16	—.30[13]	—.03	10. 12 observations; the branch " Non-ferrous metal products " is excluded.
	1956	—.34	.44	.32	.37	.19	.39	.21[7]	—.10[9]	.03[10]	.72	.16[13]	.09	11. 17 observations.
	1957	.32	—.09	.19	.26[5]	—.44[5]	—.16[5]	—.14[8]	—.24[9]	.17[10]	.38	.23	.39	12. 15 observations.
	1958	—.01	—.10	.09	.33[5]	.07[9]	—.21[5]	—.14[8]	—.19[9]	.54	.11	.46	.14	13. 16 observations.
	1959		.29	.18						.53			—.19	
	1960												—.15	
3 years	1948	.43	.74	.73	.84[4]	.49	.71	.17	.03					
	1949	.19	.51	.60	.54[4]	.14	.32	.04	.06		.25			
	1950	.00	.51	.59	.67	.16	.76	.33	.27		.50	—.05[11]		
	1951	.81	—.03	.55	.50	.31	.51	.58	.73		.56	.45[11]		
	1952	.73	—.07	.27	.60	.11	.61	.42[7]	.32[9]		.15	—.20[13]	—.25	
	1953	—.21	—.27	.31	.07	—.26	—.10	—.06[7]	—.01[9]	—.22	.55	.49[12]	.03	
	1954	—.34	—.28	.11	.25	—.32	.07	—.07[7]	—.11[9]	.08[10]	.57	.23[12]	.26	
	1955	—.15	.37	.62	.46[5]	.18[5]	.38[6]	.09[8]	—.37[9]	.24	.60	.29[13]	—.07	
	1956	.35	—.40	—.06	—.11	—.07	—.10	—.28[7]	—.58[9]	—.14	.22	.31[13]	.05	
	1957		—.30	—.13						.08[10]			.14	
	1958												.09	
5 years	1948	.36	.65	.75	.66[4]	.61	.61	.23	.15					
	1949	.55	.52	.56	.56[4]	.03	.42	.37	.39		.54			
	1950	.27	.48	.55	.68	.18	.75	.46[7]	.35[9]		.73	.05[12]		
	1951	.47	—.33[8]	—.41[8]	.21	.10	.29	.34[7]	.43[9]		.66	.27[12]		
	1952	.09	.22	.49	.52	.49	.63	30[7]	—.06[9]		.55	—.10[12]	—.09	
	1953	—.26	.17	.55	.40[5]	—.13[5]	.16[6]	—.13[8]	—.46[9]	—.15	.72	.37[12]	.18	
	1954	—.12	—.69	—.38	—.02	—.45	—.27[7]	—.42[7]	—.66[9]	—.27	.28	.50[12]	.22	
	1955		—.04	.28						.18			—.04	
	1956												.21	
Whole period											*.62*		.03	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

1ST YEAR	CHANGES IN EARNINGS AND PREVIOUS YEAR'S PROFIT CHANGE									NOTES
	1 USA 02140	3 USA 02100[1]	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	37 FRANCE 15100	45 SWEDEN 25100	
No. of observations	*8*	*19*	*21*	*21*	*21*	*42*	*19*	*19*	*30*	1. Changes in earnings and in profit rates.
Significance limit (5%)	*.71*	*.46*	*.43*	*.43*	*.43*	*.30*	*.46*	*.46*	*.36*	2. 20 observations; the branch "Products of Petroleum and Coal" is excluded.
1949	—.08	.24	—.02[2]	.25	.25	—.24	—.46			3. 20 observations; the branch "Instruments" is excluded.
1950	.13	.30	—.08[3]	.36	—.06	.12	.17			4. 40 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
1951	.38	.47	—.05	.59	.21	.31	.40	.00[3]		5. 39 observations; the branches "Instruments", "Wholesale Trade" and "Retail Trade" are excluded.
1952	—.12	—.23	—.25	.50	.01	.03	.18	.32[3]	.07	6. 17 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
1953	.50	—.05	.05	—.37	.00	.15	.47	.21[3]	.19	7. 12 observations; the branch "Nonferrous metal products" is excluded.
1954	.10	.18	—.38	.10	—.23	.04	.12	—.41[3]	.08	8. 17 observations.
1955	.15	—.34	—.35	—.49	—.51	—.19[4]	.15[5]	.45[5]	.12	9. 15 observations.
1956	.42	—.18	—.11	.30	.10	.18[4]	.21[5]	—.07[10]	—.11	10. 14 observations.
1957	—.02	.54	.10	.40	.59	.24[4]	—.19[6]	—.04[6]	—.13	
1958	.33	—.11	.13[3]	—.51[3]	.09[3]	.01[5]	.03[6]	.11	.24	
1959	—.02	—.14	—.04[3]	—.32[3]	—.07[3]	—.18[5]	—.26[6]	.07	.10	
1960		.43								

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN INDEX OF PRODUCTION							NOTES
		3 USA 02100	13 CANADA 01100	19 ANADA 01106	20 CANADA 01107	35 UK 28100	46 NORWAY 22120	47 NORWAY 22130	
No. of observations		*20*	*17*	*17*	*17*	*13*	*20*	*20*	1. 19 observations; the branch "Miscellaneous manufacturing industries" is excluded.
Significance limit (5%)		*.44*	*.48*	*.48*	*.48*	*.55*	*.44*	*.44*	2. 19 observations only; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
1 year	1948	.12							
	1949	—.18	.30			—.41			
	1950	.45	—.07			.46	.01[2]	—.16[2]	
	1951	.17	—.02			.59	.72[2]	.55[2]	
	1952	.25	.10			.32	.17[2]	.16[2]	
	1953	.20	.38			.12	.11	.03	
	1954	.58	.06			.70	.51	.12	
	1955	.41	.34			.43	—.07	.27	
	1956	.29	.14			.63	—.10	—.13	
	1957	—.38	.24			.76	.34	.09	
	1958	.07[1]	.00			—.11	.11	.13	
3 years	1948	.48							
	1949	.52	.26			.20			
	1950	.39	.19			.40	.47[2]	—.44[2]	
	1951	.15	.26	.03	.61	.46	.37[2]	.64[2]	
	1952	.31	.29			.25	.56[2]	—.35[2]	
	1953	.13	.46			.67	.25	—.13	
	1954	.38	.28	.70	.26	.78	.26	—.24	
	1955		.33			.74	.12	.44	
	1956	—.37[1]	.36			.64	.10	.30	
	1957	— 28[1]							
	1958	31[1]							
5 years	1948	.40							
	1949	.46	.55			.62			
	1950	.46	.46			.71	.70[2]	.04[2]	
	1951	.17	.26			.63	.60[2]	.51[2]	
	1952	.26	.38			.51	.17[2]	—.25[2]	
	1953	.05	.43			.87	.40	.14	
	1954	—.08[1]	.39			.63	.22	.21	
	1955	.10[1]							
	1956	.30[1]							
Whole period						.68	.54[2]	.31[2]	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND CONCENTRATION												NOTES
		3 USA 02100	13 CANADA 01100	18 CANADA 01106	19 CANADA 01107	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	31 GER-MANY 16110	32 GER-MANY 16120	33 GER-MANY 16130	34 UK 28100	
No. of observations ..		*20*	*17*	*17*	*17*	*29*	*29*	*29*	*29*	*9*	*9*	*9*	*79*	1. 19 observations; the branch " Miscellaneous Manufacturing industries " is excluded.
Significance limit (5%)		*.44*	*.48*	*.48*	*.48*	*.37*	*.37*	*.37*	*.37*	*.67*	*.67*	*.67*	*.22*	2. 1951 to 1957.
1 year	1948	.29												3. 1954 to 1958.
	1949	.26	.29											4. 1954 to 1958; for the period 1949-58, the correlation coefficient is .34.
	1950	.25	.47											
	1951	.41	—.12	.02	.40									
	1952	.46	—.08											
	1953	.35	—.01										.23	
	1954	.59	.35	.44	.30								.15	
	1955	—.02	.54										.05	
	1956	.55	—.04										.08	
	1957	.45	.02			—.21	—.32	—.24	.05	—.17	—.40	—.45	.26	
	1958	.43[2]	.24			.05	.03	.09	—.26	—.01	—.18	—.04		
	1959					—.53	—.52	—.55	—.50	—.73	—.17	—.52		
	1960					—.04	—.12	.09	—.25	.11	.15	—.46		
	1961					—.04	—.05	—.22	—.08	.03	—.15	.23		
3 years	1948	.42												
	1949	.49	.50											
	1950	.51	.34											
	1951	.52	—.12	.02	.40									
	1952	.56	.12											
	1953	.52	.48											
	1954	.58	.43	.44	.30									
	1955		.33											
	1956	.57[1]	.12											
	1957	.54[1]				—.59	—.65	—.60	.44	—.50	—.38	—.56		
	1958	.52[1]				—.42	—.47	—.37	.56	—.52	—.02	—.63		
	1959					—.48	—.48	—.50	.52	—.55	.00	—.77		
5 years	1948	.52											.15[3]	
	1949	.57	.34											
	1950	.57	.35											
	1951	.56	.18	.46[3]	.40[3]									
	1952	.54	.23											
	1953	.55	.30											
	1954	.61[1]	.41										.28[4]	
	1955	.52[1]												
	1956	.57[1]												
	1957					—.59	—.62	—.51	—.53	—.45	—.27	—.75		

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND CONCENTRATION *(concluded)*					CHANGES IN EARNINGS AND PROFIT RATES		NOTES
		38 FRANCE 15120	40 SWEDEN 25120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	3 USA 02100	3 USA[1] 02100	
No. of observations		*25*	*10*	*88*	*10*	*88*	*19*	*19*	1. Changes in earnings correlated with previous year's profit rate.
Significance limit (5%)		*.40*	*.63*	*.21*	*.63*	*.21*	*.46*	*.46*	2. 18 observations; the branch "Instruments" is excluded.
1 year	1948						.19		
	1949						.17	—.03	
	1950						.28	—.01	
	1951						.60	.41	
	1952		—.05	—.01	.15	—.15	.49	.50	
	1953		—.22	—.10	—.35	.02	.59	.58	
	1954		—.23	.09	.09	.24	.52	.59	
	1955	.43	.44	—.02	—.51		—.21	.06	
	1956	—.26	—.47	.06	—.30		.52	.43	
	1957		—.12	—.19	.25	.04	.66	.56	
	1958		—.26	—.12	.17	—.05	.22	.39	
	1959	.22	.08	.10	—.11	.26	.43	.38	
	1960							.29	
3 years	1948						.21		
	1949						.26	.07	
	1950						.45	.32	
	1951						.65	.44	
	1952		—.20	.01	.06	.08	.62	.63	
	1953		.05	—.01	—.48		.60	.53	
	1954		—.13	.14	—.43	.00	.55	.54	
	1955		.09	—.08	—.29	—.17	.36		
	1956	—.25	—.61	—.15	.07		.63		
	1957	.05	—.21	—.17	.25	.19	.67	.55	
	1958							.64	
5 years	1948						.05		
	1949						.46		
	1950						.47		
	1951						.63[2]		
	1952		—.14	.05	—.43	—.08	.54		
	1953		—.37	—.06	—.30	.04	.64		
	1954		—.41	—.09	—.14	.00	.65		
	1955	.19	—.02	—.10	—.22	.03	.48		
	1956								

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND RATIO OF LABOUR COST TO SALES													
		4 USA 02120	5 USA 02130	6 USA 02140	13 CANADA 01100	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	40 SWEDEN 25120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	46 NORWAY 22120	47 NORWAY 22130
No. of observations ..		*21*	*21*	*21*	*13*	*29*	*29*	*29*	*29*	*10*	*88*	*10*	*88*	*20*	*20*
Significance limit (5%)		*.43*	*.43*	*.43*	*.55*	*.37*	*.37*	*.37*	*.37*	*.63*	*.21*	*.63*	*.21*	*.44*	*.44*
1 year	1948	—.28[1]	—.30	—.31											
	1949	—.21[1]	.12	—.08											
	1950	.19	.12	—.08										—.37[4]	—.19[4]
	1951	—.05	—.14	—.22										—.26[4]	.36[4]
	1952	—.07	—.16	—.29						—.28	.11	—.42	—.09	.53[4]	.28[2]
	1953	—.30	.10	—.31	.23					—.56	—.01	.61	.10	.33	.41
	1954	—.17	.08	.00	—.22					—.44	—.39	—.60	—.21	—.04	.21
	1955	—.26	.22	—.25	.02					.29	.00	.26		.16	—.08
	1956	—.29	—.43	—.69	—.64[4]					.02	.13	.39		—.20	—.20
	1957	—.14[3]	—.04[3]	—.25[3]	.36[4]					.45	.22	—.10	.10	.50	.45
	1958	—.23[3]	.27[3]	.07[3]	—.19	—.13	—.18	—.20	.15	.16	—.04	.44	—.01	—.31	—.03
	1959				—.49	—.01	—.05	—.02	—.03	.04	—.22	.06	—.01		
	1960					—.47	—.42	—.51	—.32						
	1961					.08	.02	.38	.08						
3 years	1948	.00[1]	.02	—.18											
	1949	.03[1]	.16	—.14											
	1950	.08	—.05	—.25										—.16[4]	.13[4]
	1951	—.18	—.28	—.35										.34[4]	.56[4]
	1952	—.32	—.11	—.31						—.47	—.19	—.57	—.15	.36[4]	.21[4]
	1953	—.61	.21	—.41	—.06					—.65	—.38	—.14		.41	.49
	1954	—.52	—.09	—.55	—.56[4]					—.34	—.19	—.05	—.11	—.06	.10
	1955	—.40[3]	—.07[3]	—.56[3]	—.62					.52	.29	.27	.15	.34	.08
	1956	—.53	—.02	—.53	—.52					.49	.28	.47		.04	.29
	1957				—.63[4]	—.24	—.33	—.23	—.09	.42	—.04	.19	.06		
	1958					—.40	—.44	—.52	—.11						
	1959					—.26	—.28	—.25	—.15						
5 years	1948	—.04[1]	—.14	—.24											
	1949	—.08[1]	.04	—.29											
	1950	—.09	—.05	—.29										—.06[4]	.19[4]
	1951	—.45	.07	—.36										.29[4]	.54[4]
	1952	—.54	—.17	—.55						—.43	—.06	—.20	—.09	.34[4]	.25[4]
	1953	—.58[3]	—.09[3]	—.59[3]	—.37					—.32	—.04	.02	.03	.55	.70
	1954	—.62	.10	—.43	—.48					.09	—.06	.09	—.03	.08	.51
	1955				—.74					.49	.11	.42	.10		
	1956														
	1957					—.46	—.49	—.39	—.22						

1. 20 observations; the branch "Product of Petroleum and Coal" is excluded.
2. 20 observations; the branch "Instruments" is excluded.
3. 19 observations; the branches "Instruments" and "Automobiles and Automobile Equipment" are excluded.
4. 12 observations; the branch "Non-ferrous metal products" is excluded.
5. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND EARNINGS LEVEL													NOTES
		1 USA 02140	2 USA 02100	3 USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	7 USA 02100	8 USA 02140	9 USA 02100	10 USA 02140	11 USA 02150	12 CANADA 01140	13a CANADA 01100	
No. of observations ..		*10*	*61*	*21*[3]	*21*	*21*	*21*	*31*	*60*	*11*	*36*	*51*	*10*	*17*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.63*	*.25*	*.43*	*.43*	*.43*	*.43*	*.36*	*.25*	*.60*	*.33*	*.28*	*.63*	*.48*	2. 1950 to 1960.
1 year	1948	.07		.53	.30[4]	—.38	.51	.31	.11[4]	—.24	.11	—.15[6]			3. 20 observations only for the 5-year spans; the branch "Ordnance and Accessories" is excluded.
	1949	.70		—.42	—.01[4]	—.01	—.20	—.39	.31	—.12	.41	—.48		.36	
	1950	.22		.21	.29	—.47	.63	.31	.33	.29	.22	.06	.20	.13	
	1951	.21	.29	.40	.07	.04	.43	.29	.12	—.07	.04	.22	.22	.13	4. 20 observations only; the branch "Products of Petroleum and Coal" is excluded.
	1952	.83	.38	.41	.54	—.15	.70	.45	.40	.24	.23	.10	—.30	.24	
	1953	.35	.19	.37	—.23	—.47	.06	.22	.09	—.03	.13	—.22	—.62	.18	
	1954	.49	.62	.58	.24	.15	.09	.18	.19	—.49	.13	.08	—.14	.51	59 observations; the sector "Agriculture" is excluded.
	1955	.91	—.41	.28	.45	—.09	—.11	.03	.06[4]	.40	—.06[7]	.14	.19	.26	
	1956	.32	.40	.44	.63	—.27	.68	.57	.28[4]	.66	.04[7]	—.26	.39	.21	6. 58 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
	1957	.17	.57	.60	.02	—.10	.48	.24	.19[4]	—.27	.09[7]	—.15	—.23	—.01	
	1958	.63	.61	.56	—.05	.34	.05	.46	.28[4]	.26	.34[7]	—.10	.16	.31	
	1959	.24	—.06	.05	.10	—.25	.05	.06	—.35[4]	.04	—.46[7]	.43	—.16	.19	7. 34 observations; the branches "Wholesale Trade" and "Retail Trade" are excluded.
	1960	.39	.13	.49			.31	.17	.36[4]	—.26	.43[7]	—.11	—.35		
3 years	1948	.82		.19	.46	—.16	.47	.17	.54	.02	.51	—.31[6]			8. .14 for the period 1947-1948.
	1949	.58		.11	.38[4]	—.09	.36	.13	.45	.08	.44	—.09		.42	
	1950	.59		.44	.41	—.39	.77	.43	.36	.20	.17	.24	.07	.34	9. .25 for the period 1947-50.
	1951	.67	.39	.47	.17	—.23	.55	.41	.37	.06	.30	.10	—.17	.26	10. .07 for the period 1947-1952.
	1952	.81	.47	.51	.33	—.11	.47	.38	.40	—.14	.30	—.04	—.59	.45	
	1953	.81	.31	.37	—.19	—.22	.06	.31	.25[4]	.20	.18[7]	.15	—.31	.59	
	1954	.83	.37	.36	.37	—.13	.38	.38	.25[4]	.32	.04[7]	.05	.24	.60	11. 1947 to 1961.
	1955	.62	.27	.29	.14	—.06	.49	.39	.23[4]	.63	.01[7]	—.09	.25	.47	
	1956	.51	.67	.66	.56	.17	.73	.59	.44[4]	.46	.30[7]	—.31	.10	.36	12. Average 1947-49 to average 1959-61.
	1957	.32	.60	.57	.05	.10	.33	.38	.12[4]	—.02	.02[7]	.22	—.09	.42	
	1958	.40		.56			.20	.43	.24[4]	.05	.27[7]	.22	—.04		
5 years	1948	.84		.30	.44	—.22	.57	.31	.49	.07	.37	—.16[10]			
	1949	.80		.24	.37[4]	—.27	.51	.30	.50	.16	.42	—.13		.38	
	1950	.82		.46	.39	—.33	.67	.38	.51	—.04	.37	.12	.10	.41	
	1951	.86	.40	.41	.17	—.12	.43	.39	.42[4]	.12	.29[7]	.21	.22	.50	
	1952	.88	.36	.34	.39	—.20	.50	.43	.44[4]	.51	.28[7]	—.02	—.20	.51	
	1953	.70	.43	.41	.16	—.06	.45	.39	.31[4]	.36	.16[7]	—.12	.16	.52	
	1954	.81	.59	.53	.33	.18	.42	.45	.37[4]	.25	.22[7]	—.05	.25	.57	
	1955	.65	.42	.34	.14	.05	.38	.48	.17[4]	.62	—.03[7]	—.09	—.05	.52	
	1956	.40		.56			.63	.46	.36[4]	.10	.27[7]	—.06			
Whole period		.87[3]	.46	.32	.38	—.29	.57[3]	.30	.41[3,4]	.10	.22[3,7]	.01[11]			
Whole period[1]				.37	.45[4]	—.04				.25		—.03[12]	—.03	—.48	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND EARNINGS LEVEL *(continued)*													NOTES
		13*b* CANADA 01110	14 CANADA 01105	15 CANADA 01140	16 CANADA 01140	17 CANADA 01140	18 CANADA 01140	19 CANADA 01106	20 CANADA 01107	21 CANADA 01150	22*a* MONT-REAL 01180	22*b* MONT-REAL 01181	23 MONT-REAL 01185	24*a* TORONTO 01190	
No. of observations ..		*17*	*17*	*17*	*53*	*38*	*21*	*17*	*17*	*10*	*16*	*16*	*16*	*13*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.48*	*.48*	*.48*	*.27*	*.32*	*.43*	*.48*	*.48*	*.63*	*.50*	*.50*	*.50*	*.55*	2. 50 observations.
1 year	1949	.18	.18							—.22[13]	—.19[13]	—.22[13]	.13[13]	.28[16]	3. 34 observations.
	1950	.42	.12	.59	.42[2]	.54[2]	.48[7]			.63[13]	.51[13]	.61[13]	.08[13]	—.01[16]	4. 35 observations.
	1951	—.72	.16	.41	.14[2]	.38[2]	.36[7]			—.11	—.23[13]	—.78[13]	—.34[13]	.20[16]	5. 37 observations.
	1952	.62	—.39	.15	.09	—.09[2]	—.18[7]			—.54	.17	.47	.02	—.33[16]	6. 33 observations.
	1953	.11	—.08	.41	.08	.01[4]	—.11[8]			.34	—.38	.20	.04	—.08	7. 17 observations.
	1954	.25	.39	.37	.19	.09[2]	—.10[7]			.19	.21	—.54	.34	.46	8. 18 observations.
	1955	—.09	—.12	.62	.33	.11	—.29			—.02	—.38	—.18	—.06	—.25	9. 20 observations.
	1956	.44	—.12	.45	.19	.09	—.08			—.49	—.17	.02	—.42	—.31	10. 16 observations.
	1957	—.60	—.14	—.18	.04	.09	.26			.17	.21	—.07	—.22	—.61	11. 1951 to 1957.
	1958	.55	.10	.56	.38	.49[5]	.51[9]			—.20	.38	.50	.37	—.06	12. 9 observations; the Province of Newfoundland is excluded.
	1959	.08	.42	.30	.18	.04	—.03	.02	.49		—.05	—.12	—.62	—.26	13. 14 observations; the branches " Furniture " and " Non-metallic mineral products " are excluded.
	1960			—.34	.12	—.06	.08								
3 years	1949	.42	.17							.21[13]	.26[13]	.02[13]	.09[13]	.26[16]	14. 12 observations; the branch " Non-ferrous metal products " is excluded.
	1950	.43	.15	.71	.36[2]	.63[2]	.53[7]			—.11[13]	.40[13]	.58[13]	—.14[13]	—.00[16]	
	1951	—.21	.13	.56	.20[2]	.29[2]	.16[7]	—.25	—.13	.05	—.20[13]	—.34[13]	.02[13]	—.10[16]	
	1952	.55	—.08	.51	.20	.03[4]	—.21[10]			.34	.03	.10	.36	.01[16]	
	1953	—.10	.18	.66	.33	.19[2]	—.01[7]			.65	—.36	—.49	.43	.03	
	1954	.33	.24	.68	.35	.33[2]	.11[7]	.01	.09	—.24	—.16	—.54	.03	—.09	
	1955	.20	—.20	.52	.32	—.01	—.10			—.10	—.19	—.08	—.41	—.64	
	1956	.42	—.02	.48	.39	.34[5]	.39[9]			—.21	.24	.27	—.18	—.48	
	1957	—.07	.18	.52	.38	.34[5]	.41[9]				.43	.30	—.34	—.50	
	1958			.57	.39	.22[5]	.21[9]								
5 years	1949	.65	.14							.32[13]	.05[13]	.62[13]	.23[13]	.03[16]	
	1950	.40	.18	.77	.39[2]	.54[6]	.32[10]			.62[13]	.27[13]	.35[13]	.12[13]	.05[16]	
	1951	—.36	.13	.71	.30[2]	.38[6]	.15[10]	—.03[11]	—.13[11]	.16	—.24[13]	—.65[13]	.15[13]	.02[16]	
	1952	.66	—.15	.66	.32	.27[6]	—.01[10]			—.05	—.22	.14	.24	—.26[16]	
	1953	.14	.01	.56	.30	.32[2]	.30[7]			.46	—.23	—.30	.11	—.49	
	1954	.26	.08	.69	.46	.60[6]	.65[10]			—.09	.16	—.20	.14	—.37	
	1955	.39	.12	.70	.52	.16[5]	.04[9]				—.04	.15	—.50	—.60	
	1956			.47	.39	.22[5]	.26[9]								
Whole period					.52[2]					.09[13]					
Whole period[1]		.50	.16	.72		.54[6]	.49[10]				.08[13]	.17[13]	.26[13]	—.24[16]	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND EARNINGS LEVEL *(continued)*														NOTES
		24*b* TORONTO 01191	25 TORONTO 01195	26 GER-MANY 16100	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	31 GER-MANY 16110	32 GER-MANY 16120	33 GER-MANY 16130	34 UK 28100	38 FRANCE 15120	39 FRANCE 15150	40 SWEDEN 25120	
No. of observations ..		*13*	*13*	*27*	*32*	*32*	*32*	*32*	*9*	*9*	*9*	*109*	*25*	*89*	*10*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.55*	*.55*	*.38*	*.35*	*.35*	*.35*	*.35*	*.67*	*.67*	*.67*	*.19*	*.40*	*.21*	*.63*	
1 year	1949	.21[2]	—.38[2]									—.09				2. 12 observations: the branch "Non-ferrous metal products" is excluded.
	1950	.13[2]	.53[2]	.55								—.26				
	1951	.11[2]	—.50[2]	.41								.14				
	1952	.00[2]	—.51[2]	—.06								.22			—.25	3. 26 observations; the branch "Constructional Engineering" is excluded.
	1953	—.39	—.57	.48								.07			—.18	
	1954	.23	—.07	.54								.09			—.08	
	1955	—.01	—.06	.07								.15	—.48	—.15	—.08	4. 1951 to 1960.
	1956	.02	—.43	—.18								.05	—.51	—.14	—.38	5. Average 1951-53 to average 1958-60.
	1957	—.72	.01	—.54	—.31	—.37	—.36	—.19	—.14	—.12	—.03				—.06	
	1958	—.23	—.40	—.50	.31	.36	.25	—.05	.51	.10	.36				.41	6. 1951 to 1957; 19 observations only.
	1959	—.21	.44	—.69	—.73	—.75	—.64	—.75	—.27	—.34	—.55		—.13	—.10	—.31	
	1960				—.07	—.01	.08	—.18	—.48	—.25	—.27					7. 1951 to 1962; 19 observations only.
	1961				—.33	—.37	—.48	—.15	—.16	—.67	—.22					
3 years	1949	.29[2]	—.34[2]									—.09				
	1950	.23[2]	—.27[2]	.61								—.14				
	1951	—.22[2]	—.80[2]	.42								.10				
	1952	—.10[2]	—.65[2]	.44								—.01			—.24	
	1953	—.08	—.32	.54								.27			—.07	
	1954	.37	—.07	.21											—.23	
	1955	—.37	—.16	—.39[3]											—.26	
	1956	—.45	—.45	—.56									—.19	—.18	.00	
	1957	—.62	.21	—.79	—.59	—.57	—.60	—.61	.00	—.26	—.20		.13	—.15	.06	
	1958				—.36	—.27	—.18	—.57	—.19	—.28	—.30					
	1959				—.67	—.67	—.51	—.62	—.69	—.70	—.65					
5 years	1949	.12[2]	—.70[2]									—.12				
	1950	.18[2]	—.55[2]	.70								—.01				
	1951	.05[2]	—.62[2]	.48		—.40[4]	—.29[4]	.14[4]				.21				
	1952	.09[2]	—.63[2]	.27								.16			—.32	
	1953	—.37	—.39	.09											—.33	
	1954	—.27	—.32	—.29											.10	
	1955	—.47	.02	—.74									—.48	—.13	—.16	
	1956															
	1957				—.59	—.56	—.49	—.62	—.30	—.53	.33					
Whole period				—.19[6]		—.66[7]	—.61[7]	—.41[7]				.10			—.25	
Whole period[1]		—.02[2]	—.46[2]	—.08[5]												

III. COEFFICIENTS OF CORRELATIONS *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND EARNINGS LEVEL *(concluded)*														NOTES
		41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	44 SWEDEN 25100	45 SWEDEN 25100	46 NORWAY 22120	47 NORWAY 22130	48 NORWAY 22100	49 BELGIUM 11100	50 BELGIUM 11100	51*a* NETHER-LANDS 21120	51*b* NETHER-LANDS 21121	52*a* NETHER-LANDS 21130	52*b* NETHER-LANDS 21131	
No. of observations ..		*88*	*10*	*88*	*11*	*30*	*20*	*20*	*25*	*11*	*23*	*20*	*20*	*20*	*20*	1. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
Significance limit (5%)		*.21*	*.63*	*.21*	*.60*	*.36*	*.44*	*.44*	*.40*	*.60*	*.41*	*.44*	*.44*	*.44*	*.44*	
1 year	1949															
	1950						—.39[1]	—.31[1]								
	1951						—.16[1]	—.51[1]								
	1952	—.36	.09	—.23		—.03	—.05[1]	—.14[1]								2. 1954 to 1959.
	1953	—.12	—.22	—.23		—.26	—.30	—.31								3. 1949 to 1955.
	1954	.03	.17	—.02		—.32	.06	—.08								4. 1955 to 1962.
	1955	—.20	—.84			.18	—.46	—.38	.59							5. 1949 to 1962.
	1956	—.26	—.23		.47	.00	.05	—.26	—.40							6. 1954 to 1960.
	1957	—.14	—.36	—.07	.01	.20	—.14	—.23	.12							
	1958	.10	.48	—.18	—.14	—.12	.04	.11	.55							
	1959	—.21	—.19	—.19		—.23										
	1960					—.12										
3 years	1949															
	1950						—.30[1]	—.52[1]								
	1951						—.21[1]	—.51[1]								
	1952	—.25	.13	—.19		—.38	.11[1]	—.07[1]								
	1953	—.06	—.55			—.27	—.20	.10								
	1954	—.21	—.49	—.26	.04	—.11	—.07	.17								
	1955	—.34	—.74	—.27		.22	—.31	—.45	—.43							
	1956	—.11	—.12		.13	.10	.28	—.14	—.16							
	1957	—.05	—.09	—.18		—.04										
	1958					—.29										
5 years	1949									—.37[3]	.02[3]					
	1950						—.15[1]	—.35[1]								
	1951						—.13[1]	—.23[1]								
	1952	—.38	—.40	—.36		—.24	—.02[1]	.03[1]								
	1953	—.23	—.62	—.26		—.14	—.09	—.06								
	1954	—.06	—.37	—.15	.04	—.04	.01	.21				—.61[6]	—.63[6]	—.72[6]	—.83[6]	
	1955	—.26	—.57	—.32		.05			.32[3]	.33[4]	.27[4]					
	1956					—.07										
Whole period		—.33	—.35	—.29		—.25	—.21[1]	—.32[1]		.06[5]	.07[5]					

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	EARNINGS STRUCTURES OF YEARS AT 1, 3 AND 5 YEARS DISTANCE AND LONGEST INTERVALS													NOTES
		1 USA 02140	3 USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	7 USA 02100	8 USA 02140	9 USA 02100	10 USA 02140	11 USA 02150	12 CANADA 01140	14 CANADA 01105	15 CANADA 01140	
No. of observations		*10*	*21*[2]	*21*	*21*	*21*	*31*	*60*	*11*	*36*	*51*	*10*	*17*	*17*	1. Average of the first and the last three terminal years.
Significance limit (5%) ...		*.63*	*.43*	*.43*	*.43*	*.43*	*.36*	*.25*	*.60*	*.33*	*.28*	*.63*	*.48*	*.48*	2. 1950 to 1960.
1 year	1948	.99	.99	.99[4]	.82	.99	.99	.99[5]	.99	.99	.98[6]				3. 20 observations only for the 5-year spans; the branch " Ordnance and Accessories " is excluded.
	1949	.99	.99	.99[4]	.77	.98	.99	.99	.99	.99	.99		.98		4. 20 observations.
	1950	.99	.99	.99	.83	.99	.99	.99	.99	.99	.99	.99	.96	.99	5. 59 observations.
	1951	.99	.99	.99	.96	.99	.99	.99	.99	.99	.99	.99	.80	.99	6. 58 observations.
	1952	.99	.99	.99	.90	.99	.99	.99	.99	.99	.99	.99	.99	.99	7. 34 observations.
	1953	.99	.99	.99	.96	.99	.99	.99	.99	.99	.99	.99	.99	.99	8. .99 for the period 1947-48.
	1954	.99	.99	.99	.95	.99	.99	.99	.99	.99	.99	.99	.99	.99	9. .98 for the period 1947-50.
	1955	.99	.99	.99	.90	.99	.99	.99[6]	.99	.99[7]	.98	.99	.99	.99	10. .96 for the period 1947-52.
	1956	.99	.99	.99	.94	.99	.99[6]	.99[6]	.99	.99[7]	.99	.99	.98	.99	11. 1947 to 1961.
	1957	.99	.99	.99	.82	.99	.99	.99[6]	.99	.99[7]	.99	.99	.98	.99	12. Average 1947-49 to average 1959-61.
	1958	.99	.99	.99	.96	.99	.99	.99[6]	.99	.99[7]	.99	.99	.98	.99	
	1959	.99	.99	.99	.97	.99	.99	.99[6]	.99	.99[7]	.99	.99	.99	.99	
	1960	.99	.99			.99	.99	.99[6]	.99	.99[7]	.99	.99		.99	
3 years	1948	.99	.98	.98	.84	.98	.99	.99	.99	.99	.94[6]				
	1949	.99	.99	.97[4]	.78	.98	.99	.98	.99	.99	.98		.78		
	1950	.99	.98	.97	.76	.99	.99	.97	.99	.99	.98	.95	.79	.99	
	1951	.99	.99	.99	.93	.99	.99	.99	.99	.99	.98	.99	.84	.99	
	1952	.99	.99	.99	.92	.99	.99	.99	.99	.99	.98	.99	.96	.99	
	1953	.99	.99	.99	.85	.99	.99	.99[6]	.99	.99[7]	.98	.99	.98	.99	
	1954	.99	.99	.99	.82	.99	.99	.99[6]	.99	.99[7]	.98	.99	.99	.99	
	1955	.99	.99	.99	.83	.99	.99	.99[6]	.99	.99[7]	.98	.99	.97	.99	
	1956	.99	.99	.99	.87	.99	.99	.99[6]	.99	.99[7]	.98	.99	.97	.99	
	1957	.99	.99	.99	.83	.99	.99	.99[6]	.99	.99[7]	.99	.99	.98	.99	
	1958	.99	.99			.99	.99	.99[6]	.99	.99[7]	.99	.99		.99	
5 years	1948	.99	.97	.96	.68	.97	.98	.97	.99	.97	.93[10]				
	1949	.99	.97	.97[4]	.70	.98	.98	.97	.99	.97	.96		.81		
	1950	.99	.97	.96	.86	.99	.98	.99	.99	.98	.96	.98	.77	.99	
	1951	.99	.98	.99	.80	.99	.98	.99[6]	.99	.99[7]	.97	.97	.80	.99	
	1952	.99	.97	.99	.84	.99	.98	.99[6]	.99	.99[7]	.97	.99	.94	.99	
	1953	.99	.98	.99	.84	.99	.99	.99[6]	.99	.99[7]	.97	.99	.96	.99	
	1954	.99	.99	.99	.78	.99	.99	.99[6]	.99	.99[7]	.98	.99	.95	.99	
	1955	.99	.99	.99	.79	.99	.99	.99[6]	.99	.99[7]	.97	.99	.98	.99	
	1956	.99	.99			.99	.99	.99[6]	.99	.99[7]	.98	.98		.99	
Whole period		.99[8]	.89	.94	.38	.97[8]	.93	.97[8,9]	.97	.97[8,7]	.93[11]				
Whole period[1]			.92	.95[4]	.61				.98		.94[12]	.98	.77	.99	
Coefficient of concordance		.97	.97	.95	.76	.96		.97[6]	.99	.98[1]		.95	.93	.98	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	EARNINGS STRUCTURES OF YEARS AT 1, 3 AND 5 YEARS DISTANCE AND LONGEST INTERVALS *(continued)*													NOTES
		16 CANADA 01140	17 CANADA 01140	18 CANADA 01140	19 CANADA 01106	20 CANADA 01107	21 CANADA 01150	23 MONT-REAL 01185	25 TORONTO 01195	26 GER-MANY 16100	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	34 UK 28100	
No. of observations		*53*	*38*	*21*	*17*	*17*	*10*	*16*	*13*	*27*	*32*	*32*	*32*	*79*	1. Average of the first and the last three terminal years.
Significance limit (5%) ...		*.27*	*.32*	*.43*	*.48*	*.48*	*.63*	*. 50*	*.55*	*.38*	*.35*	*.35*	*.35*	*.22*	
1 year	1949						.99[12]	.32[13]	.67[14]						2. 50 observations only.
	1950	.99[2]	.99[3]	.99[7]			.99[12]	.94[13]	.96[14]	.99					3. 34 observations.
	1951	.99[2]	.99[3]	.99[7]			.99	.96[13]	.87[14]	.99					4. 35 observations.
	1952	.99	.99[3]	.99[7]			.99	.96	.97[14]	.99					5. 37 observations.
	1953	.99	.99[4]	.99[8]			.99	.95	.90	.99				.99	6. 33 observations.
	1954	.99	.99[3]	.99[7]			.99	.98	.87	.99				.98	7. 17 observations.
	1955	.99	.99	.99			.99	.96	.89	.99				.98	8. 18 observations.
	1956	.99	.99	.99			.99	.93	.93	.99				.99	9. 20 observations.
	1957	.99	.99	.99			.99	.94	.94	.99	.97	.98	.96	.98	10. 16 observations.
	1958	.99	.99[5]	.99[9]			.99	.98	.94	.99	.98	.98	.98		11. 1951 to 1957.
	1959	.99	.99	.99	.98	.99		.98	.94	.99	.98	.97	.98		12. 9 observations; the Province of Newfoundland is excluded.
	1960	.99	.99	.99							.93	.90	.96		13. 14 observations; the branches "Furniture" and "Non-metallic mineral products" are excluded.
	1961										.94	.96	.97		
3 years	1949						.99[12]	.93[13]	.57[14]						14. 12 observations; the branch "Non-ferrous metal products" is excluded.
	1950	.98[2]	.99[3]	.99[7]			.99[12]	.92[13]	.81[14]	.99					15. 26 observations only.
	1951	.99[2]	.99[3]	.98[7]	.75	.70	.99	.96[13]	.63[14]	.99					16. 1951 to 1960.
	1952	.99	.99[4]	.98[10]			.99	.94	.81[14]	.99					17. Average 1951-53 to average 1958-60.
	1953	.99	.99[3]	.98[7]			.99	.96	.80	.99					18. 1951 to 1957; 19 observations only.
	1954	.99	.99[3]	.99[7]	.94	.96	.99	.98	.91	.99				.94[21]	19. 1951 to 1962; 19 observations only.
	1955	.99	.99	.99			.99	.93	.87	.99[15]					20. Calculated for the period 1957-1962 only.
	1956	.99	.99[5]	.99[9]			.99	.94	.92	.99					21. 1954 to 1958.
	1957	.99	.99[5]	.99[9]				.93	.89	.99	.95	.96	.94		
	1958	.99	.99[5]	.99[9]							.91	.88	.92		
	1959										.93	.94	.94		
5 years	1949						.99[12]	.92[13]	.36[14]						
	1950	.98[2]	.98[6]	.98[10]			.99[12]	.89[13]	.65[14]	.98					
	1951	.98[2]	.99[6]	.98[10]	.84[11]	.65[11]	.98	.90[13]	.59[14]	.98	.91[18]	.87[18]	.86[18]		
	1952	.98	.99[6]	.98[10]			.99	.95	.76[14]	.99					
	1953	.98	.99[3]	.98[7]			.99	.95	.75	.99					
	1954	.99	.99[6]	.99[10]			.98	.94	.69	.99					
	1955	.99	.99[5]	.99[9]				.95	.79	.99					
	1956	.99	.99[5]	.99[9]							.91	.92	.91		
	1957										.87[19]	.85[19]	.80[19]		
Whole period		.96[2]					.98[12]			.97[16]					
Whole period[1]			.98[6]	.98[10]				.94[13]	.57[14]	.98[17]					
Coefficient of concordance			.98	.94				.94	.67	.98	.95[20]	.95[20]	.94[20]		

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	EARNINGS STRUCTURES AT 1, 3 AND 5 YEARS DISTANCE AND LONGEST INTERVALS *(concluded)*													NOTES
		38 FRANCE 15120	39 FRANCE 15150	40 SWE DEN 25 120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	44 SWEDEN 25100	45 SWEDEN 25100	46 NORWAY 22120	47 NORWAY 22130	48 NORWAY 22100	49 BELGIUM 11100	50 BELGIUM 11100	
No. of observations ..		*25*	*89*	*10*	*88*	*10*	*88*	*11*	*30*	*20*	*20*	*25*	*11*	*23*	1. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
Significance limit (5%)		*.40*	*.21*	*.63*	*.21*	*.63*	*.21*	*.60*	*.36*	*.44*	*.44*	*.40*	*.60*	*.41*	2. 1955 to 1959.
1 year	1950									.92[1]	.92[1]				3. 1949 to 1955.
	1951									.92[1]	.97[1]				4. 1955 to 1962.
	1952			.99	.96	.97	.90		.99	.96[1]	.98[1]				5. 1949 to 1962.
	1953			.99	.98	.99	.94		.99	.95	.97				
	1954			.97	.97	.97	.89		.99	.89	.78				
	1955	.96	.94	.98	.97	.99			.99	.92	.83	.96			
	1956	.99	.95	.99	.95	.97		.99	.99	.94	.94	.98			
	1957			.99	.98	.96	.91	.99	.99	.93	.92	.99			
	1958			.99	.98	.98	.89	.99	.99	.94	.96	.96			
	1959	.98	.94	.99	.98	.98	.85		.99						
	1960								.99						
3 years	1950									.88[1]	.87[1]				
	1951									.89[1]	.94[1]				
	1952			.93	.95	.94	.81		.98	.89[1]	.85[1]				
	1953			.99	.97	.97			.97	.94	.93				
	1954			.99	.96	.94	.85	.99	.99	.85	.94				
	1955			.98	.95	.94	.88		.98	.85	.79	.94			
	1956	.94	.94	.99	.96	.95		.99	.99	.94	.92	.89			
	1957	.97	.94	.99	.96	.94	.74		.98						
	1958								.99						
5 years	1949												.99[3]	.93[3]	
	1950									.81[1]	.81[1]				
	1951									.85[1]	.87[1]				
	1952			.96	.93	.93	.74		.97	.87[1]	.92[1]				
	1953			.99	.95	.91	.76		.96	.88	.91				
	1954			.99	.96	.92	.80	.99	.97	.82	.92				
	1955	.89	.91	.97	.96	.90	.71		.97			.90[2]	.98[4]	.86[4]	
	1956								.98						
Whole period				.96	.94	.93	.65		.96	.72[1]	.80[1]		.97[5]	.72[5]	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

YEAR	EARNINGS LEVEL AND CONCENTRATION									NOTES
	3 USA 02100	13 CANADA 01100	19 CANADA 01106	20 CANADA 01107	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	31 GER-MANY 16110	
No. of observations	*20*	*17*	*17*	*17*	*29*	*29*	*29*	*29*	*9*	1. 19 observations; the branch "Miscellaneous manufacturing industries" is excluded.
Significance limit (5%)	*.44*	*.48*	*.48*	*.48*	*.37*	*.37*	*.37*	*.37*	*.67*	
1948	.04									
1949	.06	.50								
1950	.08	.51								
1951	.11	.60	.65	.29						
1952	.15	.56								
1953	.18	.54								
1954	.19	.52	.61	.49						
1955	.23	.53								
1956	.23	.55								
1957	.26	.53			.67	.69	.65	.59	.49	
1958	.27[1]	.53			.65	.66	.63	.60	.47	
1959					.61	.59	.62	.55	.41	
1960					.57	.56	.54	.51	.26	
1961					.57	.52	.55	.47	.33	

YEAR	EARNINGS LEVEL AND CONCENTRATION *(concluded)*								EARNINGS LEVEL AND PROFIT RATES
	32 GER-MANY 16120	33 GER-MANY 16130	34 UK 28100	38 FRANCE 15120	40 SWEDEN 25120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	3 USA 02100
No. of observations	*9*	*9*	*79*	*25*	*10*	*88*	*10*	*88*	*19*
Significance limit (5%)	*.67*	*.67*	*.22*	*.40*	*.63*	*.21*	*.63*	*.21*	*.46*
1948									.31
1949									.44
1950									.40
1951									.64
1952					.33	.22	.83	.55	.70
1953			.08		.33	.24	.82	.47	.70
1954			.12		.33	.23	.80	.50	.60
1955			.14	.33	.27	.24	.76	.56	.62
1956			.14	.49	.35	.24	.79		.76
1957	.47	.70	.15	.49	.31	.26	.74	.50	.69
1958	.41	.62	.19		.30	.23	.86	.48	.36
1959	.32	.55		.43	.26	.19	.80	.44	.28
1960	.35	.48		.48	.27	.22	.80	.55	
1961	.42	.37							

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

YEAR	EARNINGS LEVEL AND RATIO OF LABOUR COST TO SALES														NOTES
	4 USA 02120	5 USA 02130	6 USA 02140	13 CANADA 01100	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	40 SWEDEN 25120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	46 NORWAY 22120	47 NORWAY 22130	
No. of observations ..	*21*	*21*	*21*	*13*	*29*	*29*	*29*	*29*	*10*	*88*	*10*	*88*	*20*	*20*	1. 20 observations; the branch "Products of Petroleum and Coal" is excluded.
Significance limit (5%)	*.43*	*.43*	*.43*	*.55*	*.37*	*.37*	*.37*	*.37*	*.63*	*.21*	*.63*	*.21*	*.44*	*.44*	
1948	.20[1]	.06	—.15												2. 20 observations; the branch "Instruments" is excluded.
1949	.12[1]	—.10	—.21												
1950	—.13	—.02	—.21										—.04[4]	—.39[4]	
1951	—.03	.05	—.17										—.20[4]	—.47[4]	3. 19 observations; the branches "Products of Petroleum and Coal" and "Instruments" are excluded.
1952	—.05	.04	—.21						.09	—.18	.06	—.17	—.30[4]	—.42[4]	
1953	—.13	—.06	—.28	—.14					.06	—.15	—.06	—.20	—.20	—.41	
1954	—.11	—.05	—.27	—.14					.02	—.16	.00	—.18	—.10	—.33	
1955	—.11	—.04	—.25	—.17					—.10	—.25	—.15	—.24	—.11	—.14	
1956	—.18	.04	—.30	—.15					—.05	—.25	—.10		—.06	—.20	4. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
1957	—.23[3]	—.13[3]	—.38[3]	—.23	.16	.22	—.04	—.22	—.05	—.21	—.01	—.23	—.12	—.27	
1958	—.12[3]	.04[3]	—.29[3]	—.21	.12	.18	—.08	—.27	.01	—.16	—.05	—.17	.08	—.09	
1959				—.21	.09	.13	—.11	—.25	.03	—.17	.04	—.18	—.03	—.07	
1960					.11	.13	—.13	—.29	—.10	—.21	.05	—.17			
1961					—.03	.02	—.32	—.37							

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL HELD CONSTANT											
		1 USA 02140	2 USA 02100	3 USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	7 USA 02100	8 USA 02140	9 USA 02100	10 USA 02140	11 USA 02150	12 CANADA 01140
No. of observations ..		*10*	*61*	*20*	*21*	*21*	*21*	*31*	*60*	*11*	*36*	*51*	*10*
Significance limit (5%)		*.67*	*.25*	*.46*	*.44*	*.44*	*.44*	*.36*	*.26*	*.63*	*.33*	*.28*	*.67*
1 year	1948	.72		.05	.52[2]	—.25	—.02	.19	.45[4]	.60	.47	.54[7]	
	1949	—.28		—.33	.07[3]	—.46	.28	—.02	.22	.43	.13	.61	
	1950	—.44		.51	.74	—.15	.61	.25	—.01	.04	—.29	.45	.66
	1951	.21	.26	.15	—.03	.29	—.18	.15	.09	.33	.20	—.11	—.25
	1952	.01	.07	.09	.10	.56	.09	—.10	—.02	—.15	—.05	.65	.14
	1953	.77	.32	.55	.56	—.47	.53	.31	.46	.74	.38	.20	.75
	1954	—.68	.12	.53	.54	.03	.55	.25	—.10	—.12	—.39	—.04	—.67
	1955	.17	.06	—.03	.31	.59	.28	—.15	—.08[5]	—.25	—.14[6]	.50	.79
	1956	—.10	.25	.07	.05	.75	—.12	.03	—.07[5]	.29	—.22[6]	.40	.10
	1957	.69	.21	—.11	.14	—.46	—.26	.85	.15[5]	.69	.18[6]	.15	.48
	1958	—.36	—.21	.09	—.01	.35	.07	—.22	.19[5]	—.44	.26[6]	.21	—.81
	1959	.26	.15	.03	—.31	—.17	.07	.20	.06[5]	.33	—.13[6]	.76	.10
	1960	.78	.26	.16			.38	.53	.40[5]	.78	.40[6]	.53	.36
3 years	1948	.09		.25	.29	.04	.16	.41	—.11	.29	—.21	.62[8]	
	1949	—.44		.44	.30[3]	.17	.14	.31	—.06	.10	—.21	.53	
	1950	—.53		.24	.53	.31	.37	.14	.09	—.05	—.02	.60	—.38
	1951	.64		.26	.16	.51	.08	.31	.23	.48	.20	.26	—.34
	1952	.40		.41	.36	.47	.39	.28	.15	.33	.10	.23	.76
	1953	.22		.24	.23	.30	.04	—.13	—.02[5]	—.34	—.04[6]	.21	.29
	1954	—.20		—.04	—.15	.75	—.12	—.23	—.38[5]	—.27	—.42[6]	.42	.54
	1955	.45		—.03	.29	.22	.19	—.04	—.16[5]	.32	—.34[6]	.48	—.01
	1956	.72		—.25	—.20	—.14	—.10	.10	.08[5]	.41	.03[6]	.46	.67
	1957	.64		—.09	—.26	.07	—.16	.37	.13[5]	.77	.09[6]	.40	.58
	1958	.30		—.10			—.26	.32	.15[5]	.87	.18[6]	.38	.32
5 years	1948	.25		.18	.15	.38	.05	.17	.01	.11	—.06	.63[9]	
	1949	—.28		.36	.21[3]	.32	.08	.14	—.04	—.47	—.07	.57	
	1950	—.35		.32	.41	.43	.31	.29	.05	.21	—.02	.42	—.51
	1951	.61		.27	—.11	.68	.04	.22	.03[5]	—.02	—.01[6]	.25	—.03
	1952	.54		.25	—.02	.65	.08	.10	—.13[5]	—.45	—.23[6]	.36	.34
	1953	.48		.15	.25	.05	.02	.21	—.05[5]	.54	—.[illegible][6]	.35	.53
	1954	.09		—.21	—.37	.32	—.25	—.24	—.32[5]	—.51	—.[illegible][6]	.36	.69
	1955	.71		—.09	—.14	.42	.02	.07	—.10[5]	.40	—.22[6]	.53	.44
	1956	.77		—.05			.06	.40	.23[5]	.89	.11[6]	.51	.58
Whole period			.03	.15	.06	.49		.39		.54		.40[10]	
Whole period[1]				.21	.03	.48				.26			.32

NOTES

1. Average of the first and the last three terminal years.
2. 1950 to 1960.
3. 20 observations; the branch " Products of Petroleum and Coal " is excluded.
4. 59 observations; the sector " Agriculture " is excluded.
5. 58 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
6. 34 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
7. .18 for 1947-48.
8. .37 for 1947-50.
9. .32 for 1947-52.
10. 1947 to 1961.

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL HELD CONSTANT *(continued)*													NOTES
		13a CANADA 01100	13b CANADA 01110	14 CANADA 01105	15 CANADA 01140	16 CANADA 01140	17 CANADA 01140	18 CANADA 01140	19 CANADA 01106	20 CANADA 01107	21 CANADA 01150	22a MONT-REAL 01180	22b MONT-REAL 01181	23 MONT-REAL 01185	
No. of observations ..		*17*	*17*	*17*	*17*	*53*	*38*	*21*	*17*	*17*	*10*	*16*	*16*	*16*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.50*	*.50*	*.50*	*.50*	*.27*	*.32*	*.44*	*.50*	*.50*	*.67*	*.51*	*.51*	*.51*	2. 50 observations only.
											.20[13]	.20[13]	.47[13]	—.65[13]	3. 34 observations.
1 year	1949	.14		—.39							—.62[13]	.22[13]	.26[13]	—.21[13]	4. 35 observations.
	1950	—.10		—.43	—.49	.09[3]	—.49[3]	—.67[7]			—.16	.09[13]	.16[13]	—.07[13]	5. 37 observations.
	1951	.17	.49	.97	.14	.23[3]	.23[3]	.50[7]			.25	.54	.27	.41	6. 33 observations.
	1952	.63	.71	—.19	.37	.27	—.03[3]	—.22[7]			—.08	.11	.29	.30	7. 17 observations.
	1953	.08	.08	—.42	.59	.48	.49[4]	.34[4]			—.43	—.32	—.03	—.28	8. 18 observations.
	1954	.25	—.03	—.34	.22	.27	.36[8]	.44[7]			.24	.33	.17	—.21	9. 20 observations.
	1955	.50	.14	.10	.47	.08	—.11	—.24			.03	.48	.52	—.35	10. 16 observations.
	1956	.41	.45	—.46	.54	.23	.42	.15			.35	.29	.38	—.60	11. 1951 to 1957.
	1957	.23	.43	—.66	.00	.11	.23	.29			.08	—.42	.12	—.65	12. 9 observations; the Province of Newfoundland is excluded.
	1958	—.29	—.15	—.54	—.08	.13	—.29[5]	—.48[9]				—.16	—.12	—.50	13. 14 observations; the branches " Furniture " and " Non-metallic mineral products " are excluded.
	1959	.08	.18	—.10	.37	.07	—.13	—.43	—.11						
	1960				—.32	—.16	—.14	—.11							
											—.34[13]	—.24[13]	—.15[13]	—.51[13]	
3 years	1949	—.23	—.44	.11							—.18[13]	.11[13]	.38[13]	—.22[13]	
	1950	.05	—.04	.31	—.29	.27[3]	—.15[3]	.06[7]			.95	.23[13]	.13[13]	—.10[13]	
	1951	.37	.24	.79	.23	.26[3]	.40[3]	.46[7]	.64	.63	.50	.49	.50	—.11	
	1952	.58	.64	—.42	.35	.30	.32[8]	.23[7]			.07	.18	.20	.06	
	1953	.20	—.01	—.05	.49	.20	.33[3]	.20[7]			.43	—.20	—.33	—.66	
	1954	.39	.25	—.55	.19	.12	.10[3]	—.07[7]	.35	—.68	.46	.23	.49	—.20	
	1955	.20	.28	—.10	.55	.29	.21	.03			.75	.01	.28	—.71	
	1956	.32	.29	—.38	.37	.17	.29[6]	.08[9]				—.28	—.52	—.39	
	1957	.30	.30	—.26	.04	.03	.00[6]	—.17[9]							
	1958				—.57	—.06	—.42[6]	—.48[9]							
	1959										.63[13]	.49[13]	.39[13]	—.48[13]	
5 years	1949	.37	.15	.18							.69[13]	.08[13]	.12[13]	—.07[13]	
	1950	.38	.09	.13	—.23	.11[3]	.25[6]	.46[10]			.64	.22[13]	.31[13]	.29[13]	
	1951	.28	.20	.71	.20	.17[3]	.40[6]	.39[10]	.81[11]	.32[11]	.76	.41	.48	—.61	
	1952	.57	.65	—.60	.50	.28	.26[6]	.07[10]			.83	.15	.37	.20	
	1953	.04	.32	—.12	.50	.38	.58[8]	.48[7]			.62	—.45	—.49	—.60	
	1954	—.11	.21	—.44	.25	.17	.28[6]	.07[10]				—.08	—.08	—.41	
	1955	—.17	.20	—.08	.46	.20	.16[5]	—.06[6]							
	1956				.29	.16	.15[5]	—.06[6]							
	1957										.86[13]				
Whole period						.10[3]						.16[13]	.11[13]	.30[13]	
Whole period[1]		.35	.39	.30	.52		.53[6]	.43[10]							

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL HELD CONSTANT *(continued)*													NOTES
		24*a* TORONTO 01190	24*b* TORONTO 01191	25 TORONTO 01195	26 GER-MANY 16100	27 GER-MANY 16140	28*a* GER-MANY 16110	28*b* GER-MANY 16110	29*a* GER-MANY 16120	29*b* GER-MANY 16120	30*a* GER-MANY 16130	30*b* GER-MANY 16130	31 GER-MANY 16110	32 GER-MANY 16120	33 GER-MANY 16130	
No. of observations ..		*13*	*13*	*13*	*27*	*29*	*32*	*29*	*32*	*29*	*32*	*29*	*9*	*9*	*9*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.58*	*.58*	*.58*	*.39*	*.37*	*.36*	*.37*	*.36*	*.37*	*.36*	*.37*	*.71*	*.71*	*.71*	
1 year	1949	—.12[a]	.11[a]	.05[a]												2. 12 observations; the branch "Non-ferrous metal products" is excluded.
	1950	.75[a]	.42[a]	—.26[a]	.06											
	1951	.02[a]	.49[a]	.73[a]	.42											3. 26 observations; the branch "Constructural Engineering" is excluded.
	1952	.69[a]	.40[a]	—.12[a]	.12											
	1953	.06	.38	—.35	—.11											4. 1951 to 1960.
	1954	.64	.02	.05	—.36											
	1955	.27	.12	—.32	—.34											5. Average 1951-53 to average 1958-60.
	1956	.37	.19	—.49	.01											
	1957	.07	—.33	—.56	—.12	.18	.04	.02	.12	.06	.26	.36	.58	.25	.32	
	1958	.63	.56	—.25	.49	.64	.06	.47	—.03	.54	.23	.52	.61	.28	.08	
	1959	.01	.30	—.18	.38	.33	.16	.37	.38	.41	.23	.32	.24	—.11	.57	
	1960					.35	.40	.27	.23	.17	.56	.47	—.32	.38	—.88	
	1961					.30	.19	.21	.28	.23	.35	.21	.18	—.10	.38	
3 years	1949	.69[a]	.69[a]	.35[a]												
	1950	.81[a]	.67[a]	.43[a]	.20											
	1951	.38[a]	.18[a]	.40[a]	—.00											
	1952	.61[a]	.61[a]	—.02[a]	—.32											
	1953	.46	.46	.34	—.44											
	1954	.27	.01	.37	—.43											
	1955	.33	—.14	—.05	—.29[a]											
	1956	.72	.65	—.14	.05											
	1957	.81	.59	—.29	.24	.28	.40	.40	.14	.27	.42	.48	.52	.74	.38	
	1958					.57	—.01	.49	.15	.62	.30	.48	.63	.33	.07	
	1959					.54	.31	.38	.64	.61	.60	.44	.40	.20	—.03	
5 years	1949	.74[a]	.48[a]	.26[a]												
	1950	.88[a]	.67[a]	.45[a]	—.05											
	1951	.25[a]	—.23[a]	.77[a]	—.15											
	1952	.56[a]	.65[a]	.53[a]	—.43											
	1953	.59	.43	.12	—.13											
	1954	.77	.81	—.46	—.25											
	1955	.67	.73	—.08	.01											
	1956															
	1957					.54	.32	.49	.28	.58	.52	.50	.79	.24	—.10	
Whole period					—.13[a]											
Whole period[1]		.83[a]	.68[a]	.46[a]	—.34[a]											

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL HELD CONSTANT *(concluded)*											NOTES
		34 UK 28100	38 FRANCE 15120	39 FRANCE 15150	41 SWEDEN 25120	43 SWEDEN 25130	44 SWEDEN 25100	46 NORWAY 22120	47 NORWAY 22130	48 NORWAY 22100	49 BELGIUM 11100	50 BELGIUM 11100	
No. of observations ..		*109*	*25*	*89*	*88*	*88*	*11*	*20*	*20*	*25*	*11*	*23*	1. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
Significance limit (5%)		*.19*	*.41*	*.21*	*.21*	*.21*	*.63*	*.46*	*.46*	*.41*	*.63*	*.42*	2. 1955 to 1959.
1 year	1949	.36											3. 1949 to 1955.
	1950	.05						.11[1]	—.53[1]				4. 1955 to 1962.
	1951	.46						.56[1]	.15[1]				5. 1949 to 1962.
	1952	.26			—.30	—.06		—.38[1]	.01[1]				
	1953	.13			—.12	—.46		.15	—.57				
	1954	.22			—.23	—.36		—.11	—.54				
	1955	.26	.42		.43			—.02		.35			
	1956	.34	—.03		—.17		.39	—.48		—.67			
	1957	.02			—.09	—.26	—.05	—.09	.16	—.09			
	1958				.07	—.05	—.24	.12	—.19	.18			
	1959		.58		—.18	—.11							
3 years	1949												
	1950							.26[1]	—.18[1]				
	1951							.38[1]	.34[1]				
	1952				—.12	—.41		—.14[1]	—.60[1]				
	1953				.02			.39					
	1954				—.17	—.05	.64	.38	.10	.42			
	1955		.55	.47	.01	—.38		.28	—.08	.19			
	1956		.42	—.26	.03		—.29	.02					
	1957				.11	—.10							
5 years	1949										—.18[2]	—.05[2]	
	1950							.29[1]	—.26[1]				
	1951							.57[1]	.28[1]				
	1952				—.16	—.22		.31[1]	.06[1]				
	1953				—.02	—.26		.48	—.35				
	1954				.08	—.10	.31	.18	—.16				
	1955		.44		.13	—.19				.31[3]	—.17[4]	—.07[4]	
	1956												
	1957												
Whole period					—.05	—.18		.44[1]	—.20[1]		—.22[5]	—.16[5]	

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF PROFIT CHANGES HELD CONSTANT											NOTES
		1 USA 02140	3*a* USA 02100[2]	3*b* USA 02100[3]	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	13 CANADA 01100	35 UK 28100	37 FRANCE 15100	
No. of observations[1] .		*8*	*19*	*19*	*21*	*21*	*21*	*42*	*19*	*13*	*13*	*19*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.75*	*.47*	*.47*	*.44*	*.44*	*.44*	*.31*	*.47*	*.58*	*.58*	*.47*	
1 year	1948	(.42)	(—.05)	(.00)	.17	—.32	—.17	(.26)	(.29)				2. Changes in earnings and employment, influence of profits rates held constant.
	1949	(.43)	(—.22)	(—.26)	.03	—.45	.23	(.17)	(—.00)		—.05		3. Changes in earnings and employment, influence of profit rates and changes held constant.
	1950	(—.42)	(.47)	(.39)	.69	—.10	.54	(.05)	(—.26)		.22	.22[5]	4. 12 observations only; the branch "Non-ferrous metal products" is excluded.
	1951	(—.18)	(.28)	(.09)	—.22	.41	—.12	(.07)	(.20)		.56	.04[5]	5. 17 observations.
	1952	(—.22)	(.26)	(.16)	.27	.39	.33	(—.01)	(—.04)		.00	.30[5]	6. 15 observations.
	1953	(.43)	(.25)	(.60)	.50	—.30	.35	(.39)	(.29)	.13	.29	—.31[5]	7. 16 observations.
	1954	(—.42)	(.58)	(.60)	.48	.04	.51	(.09)	(—.38)	.36	.81	—.42[6]	
	1955	(.12)	(—.24)	(—.22)	—.09	.36	—.14	(—.35)	(—.42)	.70	.69	.05[7]	
	1956	(—.07)	(.05)	(—.11)	.11	.72	—.06	(—.17)	(—.19)	.73[6]	.15	.39[7]	
	1957	(.21)	(—.39)	(—.41)	(—.04)	(—.46)	(—.38)	(.14)	(.22)	—.09[6]	.66	.05	
	1958	(—.34)	(—.01)	(—.01)	(—.28)	(.31)	(.20)	(.26)	(.25)	—.34	.38	.36	
	1959		(—.11)	(—.06)						—.23			
	1960												
3 years	1948	(.40)	(—.25)	(—.27)	(—.28)	—.28		(—.10)	(—.21)				
	1949	(.01)	(.32)	(.06)	.02	.09	.02	(.09)	(—.07)		.06		
	1950	(—.28)	(.35)	(—.21)	(.21)	.08	.01	(.09)	(—.02)		.32	.26[5]	
	1951	(—.36)	(.40)	(.01)	—.27	.32	—.21	(—.06)	(—.07)		.22	.20[5]	
	1952	(—.04)	(.51)	(.31)	.27	.41	.41	(.05)	(—.10)		.43	—.14[6]	
	1953	(—.04)	(.44)	(.25)	.24	.26	.11	(—.02)	(—.04)	.24	.57	—.34[6]	
	1954	(.00)	(.20)	(.15)	(.05)	(.73)	(.07)	(—.32)	(—.40)	.47[6]	.79	.24[6]	
	1955	(—.04)	(—.42)	(—.55)	(.00)	(.13)	(—.14)	(—.35)	(—.15)	.02	.76	.14[7]	
	1956	(—.07)	(—.38)	(—.45)	(—.34)	(—.13)	(—.18)	(.07)	(.19)	.24	.58	.22[7]	
	1957		(—.30)	(—.24)						.10[6]			
	1958												
5 years	1948	(.19)	(—.10)	(—.42)	(—.37)	—.15		(.07)	(—.08)				
	1949	(.03)	(.30)	(—.04)	—.21	.34		(.04)	(—.10)		.21		
	1950	(—.19)	(.47)	(.07)	(.03)	.24		(.08)	(—.12)		.53		
	1951	(—.13)	(.45)	(.07)	—.22	.61		(.06)	(—.36)		.52		
	1952	(—.02)	(.34)	(—.08)	(—.22)	(.38)		(—.15)	(—.23)		.51		
	1953	(.04)	(.02)	(—.01)	(—.09)	(.08)		(—.12)	(.18)		.84		
	1954	(—.23)	(—.38)	(—.35)	(—.38)	(.13)		(—.42)	(—.32)		.83		
	1955		(—.09)	.03									
	1956												

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF CONCENTRATION HELD CONSTANT														NOTES
		3 USA 02100	13 CANADA 01100	19 CANADA 01106	20 CANADA 01107	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	31 GER-MANY 16110	32 GER-MANY 16120	33 GER-MANY 16130	38 FRANCE 15120	41 SWEDEN 25120	43 SWEDEN 25130	
No. of observations[1] .		*20*	*17*	*17*	*17*	*29*	*29*	*29*	*29*	*9*	*9*	*9*	*25*	*88*	*88*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.46*	*.50*	*.50*	*.50*	*.37*	*.37*	*.37*	*.37*	*.71*	*.71*	*.71*	*.41*	*.21*	*.21*	
1 year	1948	.16														
	1949	—.38	.19													
	1950	.47	—.27													
	1951	.12	.18													
	1952	.09	.65											—.34	—.08	
	1953	.64	.10											—.16	—.40	
	1954	.44	.20											—.23	—.38	
	1955	—.13	.46										.23	.37		
	1956	.21	.40										.09	—.22		
	1957	—.24	.26			.13	—.02	.00	.38	.76	.60	.35		—.10	—.27	
	1958	(—.13)	—.29			.64	.50	.57	.49	.45	—.02	—.30		.04	—.04	
	1959					.28	.20	.32	.05	.27	—.01	.54	.54	—.20	—.06	
	1960					.33	.29	.17	.41	.00	.90	—.86				
	1961					.34	.24	.23	.22	.39	—.20	.38				
3 years	1948	.19														
	1949	.27	—.23													
	1950	.21	.08													
	1951	.31	.36	.63	.71									—.18	—.40	
	1952	.46	.64											.00		
	1953	.42	.39											—.25	—.05	
	1954	.00	.54	.25	—.61									—.07	—.37	
	1955		.32										.51	.00		
	1956	(—.36)	.32										.48	.10	—.07	
	1957	(—.25)				.19	.40	.09	.30	.33	.62	.30				
	1958	(—.21)				.52	.53	.55	.19	.46	.85	.06				
	1959					.40	.26	.46	.18	.35	.53	.04				
5 years	1948	.13														
	1949	.25	.50													
	1950	.31	.48													
	1951	.31	.46													
	1952	.33	.75											—.27	—.23	
	1953	.30	.47											—.09	—.24	
	1954	(—.23)	.35											.06	—.09	
	1955	(—.03)											.35	.08	—.17	
	1956	(—.08)														
	1957					.40	.45	.40	.26	.67	.61	—.12				

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF RATIO OF LABOUR COST TO SALES HELD CONSTANT											NOTES
		4 USA 02120	5 USA 02130	6 USA 02140	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	41 SWEDEN 25120	43 SWEDEN 25130	46 NORWAY 22120	47 NORWAY 22130	
No. of observations[1] .		*21*	*21*	*21*	*29*	*29*	*29*	*29*	*88*	*88*	*20*	*20*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.44*	*.44*	*.44*	*.37*	*.37*	*.37*	*.37*	*.21*	*.21*	*.46*	*.46*	2. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
1 year	1948	.36	—.14	.19									
	1949	.14	—.43	.32									
	1950	.75	—.26								—.05[2]	—.54[2]	
	1951	.01	.38								.50[2]	.14[2]	
	1952	.33	.48						—.33	—.11	—.54[2]	.00[2]	
	1953	.57	—.36	.48					—.14	—.42	.06	—.60	
	1954	.59	.05	.56					—.20	—.34	—.11	—.62	
	1955	.47	.42	.44					.36		—.22	—.70	
	1956	.39	.69	.60					—.21		—.32	.21	
	1957	(.09)	(—.48)	(—.44)	.11	—.10	.01	.36	—.09	—.25	.05	.28	
	1958	(.06)	(.19)	(.09)	.63	.51	.51	.54	.07	—.03	.04	—.20	
	1959				.07	—.06	.13	.16	—.19	—.09			
	1960				.23	.17	.04	.41					
	1961				.34	.25	.32	.24					
3 years	1948	(.47)	.04	.42									
	1949	.45	.13	.34									
	1950	.59	.18	.62							.16[2]	—.25[2]	
	1951	.27	.59	.38							.33[2]	.37[2]	
	1952	.42	.47	.53					—.19	—.39	—.24[2]	—.64[2]	
	1953	.48	.10	.16					—.01		.30	.11	
	1954	(.44)	(.72)	.43					—.24	—.05	.33	.24	
	1955	(.46)	(.21)	(.36)					—.04	—.38	.13	—.15	
	1956	(—.26)	(—.13)	—.07					.02	—.44	.16	—.15	
	1957				.06	.13	.05	.40	.11	—.07			
	1958				.37	.30	.48	.30					
	1959				.31	.13	.43	.33					
5 years	1948	(.34)	.40										
	1949	.41	.25										
	1950	(.53)	.33								.26[2]	—.34[2]	
	1951	.16	.63								.54[2]	.47[2]	
	1952	(.47)	(.61)						—.28	—.23	.25[2]	.19[2]	
	1953	(.37)	(.04)						—.09	—.24	.52	—.09	
	1954	(—.13)	(.31)						.06	—.09	.18	.04	
	1955								.09	—.16			
	1956												
	1957				.30	.22	.38	.38					

III. CORRELATION OF COEFFICIENTS *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF PRODUCTION CHANGE HELD CONSTANT					CHANGES IN EARNINGS AND IN PROFITS, INFLUENCE OF RATIO OF LABOUR COST TO SALES HELD CONSTANT			CHANGES IN EARNINGS AND RATIO OF LABOUR COST TO SALES, INFLUENCE OF PROFIT CHANGE HELD CONSTANT			NOTES
		3 USA 02100	13 CANADA 01100	35 UK 28100	46 NORWAY 22120	47 NORWAY 22130	4 USA 02120	5 USA 02130	6 USA 02140	4 USA 02120	5 USA 02130	6 USA 02140	
No. of observations[1] .		*20*	*17*	*13*	*20*	*20*	*21*	*21*	*21*	*21*	*21*	*21*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.46*	*.50*	*.58*	*.46*	*.46*	*.44*	*.44*	*.44*	*.44*	*.44*	*.44*	2. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
1 year	1948	—.11					.71[3]	.62	.61	.05[3]	—.15	—.17	3. 20 observations; the branch "Products of Petroleum and Coal" is excluded.
	1949	—.33	.12	.36			.25[3]	—.02	.21	—.29[3]	.12	—.16	4. 20 observations; the branch "Instruments" is excluded.
	1950	.29	—.04	.16	.00[5]	—.53[5]	.71	—.34	.77	.33	.10	—.03	5. 19 observations; the branches "Instruments" and "Automobiles and Automobiles Equipment" are excluded.
	1951	.11	.20	.54	.11[5]	—.34[5]	.40	—.36	.18	—.14	—.07	—.25	
	1952	.08	.77	—.03	—.45[5]	—.01[5]	.43	.22	.61	.08	—.08	—.11	
	1953	.43	—.27	.44	.05	—.75	.65	—.00	.63	—.45	.11	—.45	
	1954	.13	.36	.65	—.48	—.63	.36	—.11	.25	—.18	.08	.00	
	1955	—.66	.52	.50	—.24	—.55	.47	.52	.49	—.31	.23	—.30	
	1956	.10	.50	—.27	—.34	.47	.32	.10	.32	—.22	—.40	—.67	
	1957	—.06	.05	.30	—.23	.20	.26[4]	—.44[4]	—.17[4]	—.14[4]	—.05[4]	—.26[4]	
	1958	(—.12)	—.35	.39	.07	—.19	.32[4]	.04[5]	—.22[4]	—.22[4]	.26[5]	—.09[4]	
	1959												
3 years	1948	—.15					.84[3]	.49	.75	—.12[3]	—.05	—.39	
	1949	—.10	—.21	.12			.60[3]	.08	.43	—.31[3]	.11	—.33	
	1950	.11	.00	.36	—.20[5]	—.54[5]	.68	.16	.77	.19	—.04	—.28	
	1951	.34	.29	.23	.18[5]	—.15[5]	.54	.36	.60	—.29	—.34	—.49	
	1952	.42	.56	.44	—.48[5]	—.56[5]	.60	.10	.61	—.31	—.10	—.30	
	1953	.24	.08	.32	.17	.00	.28	—.33	.00	—.65	.29	—.40	
	1954	—.21	.58	.54	.20	.43	.19	—.34	—.03	—.50	—.16	—.55	
	1955		—.16	.62	—.02	—.32	.43[4]	.17[4]	.34[4]	—.36[4]	—.04[4]	—.54[4]	
	1956	(—.23)	—.13	.27	.11	—.29	—.32	—.08	—.31	—.59	—.04	—.58	
	1957	(—.19)											
	1958	(—.28)											
5 years	1948	—.17					.67[3]	.63	.65	—.12[3]	—.23	—.36	
	1949	.04	.20	.02			.62[3]	.02	.53	—.34[3]	.03	—.45	
	1950	.21	.34	.57	—.30[5]	—.50[5]	.68	.18	.78	—.10	—.05	—.41	
	1951	.40	.40	.43	.26[5]	—.12[5]	.30	.09	.36	—.49	.06	—.42	
	1952	.27	.61	.43	.23[5]	.26[5]	.48	.47	.61	—.50	—.06	—.52	
	1953	.09	—.06	.49	.19	—.57	.42[4]	—.14[4]	.13[4]	—.59[4]	—.10[4]	—.58[4]	
	1954	(—.17)	.00	.70	.04	—.32	—.19	—.44	—.40	—.64	.01	—.51	
	1955	(—.16)											
	1956	(—.36)											

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN PROFITS, INFLUENCE OF EMPLOYMENT CHANGES HELD CONSTANT									
		1 USA 02140	3 USA 02100[2]	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	13 CANADA 01100	35 UK 28100	37 FRANCE 15100
No. of observations[1]		*8*	*19*	*21*	*21*	*21*	*42*	*19*	*13*	*13*	*19*
Significance limit (5 %)		*.75*	*.47*	*.44*	*.44*	*.44*	*.31*	*.47*	*.58*	*.58*	*.47*
1 year	1948	(.20)	(.48)	.68	.67	.64	(.31)	(.26)			
	1949	(.50)	(—.04)	.14	—.12	.08	(.15)	(—.27)		.07	
	1950	(—.26)	(.26)	.58	—.28	.70	(.21)	(.24)		.40	.32[4]
	1951	(.61)	(—.30)	.43	—.48	.18	(.16)	(.17)		.05	.36[4]
	1952	(.20)	(—.02)	.40	.14	.63	(.27)	(.04)		.33	—.15[4]
	1953	(.00)	(.48)	.48	.00	.43	(.14)	(.12)	.24	.02	—.04[4]
	1954	(.11)	(—.37)	.13	—.09	.00	(.21)	(—.06)	—.53	.22	.59[5]
	1955	(.08)	(.26)	.36	.44	.41	(.46)	(.49)	.64	—.41	—.29[6]
	1956	(—.31)	(.36)	.29	—.27	.29	(.27)	(—.01)	—.31[3]	.70	.34[6]
	1957	(.24)	(.16)	(.24)	(—.44)	(.10)	(—.19)	(—.29)	.19[3]	—.05	.14
	1958	(.14)	(—.10)	(.42)	(.12)	(—.28)	(—.23)	(—.18)	.45	.00	.35
	1959		(.31)						.56		
	1960										
3 years	1948	(.53)	(.73)	(.82)	.55		(.19)	(.10)			
	1949	(.17)	(.43)	(.37)	.07	.21	(.01)	(.06)		.12	
	1950	(.07)	(.48)	(.45)	.08	.66	(.28)	(.27)		.30	—.19[4]
	1951	(.82)	(—.22)	.53	.13	.50	(.54)	(.71)		.36	.29[4]
	1952	(.73)	(—.12)	.54	.13	.56	(.40)	(.32)		.07	—.17[5]
	1953	(—.20)	(—.44)	—.08	—.32	—.14	(—.05)	(.02)	—.13	.24	.54[5]
	1954	(—.34)	(—.48)	(.25)	—.38	.07	(.03)	(.06)	—.06[3]	.33	.24[6]
	1955	(—.12)	(.75)	(.36)	(.08)	(—.37)	(.32)	(—.21)	.24	—.01	.28[6]
	1956	(.31)	(—.39)	(—.06)	—.07	—.09	(—.29)	(—.60)	—.18	.18	.31[6]
	1957		(—.28)						.04[3]		
	1958										
5 years	1948	(.32)	(.61)	(.68)	.55	.64	(.21)	(.17)			
	1949	(.55)	(.44)	.50	—.25	.35	(.36)	(.40)		.21	
	1950	(.30)	(.46)	(.55)	.02	.66	(.43)	(.36)		.25	
	1951	(.47)	(—.41)	.30	—.18	.22	(.34)	(.54)		.42	
	1952	(.09)	(.15)	(.54)	(.23)	.59	(.32)	(.13)		.38	
	1953	(—.26)	(.14)	(.36)	(—.15)	(.19)	(—.15)	(—.46)		.52	
	1954	(.03)	(—.73)	(—.01)	(—.36)	—.32	(—.50)	(—.66)		.31	
	1955		(.06)								

NOTES

1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
2. Changes in earnings and in profit rates, influence of employment held constant.
3. 12 observations; the branch " Non-ferrous metal products " is excluded.
4. 17 observations.
5. 15 observations.
6. 16 observations.

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL AND PROFITS HELD CONSTANT								CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL AND PRODUCTION CHANGES HELD CONSTANT			
		1 USA 02140	3a USA 02100[2]	3b USA 02100[3]	4 USA 02120	5 USA 02130	6 USA 02140	8 USA 02140	10 USA 02140	3 USA 02100	13 CANADA 01100	46 NORWAY 22120	47 NORWAY 22130
No. of observations[1] .		*8*	*19*	*19*	*21*	*21*	*21*	*42*	*19*	*20*	*17*	*20*	*20*
Significance limit (5%)		*.81*	*.48*	*.48*	*.46*	*.46*	*.46*	*.31*	*.48*	*.47*	*.51*	*.47*	*.47*
1 year	1948	(.54)	(.05)	(—.04)	.24	—.32	—.14	(.31)	(.35)	—.14			
	1949		(—.30)	(—.08)	.03	—.47	.26	(.19)	(.27)	—.49	.08		
	1950	(—.60)	(.48)	(.53)	.72	—.05	.54	(—.04)	(—.32)	.32	—.04	.05[4]	—.57[4]
	1951	(—.25)	(.22)	(.20)	—.29	.46	—.34	(.02)	(.19)	—.01	.21	.15[4]	—.23[4]
	1952	(.08)	(—.07)	(.08)	.11	.52	.11	(—.10)	(—.08)	.11	.76	—.45[4]	.01[4]
	1953	(.77)	(.71)	(.38)	.42	—.47	.36	(.43)	(.30)	.49	—.26	.06	—.72
	1954	(—.62)	(.59)	(.56)	.40	—.03	.49	(—.11)	(—.41)	.26	.28	—.49	—.64
	1955	(—.04)	(—.03)	(—.13)	—.12	.48	—.11	(—.36)	(—.41)	—.59	.51	.00	—.45
	1956	(.00)	(.04)	(—.13)	—.00	.75	—.23	(—.24)	(—.20)	—.10	.53	—.46	.47
	1957	(.66)	(—.17)	(—.26)	(.03)	(—.46)	(—.37)	(.20)	(.26)	—.06	.06	—.21	.08
	1958	(—.75)	(.09)	(.04)	(—.29)	(.40)	(.22)	(.26)	(.26)	(.11)	—.31	.03	—.17
	1959		(.12)	(—.05)									
3 years	1948	(.23)	(.25)	(—.17)	(—.27)	—.27		(—.12)	(—.16)	.12			
	1949		(.38)	(.37)	—.12	.11	—.06	(—.03)	(—.24)	—.09	—.26		
	1950	(—.52)	(—.02)	(.28)	(.22)	.26	.02	(—.02)	(—.09)	.10	.01	—.10[4]	—.50[4]
	1951	(.01)	(.35)	(.26)	—.29	.46	—.45	(—.19)	(—.52)	.30	.32	.25[4]	.03[4]
	1952	(.51)	(.36)	(.40)	.24	.49	.31	(.07)	(—.07)	.42	.57	—.49[4]	—.57[4]
	1953	(.27)	(.42)	(.38)	.25	.36	.10	(.02)	(.00)	.23	.07	.24	—.10
	1954	(—.14)	(.41)	(.11)	(—.16)	(.75)	—.13	(—.36)	(—.40)	—.26	.37	.28	.38
	1955	(.64)	(—.12)	(—.42)	(—.29)	(.13)	(—.44)	(—.38)	(—.14)		—.11	.21	—.25
	1956	(.53)	(—.36)	(—.24)	(—.20)	(—.14)	—.10	(.13)	(.22)	(—.18)	—.03	.02	—.37
	1957		(—.19)	(—.09)						(—.02)			
5 years	1948	(.19)	(.18)	(—.16)	(—.38)	—.16		(.01)	(—.10)	—.19			
	1949	(—.30)	(.19)	(.26)	—.37	.43		(—.05)	(—.20)	.03	.18		
	1950	(—.45)	(.10)	(.36)	(.04)	.39		(.02)	(—.22)	.17	.20	—.27[4]	—.45[4]
	1951	(.76)	(.32)	(.36)	—.28	.71		(.03)	(—.41)	.34	.28	.33[4]	—.03[4]
	1952	(.47)	(.19)	(.16)	(—.29)	(.49)		(—.14)	(—.28)	.22	.54	.26[4]	.29[4]
	1953	(.71)	(.25)	(—.18)	(—.17)	(.18)		(—.08)	(.23)	.06	—.47	.32	—.57
	1954	(—.31)	(—.24)	(—.36)	(—.38)	(.14)		(—.46)	(—.38)	(—.20)	—.65	.06	—.32
	1955		(.06)	(—.14)						(—.20)			
	1956												

NOTES

1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
2. Changes in earnings and in employment influence of earnings level and profits rate held constant.
3. Changes in earnings and in employment, influence of earnings level and changes in profit rates held constant.
4. 19 observations; the branch " Manufactures of products of Petroleum and Coal " is excluded.

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL AND CONCENTRATION HELD CONSTANT														NOTES
		3 USA 02100	13 CANADA 01100	19 CANADA 01106	20 CANADA 01107	27 GER-MANY 16140	28 GER-MANY 16110	29 GER-MANY 16120	30 GER-MANY 16130	31 GER-MANY 16110	32 GER-MANY 16120	33 GER-MANY 16130	38 FRANCE 15120	41 SWEDEN 25120	42 SWEDEN 25130	
No. of observations[1]		*20*	*17*	*17*	*17*	*29*	*29*	*29*	*29*	*9*	*9*	*9*	*25*	*88*	*88*	1. Coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.47*	*.51*	*.51*	*.51*	*.38*	*.38*	*.38*	*.38*	*.75*	*.75*	*.75*	*.41*	*.21*	*.21*	
1 year	1948	.18														
	1949	—.41	.15													
	1950	.47	—.26													
	1951	.06	.19											—.30	—.05	
	1952	—.10	.61											—.14	—.45	
	1953	.72	.00											—.23	—.39	
	1954	.46	.22										.36	.43		
	1955	—.02	.47										—.02	—.17		
	1956	.05	.37											—.09	—.30	
	1957	.01	.25			.18	.02	.06	.39	.85	.65	.49		.04	—.05	
	1958	(.01)	—.29			.63	.46	.56	.48	.57	.16	.14		—.19	—.09	
	1959					.38	.42	.45	.29	.27	—.11	.58	.52			
	1960					.35	.29	.20	.45	—.31	.89	—.89				
	1961					.35	.25	.25	.22	.41	—.01	.35				
3 years	1948	.11														
	1949	.28	—.29													
	1950	—.03	.04													
	1951	.23	.23	.64	.77									—.11	—.40	
	1952	.37	.56											.02		
	1953	.39	.26											—.20	—.08	
	1954	—.16	.38	.46	—.64									.01	—.39	
	1955		.27										.55	.02		
	1956	(—.23)	.31										.48	.10	—.13	
	1957	(—.05)				.27	.46	.21	.47	.50	.71	.59				
	1958	(—.18)				.58	.55	.61	.41	.51	.89	.16				
	1959					.54	.38	.59	.38	.24	.69	.01				
5 years	1948	—.05														
	1949	.15	.45													
	1950	.04	.41													
	1951	.18	.23											—.16	—.22	
	1952	.22	.67											—.02	—.29	
	1953	.34	.17											.08	—.12	
	1954	(—.26)	—.01										.51	.13	—.21	
	1955	(—.04)														
	1956	(.01)														
	1957					.52	.52	.55	.45	.76	.47	.10				

III. COEFFICIENTS OF CORRELATION *(continued)*

Partial coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EARNINGS AND IN EMPLOYMENT, INFLUENCE OF EARNINGS LEVEL AND RATIO OF LABOUR COST TO SALES HELD CONSTANT											NOTES
		4 USA 02120	5 USA 02130	6 USA 02140	27 GERMANY 16140	28 GERMANY 16110	29 GERMANY 16120	30 GERMANY 16130	41 SWEDEN 25120	43 SWEDEN 25130	46 NORWAY 22120	47 NORWAY 22130	
No. of observations[1] .		*21*	*21*	*21*	*29*	*29*	*29*	*29*	*88*	*88*	*20*	*20*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.46*	*.46*	*.46*	*.38*	*.38*	*.38*	*.38*	*.21*	*.21*	*.47*	*.47*	
1 year	1948	.45	—.18	.09									2. 19 observations; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
	1949	.14	—.45	.36									
	1950	.72	—.17								.05[2]	—.52[2]	
	1951	—.01	.38								.57[2]	.18[2]	
	1952	.11	.60						—.30	—.08	—.54[2]	.01[2]	
	1953	.52	—.54	.49					—.12	—.47	.10	—.59	
	1954	.57	.00	.55					—.19	—.34	—.11	—.62	
	1955	.48	.57	.53					.43	—.60	.00	—.65	
	1956	.17	.73	.30					—.17	—.62	—.44	.25	
	1957	(.10)	(—.49)	(—.29)	.19	.03	.06	.36	—.08	—.26	.07	.26	
	1958	(.06)	(.25)	(.09)	.65	.48	.53	.54	.08	—.05	.04	—.19	
	1959				.38	.43	.40	.28	—.18	—.12	.25	—.18	
	1960				.25	.17	.06	.46					
	1961				.31	.22	.27	.23					
3 years	1948	(.34)	.04	.24									
	1949	.34	.15	.21									
	1950	(.52)	.34	.48							.37[2]	.44[2]	
	1951	.24	.69	.22							—.27[2]	—.67[2]	
	1952	.38	.53	.44					—.12	—.40	.37[2]	—.10[2]	
	1953	.49	.24	.18					.03	—.43	.39	.18	
	1954	(.29)	(.76)	.33					—.18	—.06	.38	—.08	
	1955	(.45)	(.21)	(.37)					.03	—.38	.03	—.17	
	1956	(—.10)	(—.14)	.00					.03	—.37			
	1957				.25	.39	.21	.49	.11	—.10			
	1958				.52	.44	.57	.45					
	1959				.50	.33	.56	.38					
5 years	1948	(.20)	.43										
	1949	.28	.33										
	1950	(.45)	.47								.29[2]	—.28[2]	
	1951	.11	.71								.58[2]	.48[2]	
	1952	(.32)	(.70)						—.17	—.22	.23[2]	.14[2]	
	1953	(.41)	(.06)						—.02	—.26	.57	—.25	
	1954	(—.12)	(.31)						.08	—.10	.20	.00	
	1955								.13	—.19			
	1956												
	1957				.50	.45	.55	.33					

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND EARNINGS LEVEL													NOTES
		1 USA 02140	2 USA 02100	3a USA 02100	3b USA 02100	4 USA 02120	5 USA 02130	6 USA 02140	7 USA 02100	8 USA 02140	9 USA 02100	10 USA 02140	11 USA 02150	12 CANADA 01140	
No. of observations ..		*10*	*61*	*21*	*20*	*21*	*21*	*21*	*31*	*60*	*11*	*36*	*51*	*10*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.63*	*.25*	*.43*	*.44*	*.43*	*.43*	*.43*	*.36*	*.25*	*.60*	*.33*	*.28*	*.63*	2. 1950 to 1960.
1 year	1948	—.37		—.02	.00	—.20[3]	—.04	—.02	.13	—.29[4]	—.08	—.30	—.06[7]		3. 20 observations; the branch " Products of Petroleum and Coal " is excluded.
	1949	.48		.09	.06	.14[3]	.31	.01	—.04	.00	.04	—.25	—.04		4. 59 observations; the sector " Agriculture " is excluded.
	1950	.31		.24	.56	.30	.24	.34	.14	.31	.24	.26	.21	—.01	5. 58 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1951	.12	.13	.18	.17	.23	.24	.25	.05	.27	—.41	.36	.12	.06	6. 34 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1952	—.15	.19	.39	.45	.46	.41	.46	.00	.25	—.53	.06	—.09	—.26	7. —.17 for 1947-48.
	1953	—.51	—.20	—.24	—.19	—.34	.19	—.14	—.14	—.25	—.32	—.11	—.36	—.41	8. —.15 for 1947-50.
	1954	.14	.17	—.04	.18	.18	.29	.13	—.01	.10	.10	.04	.15	—.05	9. .01 for 1947-52.
	1955	.12	.24	.17	.32	.04	.50	.15	.31	.10[5]	.20	.18[6]	—.18	—.04	10. 1947 to 1961.
	1956	—.25	.33	.46	.54	.35	.03	.52	.28	.15[5]	—.16	.14[6]	.00	—.15	
	1957	—.77	—.44	—.49	—.51	—.53	.04	—.40	—.45	—.44[5]	—.49	—.33[6]	—.12	—.24	
	1958	—.05	.02	—.03	—.15	—.01	—.08	—.15	—.24	.03[5]	—.22	.01[6]	—.29	—.57	
	1959	—.29	.20	.44	.38	.11	.15	.12	—.02	—.02[5]	—.37	—.04[6]	.23	—.53	
	1960	—.63	—.30	—.04	—.26			—.16	—.30	—.29[5]	—.57	—.19[6]	—.28	—.30	
3 years	1948	.18		.24	.57	.45	.02	.43	.14	.13	.05	—.02	.03[8]		
	1949	.41		.19	.40	.45[3]	.21	.35	.07	.34	—.07	.25	.08		
	1950	.24		.23	.50	.29	.29	.36	.08	.34	—.35	.32	.07	.11	
	1951	—.28	—.01	.24	.25	.20	.26	.31	—.04	.14	—.46	.17	—.10	—.13	
	1952	—.30	.11	.05	.34	.22	.30	.36	—.14	.00	—.34	—.03	—.17	—.40	
	1953	—.24	.04	—.11	.14	—.11	.42	.09	.00	—.07[5]	—.13	.02[6]	—.17	—.38	
	1954	.06	.32	.17	.49	.46	.17	.45	.22	.16[5]	.07	.15[6]	—.03	—.19	
	1955	—.61	.12	—.12	—.07	.20	.10	.01	—.07	—.13[5]	—.31	.01[6]	—.17	—.18	
	1956	—.60	—.18	—.29	—.33	—.35	.02	—.17	—.38	—.21[5]	—.43	—.10[6]	—.22	—.27	
	1957	—.59	—.15	—.28	—.44	—.37	—.03	—.35	—.48	—.28[5]	—.61	—.15[6]	—.11	—.55	
	1958	—.40		.12	—.08			—.11	—.28	—.13[5]	—.59	—.06[6]	—.17	—.73	
5 years	1948	.14			.50	.41	.09	.43	.18	.23	—.27	.10	—.06[9]		
	1949	.22			.47	.48[3]	.19	.40	.53	.29	.53	.19	—.08		
	1950	.07			.54	.32	.27	.40	.08	.29	—.29	.26	—.03	—.06	
	1951	—.18	.14		.40	.31	.31	.38	—.02	.15[5]	—.34	.16[6]	—.11	—.19	
	1952	—.26	.19		.50	.43	.27	.46	.11	.08[5]	—.29	.08[6]	—.20	—.36	
	1953	—.51	—.07		—.08	—.25	.28	.01	—.09	—.16[5]	—.32	—.05[6]	—.19	—.33	
	1954	—.38	.11		—.03	—.09	.05	.03	—.12	—.04[5]	—.22	.04[6]	—.16	—.33	
	1955	—.51	—.01		.00	—.17	05	.00	—.19	—.08[5]	—.46	.03[6]	—.17	—.41	
	1956	—.59			—.19			—.10	—.42	—.21[5]	—.62	—.10[6]	—.17	—.40	
Whole period		—.17[2]	.05		.31	.30	.03	.34[2]	—.07	.13[2,5]	—.41	.14[2,6]	—.17[10]		
Whole period[1]					.35	.45[3]	.17				—.37			—.32	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND EARNINGS LEVEL. *(continued)* 13*a* CANADA 01100	13*b* CANADA 01110	14 CANADA 01105	15 CANADA 01140	16 CANADA 01140	17 CANADA 01140	18 CANADA 01140	19 CANADA 01106	20 CANADA 01107	21 CANADA 01150	22*a* MONTREAL 01180	22*b* MONTREAL 01181	23 MONTREAL 01185
No. of observations ..		*17*	*17*	*17*	*17*	*53*	*38*	*21*	*17*	*17*	*10*	*16*	*16*	*16*
Significance limit (5 %)		*.48*	*.48*	*.48*	*.48*	*.27*	*.32*	*.43*	*.48*	*.48*	*.63*	*.50*	*.50*	*.50*
1 year	1949	.19	.38	.20							.12[13]	.22[13]	.16[13]	—.09[13]
	1950	.23	.42	.16	.69	.40[3]	.43[3]	.16[7]			.72[13]	.31[13]	.44[13]	—.21[13]
	1951	—.02	—.19	.14	.35	.33[3]	.27[3]	.39[7]			—.26	—.11[13]	—.26[13]	—.38[13]
	1952	.22	.26	.38	.12	.11	.28[3]	.43[7]			.43	.17	.29	—.14
	1953	—.04	.02	.36	.42	.15	.14[4]	.15[9]			.27	.00	—.05	—.17
	1954	.22	.28	—.05	.26	.23	.20[3]	.23[7]			.54	—.04	.19	.15
	1955	.32	.41	.55	.53	.40	.11	.09			.72	.33	.55	.34
	1956	—.03	—.09	.32	.29	.16	—.09	—.09			.52	—.31	—.42	.58
	1957	—.29	—.26	—.04	—.10	—.16	—.14	—.04			—.14	—.24	—.21	—.33
	1958	—.12	—.07	—.25	—.17	.06	—.08[5]	.00[9]			—.37	—.13	—.10	.00
	1959	—.15	—.16	.00	.25	.10	.08	.08	—.25	—.07		—.25	—.20	.22
	1960				—.53	—.38	—.31	—.16						
3 years	1949	.32	.43	.41							.42[13]	—.44[13]	—.46[13]	—.36[13]
	1950	.28	.37	.34	.57	.35[3]	.46[3]	.40[7]			.47[13]	—.29[13]	.38[13]	—.33[13]
	1951	.08	.10	.23	.54	.26[3]	.28[3]	.30[7]	—.03	.07	.12	.01[13]	—.06[13]	—.43[13]
	1952	.24	.31	.46	.49	.17	.25[6]	.26[10]			.54	.06	.16	—.02
	1953	.35	.46	.43	.62	.29	.16[3]	.12[7]			.56	.12	.28	.09
	1954	.63	.70	.35	.77	.48	.14[3]	.10[7]	.45	.25	.71	.02	.29	.53
	1955	—.02	.01	.35	.21	.16	—.07	—.01			.56	—.17	—.18	.43
	1956	—.21	—.20	—.03	—.07	—.02	—.16[5]	—.08[9]			.09	—.33	—.39	.36
	1957	—.29	—.26	—.19	—.06	—.03	—.09[5]	—.01[9]				—.32	—.21	.02
	1958				—.18	—.06	—.10[5]	—.02[9]						
5 years	1949	.25	.43	.43							.45[13]	.56[13]	.66[13]	—.30[13]
	1950	.29	.44	.41	.79	.43[3]	.42[6]	.29[10]			.50[13]	.49[13]	.63[13]	—.09[13]
	1951	.37	.43	.26	.69	.41[3]	.24[6]	.19[10]	.04[11]	.14[11]	.39	.30[13]	.30[13]	—.30[13]
	1952	.31	.37	.53	.64	.31	.19[6]	.16[10]			.63	.06	.21	.52
	1953	.03	.12	.44	.39	.15	.06[3]	.05[7]			.57	—.12	—.07	.34
	1954	.05	.13	.09	.19	.22	.05[6]	.09[10]			.45	—.15	—.07	.34
	1955	—.13	—.09	.07	.15	.15	—.06[5]	.00[9]				—.27	—.22	.33
	1956				—.11	—.09	—.18[5]	—.09[9]						
Whole period						.38[3]					.43[13]			
Whole period[1]		.06	.20	.28	.48		.15[6]	.14[10]				.28[13]	.36[13]	.02[13]

NOTES

1. Average of the first and the last three terminal years.
2. 50 observations only.
3. 34 observations.
4. 35 observations.
5. 37 observations.
6. 33 observations.
7. 17 observations.
8. 18 observations.
9. 20 observations.
10. 16 observations.
11. 1951 to 1957.
12. 9 observations; the Province of Newfoundland is excluded.
13. 14 observations; the branches " Furniture " and " Non-metallic mineral products " are excluded.

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND EARNINGS LEVEL *(continued)*													NOTES
		24*a* TORONTO 01190	24*b* TORONTO 01191	25 TORONTO 01195	26 GER-MANY 16100	27 GER-MANY 16140	28 GER-MANY 16110	28*b* GER MANY 16110	29*a* GER-MANY 16120	29*b* GER-MANY 16120	30*a* GER-MANY 16130	30*b* GER-MANY 16130	31*a* GER-MANY 16110	31*b* GER-MANY 16111	
No. of observations ..		*13*	*13*	*13*	*27*	*29*	*32*	*29*	*32*	*29*	*32*	*29*	*9*	*9*	1. Average of the first and the last three terminal years.
Significance limit (5%)		*.55*	*.55*	*.55*	*.38*	*.37*	*.35*	*.37*	*.35*	*.37*	*.35*	*.37*	*.67*	*.67*	2. 12 observations; the branch "Non-ferrous metal products" is excluded.
1 year	1949	.37[2]	.43[2]	.49[2]											3. 26 observations; the branch "Constructional Engineering" is excluded.
	1950	.28[2]	.42[2]	—.35[2]	—.27										4. 1951 to 1960.
	1951	.24[2]	.26[2]	.03[2]	.08										5. Average 1951-53 to average 1958-60.
	1952	.10[2]	.25[2]	.29[2]	—.11										
	1953	.14	.11	.52	—.20										
	1954	—.29	—.14	.01	—.11										
	1955	.09	.08	.36	—.14										
	1956	—.18	—.19	.34	.06										
	1957	.19	.34	.37	.18	.19	.34	.34	.06	.14	—.04	—.07	—.19	—.16	
	1958	—.27	—.18	—.40	—.02	.06	.04	.21	—.21	—.08	—.08	.06	—.37	—.39	
	1959	—.12	—.17	.16	—.24	.21	.32	.34	.32	.29	.08	.07	—.07	.02	
	1960					.10	.05	.06	.25	.22	.09	.07	—.47	—.40	
	1961					—.22	—.18	—.14	—.26	—.25	—.18	—.25	—.22	—.34	
3 years	1949	.25[2]	.37[2]	.10[2]											
	1950	.13[2]	.26[2]	—.29[2]	—.17										
	1951	.28[2]	.34[2]	.25[2]	.08										
	1952	—.10[2]	—.06[2]	.64[2]	—.15										
	1953	—.07	—.03	.42	—.16										
	1954	—.28	—.17	.21	—.07[3]										
	1955	.11	.18	.45	.07										
	1956	—.25	—.18	—.29	.11										
	1957	—.31	—.24	—.14	—.04	.21	.13	.33	—.06	.19	—.10	—.01	—.47	—.42	
	1958					.14	.10	.26	—.04	.11	—.01	.10	—.52	—.47	
	1959					.04	.09	.09	.13	.08	.00	—.04	—.45	—.33	
5 years	1949	.25[2]	.35[2]	.27[2]											
	1950	.13[2]	.28[2]	—.06[2]	—.16										
	1951	.24[2]	.36[2]	.16[2]	—.11										
	1952	—.12[2]	—.11[2]	.61[2]	—.11										
	1953	—.09	—.02	.54	—.02										
	1954	—.32	—.23	.05	.02										
	1955	—.30	—.26	—.10	—.02										
	1956														
	1957					.12	.06	.22	—.06	.09	—.10	—.07	—.70	—.64	
Whole period					—.05[4]										
Whole period[1]		.07[2]	.25[2]	.28[2]	—.04[5]										

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND EARNINGS LEVEL *(continued)*											
		32*a* GER-MANY 16120	32*b* GER-MANY 16121	33*a* GER-MANY 16130	33*b* GER-MANY 15131	34 UK 28100	38 FRANCE 15120	39 FRANCE 15150	40 SWEDEN 25120	41 SWEDEN 25120	42 SWEDEN 25130	43 SWEDEN 25130	44 SWEDEN 25100
No. of observations		*9*	*9*	*9*	*9*	*109*	*25*	*89*	*10*	*88*	*10*	*88*	*11*
Significance limit (5 %)		*.67*	*.67*	*.67*	*.67*	*.19*	*.40*	*.21*	*.63*	*.21*	*.63*	*.21*	*.60*
1 year	1949					.05							
	1950					—.12							
	1951					.13							
	1952					—.20			—.62	.17	—.20	.16	
	1953					.12			.26	.17	—.58	—.17	
	1954					.29			.88	.18	.16	—.02	
	1955					.21	.11	—.09	.63	.27	.47	.08	
	1956					.11	—.16	—.20	.43	.19	.20		.73
	1957	.05	.23	—.13	—.09	—.13			.84	.09	.50	—.08	.66
	1958	—.61	—.58	—.81	—.83				.14	—.04	—.06	—.11	—.48
	1959	—.24	—.25	—.05	—.02		.00	.17	.32	.06	—.06	—.11	
	1960	—.43	—.60	—.11	—.09								
	1961	.07	.06	—.13	—.04								
3 years	1949					—.05							
	1950					—.01							
	1951					.02							
	1952					.05			.45	.29	—.15	.01	
	1953					.30			.88	.32	.02	—.05	
	1954					.28			.84	.31	.20	—.01	.78
	1955					.03			.72	.25	.38	.08	
	1956						—.09	—.22	.71	.11	.14		.42
	1957	—.70	—.56	—.60	—.53		.18	.08	.82	—.02	.05	—.16	
	1958	—.63	—.69	—.59	—.53								
	1959	—.34	—.51	—.05	.01								
5 years	1949					—.02							
	1950					.00							
	1951					—.11							
	1952					.14			.71	.35	.10	.08	
	1953					—.04			.86	.31	.10	—.04	
	1954								.88	.25	.12	—.07	.59
	1955						.09	—.04	.65	.15	.17	—.02	
	1956												
	1957	—.65	—.65	—.48	—.39								
Whole period						.01			.77	.26	.02	.05	

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND EARNINGS LEVEL *(concluded)*									NOTES
		46 NORWAY 22120	47 NORWAY 22130	48 NORWAY 22100	49 BEGLIUM 11100	50 BELGIUM 11100	51*a* NETHER-LANDS 21120	51*b* NETHER-LANDS 21121	52*a* NETHER-LANDS 21130	52*b* NETHER-LANDS 21131	
No. of observations		*20*	*20*	*25*	*11*	*23*	*20*	*20*	*20*	*20*	1. 19 observations only; the branch "Manufactures of Products of Petroleum and Coal" is excluded.
Significance limit (5 %)		*.44*	*.44*	*.40*	*.60*	*.41*	*.44*	*.44*	*.44*	*.44*	2. 1955 to 1959.
1 year	1950	.23[1]	.14[1]								3. 1949 to 1955.
	1951	.21[1]	.14[1]								4. 1955 to 1962.
	1952	—.08[1]	.18[1]								5. 1949 to 1962.
	1953	.12	.49								6. 1954 to 1960.
	1954	.01	.04								
	1955	.49	.67	.66							
	1956	.60	.14	.63							
	1957	.22	—.28	—.56							
	1958	.10	—.14	—.70							
3 years	1950	.23[1]	.22[1]								
	1951	.19[1]	.22[1]								
	1952	.03[1]	.20[1]								
	1953	.31	.57								
	1954	.40	.48								
	1955	.57	.23	.13							
	1956	.45	—.10	.55							
5 years	1949				—.47[3]	.49[3]					
	1950	.15[1]	.26[1]								
	1951	.27[1]	.42[1]								
	1952	.36[1]	.51[1]								
	1953	.48	.46								
	1954	.48	.17				—.42[6]	—.23[6]	—.34[6]	—.27[6]	
	1955			—.13[3]	—.56[4]	.01[4]					
Whole period		.27[1]	.34[1]		—.61[5]	.30[5]					

III. COEFFICIENTS OF CORRELATION *(continued)*

Bivariate coefficients.

PERIOD LENGTH	1ST YEAR	CHANGES IN EMPLOYMENT AND IN PROFITS										NOTES
		1 USA 02240	3 USA 02200	4 USA 02220	5 USA 02230	6 USA 02240	8 USA 02240	10 USA 02240	13 CANADA 01200	35 UK 28240	37 FRANCE 15240	
No. of observations		*8*	*19*	*21*	*21*	*21*	*42*	*19*	*13*	*13*	*19*	1. Changes in employment and in profit rates.
Significance limit (5 %)		*.71*	*.46*	*.43*	*.43*	*.43*	*.30*	*.46*	*.55*	*.55*	*.46*	2. 18 observations; the branch " Instruments " is excluded.
1 year	1948	.70	.18	.44[3]	.03	.42	.45	.43				3. 20 observations; the branch " Products of Petroleum and Coal " is excluded.
	1949	—.57	.65	.28[3]	—.30	.32	.24	—.04		.68		4. 20 observations; the branch " Instruments " is excluded.
	1950	—.57	.29	.45	.44	.46	.21	.15		.50	.33[10]	5. 19 observations; the branches " Instruments " and " Automobiles and Automobile Equipment " are excluded.
	1951	.56	.27	.45	.22	.42	.30	.02		.75	.62[10]	6. 40 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1952	.65	.11	.18	.32	.21	.32	.34		.63	—.04[10]	7. 39 observations; the branches " Instruments ", " Wholesale Trade " and " Retail Trade " are excluded.
	1953	.27	.45	.37	.34	.45	.22	.41	.65	.65	.01[10]	8. 17 observations; the branches " Wholesale Trade " and " Retail Trade " are excluded.
	1954	—.52	.11	.47	—.32	.45	.05[6]	—.30[8]	.18	.37	.19[11]	9. 12 observations; the branch " Non-ferrous metal products " is excluded.
	1955	.52	.47	.77	.33	.74	.59[6]	.56[8]	—.15	.65	—.20[12]	10. 17 observations.
	1956	.33	.52	.45	.50	.61	.57[6]	.45[8]	.35[9]	.28	—.50[12]	11. 15 observations.
	1957	.35	.57	.55[4]	.11[4]	.59[4]	.49[7]	.27[8]	.40[9]	.57	.60	12. 16 observations.
	1958	.42	.23	.61[4]	—.13[5]	.51[4]	.35[7]	—.05[8]	—.36	.29	.37	
	1959		.34						.38			
3 years	1948	—.32	.59	.66[3]	.51	.68	.39	.31				
	1949	—.50	.33	.76[3]	.57	.74	.34	.01		.78		
	1950	.23	.21	.70[3]	.62	.65	.39	.20		.57	.56[10]	
	1951	.55	.46	.71	.49	.70	.52	.39		.65	.57[10]	
	1952	.01	.07	.32	—.01	.29	.23[6]	.53[8]		.19	.23[11]	
	1953	.14	.42	.55	.26	.53	.39[6]	.56[8]	—.35	.58	.15[11]	
	1954	.18		.02[4]	—.08[4]	.03	.31[6]	.39[8]	.27[9]	.49	—.04[11]	
	1955	.41		.68[4]	.56[4]	.69[4]	.72[7]	.64[8]	.22	.71	.08[12]	
	1956	.68	.12	.16[4]	.02[4]	.07	.30[7]	.26[8]	.18	.69	.04[12]	
	1957		.10						.34[9]			
5 years	1948	.22	.56	.74[3]	.71	.76	.50	.38				
	1949	—.03	.35	.81[3]	.75	.79	.52	.31		.81		
	1950	.16	.18	.68[3]	.56	.63	.53[6]	.52[8]		.80	.55[11]	
	1951	.53	.11	.59	.39	.57	.61[6]	.69[8]		.60	.56[11]	
	1952	.38	.23[5]	.58[4]	.61[4]	.54	.61[6]	.76[8]		.46	.29[11]	
	1953	.38	.48	.66[4]	.32[4]	.63[4]	.64[7]	.55[8]	—.02	.60	.48[11]	
	1954	.55	—.12	.04[4]	—.48[4]	—.18	.11	.17[8]	—.36	.13	.49[11]	
	1955		.27[5]						.42			
Whole period										.81		

III. COEFFICIENTS OF CORRELATION *(concluded)*

Bivariate (a) or partial (b) coefficients.

PERIOD LENGTH	1ST YEAR	a) CHANGES IN EMPLOYMENT AND IN PRODUCTION							b) CHANGES IN EMPLOYMENT AND IN PRODUCTION, INFLUENCE OF CHANGES IN EARNINGS HELD CONSTANT					NOTES
		3 USA 02200	13 CANADA 01200	19 CANADA 01206	20 CANADA 01207	35 UK 28240	46 NORWAY 22120	47 NORWAY 22130	3 USA 02200	13 CANADA 01200	35 UK 28240	46 NORWAY 22120	47 NORWAY 22130	
No. of observations[1]		*20*	*17*	*17*	*17*	*13*	*20*	*20*	*20*	*17*	*13*	*20*	*20*	1. Partial coefficients in brackets have been calculated from bivariate coefficients based on different numbers of industries.
Significance limit (5%)		*.44*	*.48*	*.48*	*.48*	*.55*	*.44*	*.44*	*.46*	*.50*	*.58*	*.46*	*.46*	2. 19 observations; the branch " Miscellaneous Manufacturing industries " is excluded.
1 year	1948	.83							.83					3. 19 observations; the branch " Manufactures of Products of Petroleum and Coal " is excluded.
	1949	.86	.32			.62			.86	.28	.68			
	1950	.83	.52			.72	.75[3]	.43[3]	.78	.52	.65	.75[3]	.41[3]	
	1951	.89	.43			.76	.63[3]	.54[3]	.89	.44	.60	.44[3]	.61[3]	
	1952	.91	.64			.86	.29[3]	—.08[3]	.90	.76	.85	.39[3]	—.08[3]	
	1953	.71	.70			.75	.62	.53	.71	.72	.77	.62	.70	
	1954	.81	.60			.84	.49	.36	.73	.61	.65	.64	.51	
	1955	.71	.18			.74	.57	—.09	.84	—.01	.67	.57	.07	
	1956	.68	.83			.71	.45	.67	.65	.85	.70	.45	.74	
	1957	.92	.79			.79	.27	.12	.91	.78	.54	.25	.10	
	1958	.74[3]	.46			—.02	.58	—.10	(.74)	.48	.03	.57	—.08	
3 years	1948	.79							.77					
	1949	.90	.45			.84			.88	.48	.83			
	1950	.94	.73			.88	.65[3]	.41[3]	.93	.72	.86	.66[3]	.61[3]	
	1951	.74	.61	.13	.33	.88	.46[3]	.43[3]	.74	.57	.85	.39[3]	.42[3]	
	1952	.69	.50			.82	.40[3]	.79[3]	.65	.43	.82	.58[3]	.77[3]	
	1953	.60	.67			.93	.77	.70	.59	.61	.87	.75	.70	
	1954	.70	.53	.21	—.03	.91	.76	.64	.71	.47	.75	.74	.71	
	1955		.79			.86	.47	.24		.79	.65	.47	.55	
	1956	.60[3]	.81			.69	.39	.26	(.53)	.80	.50	.38	.32	
	1957	.59[3]							(.55)					
	1958	.38[3]							(.45)					
5 years	1948	.91							.90					
	1949	.88	.59			.86			.85	.45	.80			
	1950	.87	.46			.95	.61[3]	.70[3]	.83	.31	.90	.62[3]	.76[3]	
	1951	.74	.47			.92	.56[3]	.47[3]	.74	.41	.86	.37[3]	.70[3]	
	1952	.73	.59			.81	.63[3]	.56[3]	.71	.49	.73	.62[3]	.59[3]	
	1953	.73	.77			.94	.60	.65	.73	.76	.73	.53	.67	
	1954	.49[3]	.64			.80	.60	.61	(.49)	.64	.64	.59	.59	
	1955	.53[3]							(.54)					
	1956	.50[3]							(.58)					
Whole period						.89	.55[3]	.52[3]			.79	.45[3]	.69[3]	

PART II

SERIES DEFINITIONS

UNITED STATES

SECTION 1

Classification studied:

1. 10 Economic sectors as follows:

Agriculture, forestry and fisheries; Mining; Contract Construction; Manufacturing; Wholesale and Retail Trade; Finance, insurance and real estate; Transportation; Communication and public utilities; Service; Government and government enterprises.

2. In calculations involving either profits or lagged earnings as a variable, the sectors " Agriculture, forestry and fisheries " and "Government and government enterprises " are excluded.

02140 : Annual compensation per employee

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Employment coverage: full and part-time employees (see Series 02240 of this section).

c) Definition: Annual compensation per employee is obtained by dividing total compensation by the average number of full and part-time employees. *Compensation* is the income accruing to persons with employee status as remuneration for their work. From the employer standpoint, it is the direct cost of employing labour, i.e. the sum of wages and salaries plus, (separately available), supplements to wages and salaries.

Wages and Salaries : Monetary remuneration to employees including executives' compensation, commissions, tips and bonuses, and payments in kind which represent income to the recipients.

Supplements to Wages and Salaries : Monetary compensation of employees not commonly regarded as wages and salaries, i.e. employer contributions to social insurance, employer contributions to private pension, health and welfare funds, compensation for injuries, directors' fees, pay of the military reserve and a few other minor items of labour income.

d) Period covered: 1948/1961.

02240 : Average number of full and part-time employees (annual averages)

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Definition: the average number of full and part-time jobs filled during the year by wage and salary earners (for a full explanation of the concept see " Survey of Current Business," June 1945, pp.17/18).

c) Period covered: 1948/1961.

02360 : Corporate profits after tax

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Definition: Earnings of corporations organised for profit which accrue to the US, measured after tax, before deduction of depletion charges. Capital gains and losses are excluded. Data underlying the estimates of corporate profits are the annual tabulations of corporate income tax returns compiled by the Internal Revenue Service.

c) Remarks: The corporate profits estimates are classified industrially on an enterprise rather than an establishment basis.

d) Period covered: 1948/1959.

SECTION 2

Classification studied : 61 3-digit manufacturing industries which do not exhaust total manufacturing. Choice of industries was determined by availability of data for both earnings and employment for the period studied. The industry groups are as follows:

7 Food and kindred products industries; 2 Tobacco industries; 4 Textile mill products industries; 5 Apparel and related products industries; 3 Lumber and wood products industries; 2 Furniture and fixtures industries; 1 Paperboard containers and boxes industry; 4 Printing industries; 1 Drugs industry; Petroleum refining; 2 Rubber and miscellaneous plastic products industries; 2 Leather industries; 5 Stone, clay or glass products industries; 3 Primary metal industries; 4 Fabricated metal products industries; 2 Machinery industries; 4 Transportation equipment industries; 5 Instruments and related products industries and 4 Miscellaneous manufacturing industries.

02100 : Hourly earnings of production and related workers (both sexes). Figures used are annual averages.

a) Source: " Employment and Earnings," *BLS.*

b) Employment coverage: Male and female production and related workers (see Series 02200 of this section).

c) Definition: Hourly earnings are on a gross basis. They therefore reflect changes in hourly and incentive wage rates and also such variable factors as premium pay for overtime and late-shift work, and changes in output of workers paid on an incentive plan. Earnings are the actual return to the workers for a stated period of time, and should exclude the following elements of total labour cost: irregular bonuses, retroactive items, payments of various welfare benefits and payroll taxes paid by employers.

d) Period covered: 1951/1961.

Annual average data were obtained by dividing aggregate annual payroll data by aggregate annual man-hours.

02200 : Employment of production and related workers (both sexes), annual averages

a) Source: " Employment and Earnings," *BLS.*

b) Definition: Production and related workers including working foremen and all non-supervisory workers (including leadmen and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitorial and watchman services, product development, auxiliary production for plant's own use (e.g. power plant) and record keeping and other services closely associated with the above production operations.

Employment data refer to persons on establishment pay-rolls who received pay for any part of the pay period ending nearest the 15th of the month; the data exclude proprietors, the self-employed and unpaid family workers. Persons on an establishment payroll who are on paid sick leave (when pay is received directly from the firm), on paid holiday or paid vacation, or who work during a part of the pay period and are unemployed or on strike during the rest of the period, are counted as employed. Not counted as employed are persons who are laid off, on leave without pay, or on strike for the entire period, or who are hired but do not report to work during the period.

d) Period covered: 1951/1961.

SECTION 3

Classification studied :

1. 21 manufacturing industries which exhaust total manufacturing:

Ordnance and accessories; Lumber and wood products (except furniture); Fabricated metal products; Furniture and fixtures; Stone, clay and glass products; Primary metal industries; Machinery, Electrical equipment and supplies; Transportation equipment; Instruments and related products; Miscellaneous manufacturing industries; Food and kindred products; Tobacco manufactures; Textile mill products; Apparel and related products; Paper and allied products; Petroleum refining and related industries; Rubber and miscellaneous plastic products; Leather and leather products.

2. The coefficients of correlation between employment and earnings were also calculated for 20 industries i.e. excluding the branch " Ordnance and accessories " for which violent employment swings result in wide fluctuations of the measurement of the relationship.

3. The coefficients of correlation in which concentration and production are included as variables were calculated for 20 industries only (excluding " Ordnance and accessories ").

4. Where profit was included as a variable, the coefficients of correlation were calculated for 19 industries only; the branches " Miscellaneous manufacturing industries " and " Ordnance and accessories " were excluded.

5. Lagged employment-earnings correlations were calculated in respect of 19 industries only; the branches " Miscellaneous manufacturing industries " and " Ordnance and accessories " were excluded.

02100 : Hourly earnings of production and related workers (both sexes), annual average figures

a) Source: " Employment and Earnings," *BLS.*

b) Employment covered: Male and female production and related workers (see Series 02200 of section 2).

c) Definition: See section 2.

d) Period covered: 1948/1961.

Annual average data are obtained by dividing annual total of aggregate payrolls by annual aggregate man-hours.

02200 : Employment of production and related workers (both sexes), annual average figures

a) Source: " Employment and Earnings," *BLS.*

b) Definition: see section 2.

c) Period covered: 1948/1961.

02307 : Concentration

a) Source: " Concentration ratios in Manufacturing Industry 1958," *US Senate Committee on the Judiciary.*

b) Definition: Percent of employment accounted for by four largest companies, 4-digit industries averaged to give figures for 2-digit industries.

c) The data used relate to the year 1954.

02350 : Annual rate of profits (annual average figures)

a) Source: " Quarterly Financial Report for Manufacturing."

b) Definition: Net profit after Federal income taxes, expressed as percentage on stockholders equity.

c) Period covered: 1948/1961.

Annual figures were derived as the average of quarterly estimates.

Remarks: (1) The comparability of industry coverage for this series and those to which it was related is defective. Where it was used as a variable, the industries " Ordnance and accessories " and " Miscellaneous manufacturing industries " were dropped from the other variables in the analysis. The profit figures for the 3-digit industry " Motor vehicles and equipment " were related to the earnings and employment figures for the 2-digit industry " Transportation "; and the profit figures for the 3-digit industry " Iron and steel " were related to employment and earnings in the 2-digit industry " Primary metal." (2) As a result of revisions in 1951 and 1958, comparability of this series is broken in these two years.

02326 : Index of industrial production (annual figures)

a) Source: " Federal Reserve Bulletin."

b) Definition: The index of production measures changes in the physical volume or quantity of output of manufactures. It reflects output changes at all stages within manufacturing industries (including intermediate as well as final products).

c) Period covered: 1948/1961.

SECTION 4

Classification studied : 21 manufacturing industries which exhaust total manufacturing:

Food and kindred products; Tobacco manufactures; Textile and mill products; Apparel and other finished fabric products; Lumber and wood products (except furniture); Furniture and fixtures; Paper and allied products; Printing, publishing and allied industries; Chemicals and allied products; Products of petroleum and coal; Rubber products; Leather and leather products; Stone, clay and glass products; Primary metal industries; Fabricated metal products including ordnance; Instruments; Miscellaneous manufacturing; Machinery except electrical; Electrical machinery; Transportation equipment, except automobiles; Automobiles and automobile equipment.

02120 : Annual earnings per production worker (both sexes), annual averages

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Employment covered: Full and part-time production workers (see Series 02220 in this section).

c) Definition: Annual earnings per production worker are derived by dividing total production workers' wages by average number of full and part-time production workers. *Wages* consists of the monetary remuneration of

production workers including executives' compensation, commissions, tips and bonuses, and payments in kind which represent income to the recipients.

d) Period covered: 1948/1960.

02220 : Average number of full and part-time production workers (both sexes), annual averages

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Definition: Average number of full and part-time jobs filled during the year by production workers; for explanation of the concept " production workers " see Series 02200 in section 2.

02360 : Corporate profits after tax (annual figures)

See Series 02360 in section 1.

02380 : Ratio of labour cost to sales (annual figures)

a) Source: Calculated from " Survey of Current Business," *National Income Supplement.*

b) Definition: Ratio of " Total compensation of employees " (see Series 02140 in section 1) to " Corporate sales."

c) Period covered: 1948/1959.

SECTION 5

Classification studied : see section 4.

02130 : Annual earnings per non-production worker (both sexes), annual figures.

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Employment coverage: Full and part-time non-production workers (see Series 02230 in this section).

c) Definition: Same as Series 02120 in section 4.

d) Period covered: 1948/1960.

02230 : Average number of full and part-time non-production workers (both sexes), annual averages

a) Source: " Survey of Current Business," *National Income Supplement.*

b) Definition: Average number of full and part-time jobs filled during the year by non-production workers, defined as total employment of full and part-time workers (02240) less production workers (02220).

c) Period covered: 1948/1960.

02360 : Corporate profits after tax

See section 1.

02380 : Ratio of labour cost to sales

See section 4.

SECTION 6

Classification studied : See section 4.

02140 : Annual compensation per employee

See section 1.

02240 : Average number of full and part-time employees

See section 1.

02360 : Corporate profits after tax
See section 1.

02380 : Ratio of labour cost to sales
See section 4.

SECTION 7

Classification studied : 31 industries of which 21 manufacturing, combining the industries covered by sections 3 and 9.

02100 : Hourly earnings of production workers (both sexes), annual averages
See section 2.

02200 : Employment of production workers (both sexes), annual averages
See section 2.

SECTION 8

Classification studied : 60 industries of which 21 manufacturing, obtained by combining the industries covered in sections 6 and 10, with the addition of the sectors " Agriculture, forestry and fisheries," " Mining " and " Contract Construction." Calculations of correlation coefficients which include profits or lagged employment as a variable were made in respect of 42 industries only.

02140 : Annual compensation per employee
See section 1.

02240 : Average number of full and part-time employees
See section 1.

02360 : Corporate profits after tax
See section 1.

SECTION 9

Classification studied : Total manufacturing and 10 non-manufacturing industries as follows:

Metal mining, Quarrying and non-metallic mining, Bituminous, Crude petroleum and natural gas, Wholesale trade, Retail trade, General building contractors, Heavy construction, Special trade contractors, Electrical companies and systems.

02100 : Hourly earnings of production workers (both sexes), annual averages
See section 2.

02200 : Employment of production workers (both sexes), annual averages
See section 2.

SECTION 10

Classification studied : 36 " Service " industries:

Wholesale trade; Retail trade and automobile services; Banking; Security and commodity brokers, dealers and exchanges; Finance n.e.s.; Insurance carriers; Insurance agents and combination offices; Real estate; Railroads; Local and highway passenger transportation; Highway freight transportation and warehousing; Water transportation; Air transportation (common carriers); Pipeline transportation; Services allied to transportation;

Telephone, telegraph and related services; Radio broadcasting and television; Utilities: electric and gas; Local utilities and public services, n.e.s.; Hotels and other lodging places; Personal services; Private households; Commercial and trade schools and employment agencies; Business services, n.e.s.; Miscellaneous repair services and hand trades; Motion pictures; Amusement and recreation, except motion pictures; Medical and other health services; Legal services; Engineering and other professional services, n.e.s.; Educational services, n.e.s.; Non-profit membership organisations, n.e.s.; Federal-general government; Federal-government enterprises; State and local-general government; State and local-government enterprises.

2. For those correlation coefficients in which profits or lagged employment are included as a variable, calculations are based on 19 industries only as follows:

Wholesale trade; Retail trade and automobile services; Banking; Finance, n.e.s.; Insurance agents and combination offices; Real estate; Railroads; Local and highway passenger transportation; Highway freight transportation and warehousing; Pipeline transportation; Services allied to transportation; Telephone, telegraph and related services; Radio broadcasting and television; Utilities, electric and gas; Local utilities and public services, n.e.s.; Personal services; Business services; Amusement and recreation, except motion pictures; Engineering and other professional services, n.e.s.

02140 : Annual compensation per employee

See section 1.

02240 : Average number of full and part-time employees

See section 1.

02360 : Corporate profits after tax

See section 1.

SECTION 11

Classification studied : Total manufacturing in 51 States.

a) Source: US Department of Labour, Bureau of Employment Security.

b) Employment coverage: All workers (see Series 02250 in this section).

c) Definition: Annual earnings are derived by dividing total wage bill by the average number of workers (see Series 02250).

d) Period covered: 1947-1961.

02250 : Number of employees

a) Source: US Department of Labour, Bureau of Employment Security.

b) Definition: Number of workers covered by State unemployment insurance laws and the UCFE programme. Employment is that reported in the pay period of the appropriate type ending nearest the 15th of the month.

c) Period covered: 1947-1961.

CANADA

SECTION 12

Classification studied : 10 Economic sectors:

Forestry (chiefly logging); Mining; Manufacturing; Construction; Transportation; Storage and communication; Public utility operation; Wholesale trade; Retail trade; Finance, insurance and real estate, Services.

01140 : Weekly earnings per employee (annual averages)

a) Source: " Review of Employment and Payrolls," *DBS 72.201.*

b) Employment coverage: Full and part-time employees (see Series 01240 in this section).

c) Definition: The figures represent gross earnings, before deductions for unemployment insurance contributions, taxes, etc. In addition to basic wages and salaries, earnings include overtime payments, shift premiums, commissions, cost-of-living, incentive and production bonuses, and other bonuses paid at frequent intervals. They also include amounts paid to employees absent on leave with pay during the reported pay periods, i.e. during vacations, statutory holidays, sick leave, etc. Earnings do not include the value of free board and lodging and other perquisites, employers' contribution to unemployment insurance, workmen's compensation and other welfare funds. Also excluded are the cost to employers of certain other employee benefits, such as bonuses paid at irregular or infrequent intervals (e.g. annual bonuses), pensions, retirement gratuities, etc.

d) Period covered: 1950-1961—annual averages of 12 months data. The monthly data refer to the last pay period in the month and result from the division of aggregate weekly wage and salary disbursements by the number of full and part-time employees.

01240 : Index of total employment (annual averages)

a) Source: " Review of Employment and Payrolls," *DBS 72.201.*

b) Definition: The index of total employment refers to all classes of employees (excluding owners) irrespective of their function in the business. Workers on strike during the reported period are not included unless they draw pay. Workers laid off without pay during the period as an indirect result of industrial disputes are not counted as employed.

c) Period covered: 1950-1961—annual averages of data for 12 months. The data relate to full time, part-time and casual employees, whether wage earners or salaried employees, drawing pay in the last pay period of the month.

d) Other remarks: The firms surveyed in the review of employment and payrolls in principle employ 15 persons or more.

Section 13

Classification studied : 17 manufacturing industries exhausting the manufacturing sector, as follows:

Food and beverages; Tobacco and tobacco products; Rubber products; Leather products; Textile products (except clothing); Clothing (textile and fur); Wood products; Paper products; Printing, publishing and allied industries; Iron and steel products; Transportation equipment; Non-ferrous metal products; Electrical apparatus and supplies; Non-metallic mineral products; Products of petroleum and coal; Chemical products; Miscellaneous manufacturing industries.

General Remarks:

1. Calculations of correlation coefficients which include profits or the ratio of labour cost to sales as a variable are based on 13 observations only. " Tobacco and tobacco products," " Leather products " and " Miscellaneous manufacturing industries " are combined into one observation, as are " Textile products," " Clothing "; and " Iron and Steel products " and " Transportation equipment." This was done so that the breakdowns studied would correspond

with the way in which profits data were available. The direct earnings/employment coefficients were also recalculated in respect of 13 observations.

2. Calculations in which earnings and lagged employment were used as a variable were done in respect of 11 industries only. The industries excluded are:

Tobacco and tobacco products; Leather products; Clothing; Transportation equipment; Non-ferrous metal products and Miscellaneous manufacturing industries.

01100 : Hourly earnings of male wage-earners (October)

a) Source: " Earnings and hours of work in Manufacturing," ***DBS 72.204.***

b) Employment coverage: Male wage-earners (see Series 01200 in this section).

c) Definition: The figures are derived by dividing weekly earnings (see Series 01110 in this section) by the number of hours worked.

d) Period covered: Figures relate to the week ending October 31st from 1949 through 1960.

01110 : Weekly earnings of male wage-earners (October)

a) Source: " Earnings and hours of work in Manufacturing," ***DBS 72.204.***

b) Employment coverage: Male wage-earners (see Series 01200 in this section).

c) Definition: Figures relate to the week ending October 31st and comprise gross pay for the week, before deductions for taxes, unemployment insurance contributions, etc. Gross pay includes time, piece work, and commission earnings, regularly paid incentive, cost-of-living and other bonuses, overtime earnings and payments to persons absent with pay in the survey week. (Same general definition as for Series 01140 in section 12.)

01200 : Employment of male wage-earners (October)

a) Source: " Earnings and hours of work in Manufacturing," ***DBS 72.204.***

b) Definition: Wage-earners are defined as production and auxiliary workers including working foremen, route-drivers, shipping and maintenance staffs and related employees.

c) Remark: The survey of " Earnings and hours of work in Manufacturing " in principle covers establishments employing 15 persons or more. The employment data relate to persons receiving pay for the week ending October 31st (including full, part-time and casual employees). Home workers, proprietors, firm members, pensioners and staffs of separately organised sales offices are excluded.

01307 : Concentration

a) Source: Calculated from the " General Review of Manufacturing Industries of Canada," ***DBS 31.201.***

b) Definition: Percent of total employment in the industry accounted for by establishments employing 200 or more persons. These ratios were calculated for the period 1950-1959. The data used are the arithmetic average of the ratios.

01326 : Index of production (annual averages)

a) Source: " General Review of the Manufacturing Industries of

Canada," *DBS 31.201.*

b) Definition: Index of the volume of manufacturing production by industry.

c) Period covered: 1949-1959.

d) Remarks: The index figures used for the industry " Food and beverages " relate to the industry " Food " only.

01360 : Corporation profits after tax (annual averages)

a) Source: " Corporation profits," *DBS 61.003.*

b) Definition: Corporation profits after taxes are net earnings figures less depreciation and income tax liabilities. Net earnings are total earnings, exclusive of Canadian dividends received, after all current charges except depletion, depreciation, charitable donations and income tax liabilities. Depreciation charges reflect the rates allowed by the Income Tax Act even though companies are permitted to charge depreciation on their own books at rates different from those used for income tax purposes.

c) Period covered: 1953-1960. Annual data were obtained as the sum of quarterly figures.

01380 : Ratio of labour cost to sales (annual figures)

a) Source: Calculated from " General Review of Manufacturing Industries of Canada," *DBS 31.201.*

b) Definition: Ratio of wages and salaries to the value of factory shipments.

Wages and salaries cover: Gross earnings of all employees, including salaries, wages, commissions, bonuses, the value of room and board where provided. Deductions for income tax and social services such as sickness and unemployment insurance, pensions, etc., as well as any other allowances forming part of the employee's wages are not made. Payments for overtime are included. *Factory shipments* refer to shipments of goods made from own material either in the reporting plant or by other manufacturers on the basis of a charge to the reporting plant for work done. All products and by-products shipped from the establishment are included whether for domestic use, export, or for government departments. Transfer shipments to sales outlets, distributing warehouses or to other manufacturing units of the reporting firm are included. Goods bought or received as transfers and resold without further processing are not included. Values are computed on f.o.b. plant or plant warehouse basis, and do not include sales tax or excise duties. Values of containers not returnable are included. Amounts received in payment for work done on material owned by others are included.

c) Period covered: 1953-1959.

SECTION 14

Classification studied : 17 manufacturing industries (see section 13).

01105 : Weekly earnings of male salaried employees (October)

a) Source: " Earnings and hours of work in Manufacturing," *DBS 72.204.*

b) Employment coverage: Male salaried employees (see Series 01205 in this section).

c) Definition: See Series 01110 in section 13.

d) Period covered: 1949-1960.

01205 : Employment of male salaried employees (October)

a) Source: " Earnings and hours of work in Manufacturing," ***DBS 72.204.***

b) Definition: Executive, administrative, supervisory and professional personnel, and travelling alesmen directly responsible to the plant administration, as well as general office and clerical workers in the office and plant.

c) Remark: See remark to Series 01200 in section 13.

d) Period covered: 1949-1960.

SECTION 15

Classification studied : 17 manufacturing industries (see section 13).

01140 : Weekly earnings per employee (annual averages)
See section 12.

01240 : Index of total employment (annual averages)
See section 12.

SECTION 16

Classification studied : 53 manufacturing industries as follows:

10 Food and beverages industries (8 for 1950 and 1951); Tobacco and tobacco products; Rubber products; 2 Leather industries; 3 Textiles industries; 4 Clothing industries; 3 Wood industries; 2 Paper industries; Printing, publishing and allied industries; 10 Iron and steel industries; 5 Transportation equipment industries; 3 Non-ferrous metal industries; Electrical apparatus and supplies; 2 Non-metallic mineral industries; Products of Petroleum and coal; 3 Chemical industries (2 for 1950 and 1951); Miscellaneous manufacturing industries.

01140 : Weekly earnings per employee
See section 12.

01240 : Index of total employment
See section 12.

SECTION 17

Classification studied : 33 to 38 industries, combining those included in sections 15 and 18.

01140 : Weekly earnings per employee (annual averages)
See section 12.

01240 : Index of total employment (annual averages)
See section 12.

SECTION 18

Classification studied : 17 to 21 Service industries:

Air transport and airports; Steam railways; Water transportation; Urban and interurban transportation; Truck transportation; Grain elevators; Storage and warehouse; Radio broadcasting; Telephone; Electric light and power; Other public utilities; Wholesale trade; Retail trade (to 1954 only. From 1955,

this branch is distributed among Food, Department stores, Variety stores and Automotive products); Banking, investment and loan; Insurance; Hotels and Restaurants; Laundries and dry cleaning plants; Other service (from 1953 to 1958 only); Business service (from 1959 only).

01140 : Weekly earnings per employee (annual averages)
See section 12.

01240 : Index of total employment (annual averages)
See section 12.

SECTION 19

Classification studied: 17 manufacturing industries, see section 13.

01106 : Weekly earnings of male office workers and clerical workers (October)
a) Source: " Earnings and Hours of Work in Manufacturing," ***DBS 72.204***.
b) Employment coverage: Male office and clerical workers (see Series 01206 in this section).
c) Definition: See Series 01110 in section 13.
d) Years covered: 1951, 1954, 1957, 1959 and 1960.

01206 : Employment of male office and clerical workers (October)
a) Source: " Earnings and Hours of Work in Manufacturing," ***DBS 72.204***.
b) Remark: See also Series 01200 in section 13.
c) Years covered: 1951, 1954, 1957, 1959 and 1960; but data for 1959 and 1960 are not completely comparable to those in earlier years.

01307 : Concentration
See section 13.

01326 : Index of production
See section 13.

SECTION 20

Classification studied : 17 manufacturing industries, see section 13.

01107 : Weekly earnings of male managerial and professional employees (October)
a) Source: " Earnings and Hours of Work in Manufacturing," ***DBS 72.204***.
b) Employment coverage: Male managerial and professional employees (see Series 01207 in this section).
c) Definition: See Series 01110 in section 13.
d) Years covered: 1951, 1954, 1957, 1959 and 1960.

01207 : Employment of male managerial and professional employees (October)
a) Source: " Earnings and Hours of Work in Manufacturing," ***DBS 72.204***.
b) Definition: Employment of male salaried employees (section 14) less employment of male office and clerical workers (section 19).
c) Remark: See also Series 01200 in section 13.
d) Years covered: 1951, 1954, 1957, 1959 and 1960, but data for 1959 and 1960 are not comparable to those for earlier years.

01307 : Concentration
See section 13.

01326 : Index of production
See section 13.

SECTION 21

Classification studied : 10 Provinces: Newfoundland, Prince Edward Island; Nova Scotia; New Brunswick; Quebec; Ontario; Manitoba; Saskatchewan; Alberta; British Columbia.

01150 : Annual earnings per employee (Manufacturing industries)
a) Source: "General Review of the Manufacturing Industries of Canada."
b) Employment covered: See 01250 in this section.
c) Definition: Average annual earnings per employee, derived by division of total wages and salaries by the number of employees (Series 01250). Wages and salaries refer to gross earnings, including salaries, wages, commissions, bonuses, the value of room and board where provided, deductions for income tax and social services such as sickness and unemployment insurance, pensions, etc. as well as any other allowances forming part of the employees' wages. Payments for overtime are included.
d) Period covered: 1949-1959.

01250 : Number of employees (annual averages)
a) Source: "General Review of the Manufacturing Industries of Canada."
b) Definition: Total number of employees, production and related workers, and salaried employees (including all executives and supervisory officials such as presidents, vice-presidents, etc. and working owners and partners). The number reported is the average for the year.
c) Period covered: 1949-1959.

SECTION 22 (MONTREAL)

Classification studied : 16 manufacturing industries in the Montreal urban area. The 16 industries, which do not exhaust total manufacturing, are at 2- and 3-digit level:

Meat products; Bread and other bakery products; Miscellaneous food products; Distilled and malt liquors; Tobacco and tobacco products; Boots and shoes (except rubber); Textile products (except clothing); Furniture (from 1952 only); Other paper products; Printing, publishing and allied industries; Iron and steel products; Transportation equipment; Electrical apparatus and supplies; Non-metallic mineral products (from 1952 only); Chemical products.

01180 : Hourly earnings of male wage-earners (October)
See Series 01100 in section 13.

01181 : Weekly earnings of male wage-earners (October)
See Series 01110 in section 13.

01280 : Employment of male wage-earners (October)
See Series 01200 in section 13.

SECTION 23 (MONTREAL)

Classification studied : See section 20.

01185 : Weekly earnings of male salaried employees (October)
See Series 01105 in section 14.

01285 : Employment of male salaried employees (October)
See Series 01205 in section 14.

SECTION 24 (TORONTO)

Classification studied : 13 manufacturing industries in the Toronto urban area. The 13 industries, which do not exhaust total manufacturing, are at 2- and 3-digit level:

Meat products; Bread and other bakery products; Miscellaneous food products; Rubber products; Textile products (except clothing); Clothing (Textile and fur); Other paper products; Printing, publishing and allied industries; Iron and steel products; Transportation equipment; Non-ferrous metal products (from 1953 only); Electrical apparatus and supplies; Chemical products.

01190 : Hourly earnings of male wage-earners (October)
See Series 01100 in section 13.

01191 : Weekly earnings of male wage-earners (October)
See Series 01110 in section 13.

01290 : Employment of male wage-earners (October)
See Series 01200 in section 13.

SECTION 25 (TORONTO)

Classification studied : See section 22.

01195 : Weekly earnings of male salaried employees (October)
See Series 01105 in section 14.

01295 : Employment of male salaried employees (October)
See Series 01205 in section 14.

GERMANY

SECTION 26

Classification studied : 27 industries:

Mining; Industry of stones, bricks, tiles, cement, etc.; Iron and steel industry; Non-ferrous metal industry; Chemical industry; Mineral oil refineries; Rubber and asbestos processing; Sawmill and timber working industry; Cellulose, paper and pulp manufacturing; Steel construction; Constructional engineering; Vehicle construction; Ship-building; Electrotechnical industry; Precision machinery and optical industry; Iron, steel, sheet metal industry; Fine ceramics industry; Glass industry; Wood manufacturing industry; Musical instruments and toy industry; Paper and board manufacturing industry; Printing and duplicating industry; Plastics manufacturing industry; Leather industry; Textile industry; Clothing industry; Food, beverages and tobacco.

16100 : Hourly earnings of wage-earners (annual averages)

a) Source: " Produktionsvolumen und Produktionsfaktoren," *Deutsches Institut für Wirtschaftsforschung.*

b) Employment coverage: Wage earners. (See Series 16200 in this section.)

c) Definition: Average earnings per hour worked, derived by dividing the gross wage bill by the total number of worker hours actually worked. The gross wage bill excludes employer contributions to social security but includes wage supplements and bonuses. General expenses for social purposes benefitting workers, and bonuses which can be considered as reimbursement of expenses, are excluded.

d) Period covered: 1950-1960.

16200 : Employment of wage-earners (annual averages)

a) Source: " Produktionsvolumen und Produktionsfaktoren," *Deutsches Institut für Wirtschaftsforschung.*

b) Definition: Employment includes all workers in the enterprise at the end of the survey month including family helpers (whether paid or not) who work in the business at least one-third of the scheduled normal hours. Outworkers are excluded. The survey covers only those enterprises which employ 10 persons or more.

c) Period covered: 1950-1960. Data are average of 12 monthly figures.

d) Remark: The figures used for both employment and earnings (16100) are derived from " *Industrie und Handwerk,*" Reihe 1, with additional estimates for the years 1950 to 1952.

SECTION 27

Classification studied :

1. 29 industries:

Mining; Extraction and processing of stones, bricks, tiles, cement, etc. and coarse ceramic products; Iron and steel industry; Non-ferrous metal industry; Mineral oil refining and carbon chemicals industry; Chemical industry (production of synthetic fibres excepted); Rubber and asbestos processing; Sawmills and timber processing; Paper and pulp manufacturing; Steel construction; Constructional Engineering; Shipbuilding; Road and aircraft construction; Electrical engineering; Precision machinery and optical instruments; Iron, steel sheet and metal hardware; Processing of synthetics; Fine ceramics production; Glass industry; Wood processing; Paper and pulp processing (incl. paper refining); Printing trade; Tanning; Leather manufacturing (incl. leather gloves); Footwear industry; Textile trade; Clothing trade; Production of musical instruments, toys, gym. and sports goods and shaping of precious stones; Food, beverages and tobacco industries.

2. For the calculations of correlation coefficients in which lagged employment is used as a variable the above industries, together with the industries " Energy," " Synthetic fibres " and " Building " were used.

16140 : Hourly earnings of male wage-earners (May)

a) Source: " Preise, Löhne und Wirtschaftsrechnungen," *Reihe 15, Teil 1.*

b) Employment coverage: Male wage-earners. See Series 16240 in this section.

c) Definition: Hourly earnings are obtained by dividing the total of

gross weekly earnings by the number of hours paid for (whether worked or not). Gross earnings include wages paid whether under collective bargaining or private arrangements and include supplementary payments related to employment made during the period of the enquiry. These include collectively bargained wage supplements; supplements for team and piece work; bonuses; overtime, night work and Sunday work payments; productivity premiums; dirty money; danger money; family type allocations; miscellaneous gratuitous payments whether collectively bargained or otherwise; and payments for annual and legal holidays.

Payments which do not represent reward for work done and exceptionally granted bonuses such as profit sharing, Christmas and New Year bonuses, separation allowances; sporadic social assistance payments and partial unemployment benefits are excluded, as are family allowances received directly from the Social Insurance authorities.

d) Period covered: 1957-1962.

16141 : Index of hourly earnings of male wage-earners (May)

a) Source: " Preise, Löhne und Wirtschaftsrechnungen," *Reihe 15, Teil 1.*

b) Employment coverage: Index of gross hourly earnings. The data in Series 16240 have been combined using for this purpose the employment structure deduced from the earnings enquiry of October 1957.

c) Period covered: 1957-1962.

16210, 16220, 16230 : Employment of male wage-earners for each of three skill groups

a) Source and general coverage: See 16240 in this section.

b) Skill group definitions:

Group 1: (Highly skilled) workers whose job implies difficult, responsible or reasonably varied work. The qualification " highly skilled " can be obtained either by a form of education or by lengthy experience on the job.

Group 2: (Medium skilled workers). Those whose work is of a repetitive character but includes some elements of specialisation which are nevertheless lower than those required for " highly skilled " workers. This qualification is generally obtained following an apprenticeship of at least 3 months which may, or may not, be followed by an examination.

Group 3: (Unskilled workers). Workers undertaking simple tasks, mainly of a manual nature, for which no qualifications are necessary.

16240 : Employment of male wage-earners (May)

a) Source: " Preise, Löhne und Wirtschaftsrechnungen," *Reihe 15, Teil 1.*

b) Definition: Worker: any dependent person falling under the workers' Pension Insurance Scheme. The following are excluded: workers with more than 3 days absence during the enquiry period because of sickness or accident; workers departing or arriving during the enquiry period; workers whose permanent employment is not of a full time nature (part-time workers; hourly paid cleaning personnel, canteen personnel, etc.); family aids; apprentices and beginners (stagiaires); steeplejacks and spidermen who were not working on the firm's premises during the period covered by the enquiry; construction workers laid off; outworkers and foremen.

c) Remark: Those subjected to part-time or wholetime layoff initiated by the firm are included, but in the case of strike the enquiry period is changed. The figures, as given, cover only those persons effectively counted, i.e. about

25 per cent of the labour force employed by firms whose personnel amounts to 10 or more workers.

d) Period covered: 1957-1962.

16307 : Concentration

a) Source: Calculated from the 1954 *Statistical Year Book*.

b) Definition: Percent of total employment in each industry accounted for by establishments employing 500 or more persons. The figures used refer to September 1954.

16380 : Ratio of labour cost to sales

a) Source: Calculated from " Produktionsvolumen und Produktionsfaktoren."

b) Definition: Ratio of total wages and salaries to sales. *Wages and salaries* exclude employer contributions to social insurance bodies but include wage supplements and bonuses excepting those which might be classified as general social expenses and also excepting bonuses which represent reimbursement of expenses. *Sales :* The proceeds arising from the sale of the firm's output and based on invoice values including indirect taxes and transport. Interplant deliveries within the same enterprise are excluded.

c) The figures used were calculated as the average of data for 1958, 1959 and 1960.

SECTION 28

Classification studied : 32 and 29 industries (see section 27).

16110 : Hourly earnings of male wage earners, skill group 1 (May)

See Series 16140 in section 27, but the figures refer to male wage-earners of skill group 1 (see Series 16210 in this section).

Remark: Data for November 1951. (Source: *Die Verdienste der Arbeiter in der gewerblichen Wirtschaft im November 1951*), for 19 industries were also included in the analysis.

16210 : Employment of male wage-earners, skill group 1 (May)

See section 27.

16307 : Concentration

See section 27.

16380 : Ratio of labour cost to sales

See section 27.

SECTION 29

Same definitions, methods, series content and period covered as for section 28, except that the employment figures used relate to skill group 2. (Series 16220 in section 27.) Calculations were made in respect of series 16120, 16220, 16307, 16380.

SECTION 30

Same definitions, methods, series content and period covered as for section 28, except that the employment figures used relate to skill group 3. (Series 16230 in section 27.) Calculations were made in respect of series 16130, 16230, 16307, 16380.

SECTION 31

Classification studied : 9 regions for the total of 32 branches covered in section 27.

16110 : Hourly earnings of male wage-earners, skill group 1 (May)
See section 28.

16111 : Standard hourly earnings of male wage-earners, skill group 1 (May)
Same series as preceding, but based on a constant employment structure, that of male wage-earners in Germany for May 1959 (see Series 16240 in section 27). The figures are weighted averages of the hourly earnings of the branches " Mining," " Energy," " Basic materials and manufactured goods," " Capital goods," " Consumer goods," " Food, beverages, and tobacco " and " Building."

16210 : Employment of male wage-earners, skill group 1 (May)
See section 28.

16308 : Concentration
a) Source: 1954 *Statistical Year Book*.
b) Definition: Ratio of total industrial employment of each region accounted for by establishments employing 500 or more persons. Data used relate to September 1954.

SECTION 32

Classification studied : Same as section 31.

16120 : Hourly earnings of male wage-earners, skill group 2 (May)
See section 29.

16121 : Standard hourly earnings of male wage-earners, skill group 2 (May)
Same series as the preceding, but adjusted for industrial changes in employment (see also series 16111 section 31).

16220 : Employment of male wage-earners, skill group 2 (May)
See section 29.

16308 : Concentration
See section 31.

SECTION 33

Classification studied : Same as section 31.

16130 : Hourly earnings of male wage-earners, skill group 3 (May)
See section 30.

16131 : Standard hourly earnings of male wage-earners, skill group 3 (May)
Same series as the preceding, but adjusted for industrial changes in employment (see also series 16111 in section 31).

16230 : Employment of male wage-earners, skill group 3 (May)
See section 30.

16308 : Concentration
See section 31.

UNITED KINGDOM

SECTION 34

Classification studied :

1. 109 3-digit manufacturing industries. If " Locomotive manufacturing " and " Miscellaneous manufacturing industries " are added, this exhausts the whole manufacturing sector. The 109 industries can be grouped as follows:

6 Non-metalliferous mining products industries; 8 Chemicals and allied industries; 7 Metal manufacture industries; 17 Engineering, shipbuilding or electrical goods industries; 6 Vehicles industries; 7 Metal goods n.e.s. industries; 4 Precision instruments industries; 15 Textiles industries; 3 Leather industries; 7 Clothing industries; 13 Food, drink and tobacco industries; 5 Wood and cork industries; 6 Paper or printing industries; 5 Other manufacturing industries.

2. The coefficients of correlation which include " Concentration " as a variable are calculated for 79 industries only.

28100 : Hourly earnings of male manual workers (October)

a) Source: " Ministry of Labour Gazette."

b) Employment coverage: Male manual workers aged 21 years or over at work during the whole, or part, of the survey week. Office staff members, shop assistants and out-workers working at home on material supplied by the employer; managers, commercial travellers, clerks, typists and salaried persons generally are excluded.

c) Definition: Hourly earnings figures are found by dividing average earnings in the last pay week in October by the average number of hours worked. Earnings are total earnings including bonuses before deductions in respect of income tax or of workers' contributions to national insurance schemes.

d) Remarks: Where work stopped for the whole or part of the survey pay week as the result of a general or local holiday, breakdown, fire, strike or lockout, particulars for the nearest " normal " week are substituted.

28240 : Male total employment (October)

a) Source: " Ministry of Labour Gazette."

b) Definition: Figures cover all (male) employees including the unemployed and those absent from work through sickness or other causes, as well as those actually at work. Employers and self-employed persons are excluded. The figures are extrapolated from May or June counts of National Insurance cards.

28307 : Concentration

a) Source: Evely and Little, " Concentration in British Industry," *NIESR*, 1960.

SECTION 35

Classification studied : 13 manufacturing industries, as follows:

Non-metalliferous mining products; Chemicals and allied trades; Metal manufacture; Engineering, shipbuilding and electrical goods; Vehicles; Metal goods n.e.s.; Jewellery, etc.; Textiles; Leather, leather goods and fur; Clothing; Food, drink and tobacco; Manufacture of wood and cork; Paper and printing; Other manufacturing industries.

28100 : Hourly earnings of male manual workers (October)
See section 34.

28240 : Male total employment (October)
See section 34.

28360 : Profits
a) Source: " National Income and Expenditure."
b) Definitions: Gross profits, before providing for depreciation and stock appreciation, of companies operating in the United Kingdom.
c) Period covered: 1949-1959.

28326 : Index of Production
a) Source: " Annual Abstract of Statistics."
b) Period covered: 1949-1959.
c) Remark: As a result of differences in coverage and definition, the industries to which profit and other data relate may not cover identical activities.

SECTION 36

Classification studied : 17 industries, of which 14 manufacturing, as follows:
Non-metalliferous mining products; Chemicals and allied trades; Metal manufacture; Engineering, shipbuilding and electrical goods; Vehicles; Metal goods n.e.s.; Precision instruments; Jewellery, etc.; Textiles; Leather, leather goods and fur; Clothing; Food, drink and tobacco; Manufacture of wood and cork; Paper and printing; Other manufacturing industries; Building and Contracting; Transportation and communication; Gas, electricity and water supply.

28100 : Hourly earnings of male manual workers (October)
See section 34.

28240 : Male total employment (October)
See section 34.

FRANCE

SECTION 37

Classification studied :
1. From 15 to 20 industries depending on the year studied, as follows:
Metal production; Mechanical and electrical engineering industries (to 1956 only; from 1957 broken down into First processing of metals; General engineering; Machinery construction; Electrical construction); Glass, ceramics and building materials (from 1946 to 1954 classified into glass; ceramics and building materials); Building and public works; Chemical and rubber; Agriculture and food; Textiles; Clothing and textile working; Hides and skins; Timber and furnishing; Paper and board; Printing; Miscellaneous industries; Transport (excluding SNCF and RATP); Trade in agricultural produce and food; Trade in products other than food.
2. For calculation of correlation coefficients for which profits and lagged employment were used as a variable the transport industry was excluded.

15100 : Index of hourly earnings of wage-earners (annual figures)
a) Source: " Revue Française du Travail."

b) Employment coverage: Wage-earners aged over 18.

c) Definition: The index relates to the average hourly earnings of workers aged above 18 in good physical condition. It includes basic rates, cost of living supplements, and exceptional bonuses such as production bonuses shared among staff as a whole. It excludes overtime and bonuses, indemnities and supplements related to individual attendance and performance (night or Sunday work, transport subsidies, productivity bonuses).

d) Period covered: 1946-1962. The annual figures used are derived as the average of data for 4 quarters.

15240 : Index of total employment (annual figures)

a) Source: " Revue Française du Travail."

b) Definition: The index is calculated in relation to the overall employment roll, i.e. including salaried earners, workers and executives and including those laid off temporarily, on annual leave or ill. The director, or head of the establishment, is excluded, but salesmen and travellers working exceptionally for the business are included, as are outworkers. Part-time workers are included if they work more than 20 hours per week.

c) Period covered: 1946-1962. Annual figures are derived as the average of data for 4 quarters.

15300 : Index of activity (annual figures)

a) Source: " Revue Française du Travail."

b) Definition: The activity index is derived by multiplying the index of employment (15200) by the index of man-hours worked.

c) Period covered: Same as 15200.

15360 : Profits (annual figures)

a) Source: " Statistiques et Etudes financières."

b) Definition: Net financial result, i.e. total net profits less the amount of deductible income arising from moveable property (but prior to deduction of any negative profit in earlier years); total net profits are derived from firms' accounts and are represented by the debit or credit balance of the profit and loss account, with appropriate corrections, reflecting adjustments made by the taxation authorities.

c) The figures used are calculated by aggregating data for a more detailed classification.

d) Period covered: 1950-1959.

SECTION 38

Classification studied : 25 industries:

Water, gas, electricity; Petroleum and liquid fuels; Solid mineral fuels; Extraction of miscellaneous minerals; Metal production; Mechanical-electrical engineering industries; Glass; Ceramics and building materials; Building and public works; Chemical and rubber; Agriculture and food; Textiles; Clothing and textile working; Hides and skins; Timber and furnishing; Paper and board; Printing; Miscellaneous industries; Transport; Trade in agricultural produce and food; Banking, insurance, agencies; Entertainment; Health; Professional employment.

15120 : Annual earnings of male wage-earners

a) Source: " Etudes Statistiques."

b) Employment coverage: Male wage-earners (see Series 15220 in this section).

c) Definition: Annual earnings of male workers are defined as net earnings after deduction of worker contributions to social security and excluding payments in kind, indemnisation for expenses incurred in the course of duty, and reimbursement of expenses (although these last two elements in practise may often be true wage supplements).

d) Period covered: 1955-1957 and 1959-1960.

15220 : Employment of male wage-earners (annual figures)

a) Source: " Etudes Statistiques."

b) Definition: Male full time workers on the books of the same employer for a full year.

c) Period covered: 1955-1957 and 1959-1960.

15307 : Concentration

a) Source: " Etudes Statistiques."

b) Definition: Share of total employment in the industry accounted for by all establishments employing 100 or more persons.

c) The figures used relate to 1952.

SECTION 39

Classification studied : 89 Departments (i.e. Metropolitan France, excluding Corsica).

15150 : Annual earnings of male employees (annual figures)

a) Source: " Etudes Statistiques."

b) Employment coverage: Male employees (see Series 15250 in this section).

c) Definition: See Series 15120 in section 38, but figures refer to male employees.

d) Period covered: 1955-1957 and 1959-1960.

15250 : Male employment (annual figures)

a) Source: " Etudes Statistiques."

b) Definition: See Series 15220 in section 38, but figures refer to all male employees.

c) Period covered: 1955-1957 and 1959-1960.

SWEDEN

SECTION 40

Classification studied : 10 Manufacturing industries:

Metal and Engineering industry; Quarrying and manufactures of stone, clay and glass products, etc.; Wood industry; Manufactures of pulp, paper and paper products; Printing and allied industries; Food manufacturing industries; Beverage and tobacco industries; Manufactures of textiles, wearing apparel and made-up textile goods; Manufactures of leather, furs and rubber products; Manufactures of chemicals and chemical products.

25120 : Annual earnings of wage-earners

a) Source: " Industri," *Sveriges Officiella Statistik.*

b) Employment covered: See Series 25220 in this section.

c) Definition: Average annual earnings of wage-earners, computed as the wage total paid to wage-earners divided by the corresponding employment.
d) Period covered: 1952-1960.

25220 : Employment of wage-earners (annual averages)
a) Source: " Industri," *Sveriges Officiella Statistik.*
b) Definition: Wage-earners' employment in industrial establishments with 5 or more persons engaged; average over the year.
c) Period covered: 1952-1960.

25307 : Concentration
a) Source: " Industri," *Sveriges Officiella Statistik.*
b) Definition: Percent of total wage-earners' employment in the industry accounted for by establishments employing over 100 wage-earners.
c) Period covered: The data used are the arithmetic average of the ratios calculated for the years 1955, 1956 and 1957.

25380 : Ratio of labour cost to sales
a) Source: " Industri," *Sveriges Officiella Statistik.*
b) Definition: Ratio of the sum of wages and salaries to the value of sales.
c) Period covered: The data used are the arithmetic average of the ratios calculated for the years 1955, 1956 and 1957.

SECTION 41

Classification studied : 88 Manufacturing industries as follows:
13 Metal and Engineering industries; 9 Quarrying and stone, clay or glass industries; 8 Wood industries; 5 Paper industries; 4 Printing or allied industries; 10 Food industries; 4 Beverage or tobacco industries; 15 Textile industries; 8 Leather, fur or rubber industries; 12 Chemical industries.

25120 : Annual earnings of wage-earners
See section 40.

25220 : Employment of wage-earners (annual averages)
See section 40.

25307 : Concentration
See section 40.

25380 : Ratio of labour cost to sales.
See section 40.

SECTION 42

Classification studied : 10 Manufacturing industries. See section 40.

25130 : Annual earnings per salaried employee
a) Source: " Industri," *Sveriges Officiella Statistik.*
b) Employment covered: See Series 25230 in this section.
c) Definition: Average annual earnings of salaried employees computed as the salary total paid to salaried employees divided by the corresponding employment. (Series 25230 in this section.)
d) Period covered: 1952-1960.

25230 : Employment of salaried employees
a) Source: " Industri," *Sveriges Officiella Statistik.*

b) Definition: Number of salaried employees in industrial establishments with five or more persons engaged: average over the year.

c) Period covered: 1952-1960.

25307 : Concentration
See section 40.

25380 : Ratio of labour cost to sales
See section 40.

SECTION 43

Classification studied : 88 Manufacturing industries. See section 41.

25130 : Annual earnings of salaried employees
See section 42.

25230 : Number of salaried employees
See section 42.

25307 : Concentration
See section 40.

25380 : Ratio of labour cost to sales
See section 40.

SECTION 44

Classification studied : 11 Industries:
Mining and 10 manufacturing industries (the same as section 40).

25100 : Hourly earnings of male adult wage-earners (annual averages)

a) Source: " Löner," *Sveriges Officiella Statistik.*

b) Employment covered: Adult male wage-earners.

c) Definition: Average hourly earnings computed as the wage total paid to adult male wage-earners (time and piece work) and the corresponding sum of hours worked. The wage total comprises overtime supplements, extra-shift pay, holiday pay and other wage supplements.

d) Period covered: 1954-1959.

25200 : Employment of male wage-earners

a) Source: " Industri," *Sveriges Officiella Statistik.*

b) Definition: Employment of male wage-earners in industrial establishments with 5 or more persons engaged, calculated as an average over the year.

c) Period covered: 1954-1959.

SECTION 45

Classification studied : 30 Manufacturing industries as follows:
1 Mining industry; 5 Metal and engineering industries; 4 Quarrying or stone, clay and glass industries; 3 Wood industries; 5 Paper or printing industries; 4 Food industries; 1 Beverage industry; 5 Textiles industries; 2 Leather or rubber industries.

25100 : Hourly earnings of male wage-earners
See section 44.

25360 : Profits

a) Source: Data supplied by the Swedish expert, based on " Företagens intäkter, Kostnaden och vinster," *Sveriges Officiella Statistik*, and adjusted as far as possible to ensure conformity of industry coverage with the industries in series 25100. Concordance, however, is probably not total.

b) Period covered: 1952-1960.

NORWAY

SECTION 46

Classification studied : 20 Manufacturing industries:

Food industries; Beverage industries; Tobacco manufactures; Textiles; Manufacture of footwear, other wearing apparel and made-up textile goods; Wood and Cork (except furniture); Furniture and fixtures; Paper and paper products; Printing and allied industries (publishing excluded); Leather and leather products (except footwear); Rubber products; Chemicals and chemical products; Products of petroleum and coal; Non-metallic mineral products (except products of petroleum and coal); Basic-metal industries; Metal products (except machinery and transport equipment); Machinery (except electrical machinery); Electrical machinery, apparatus, appliances and supplies; Transport equipment; Miscellaneous manufacturing industries.

22120 : Annual earnings of male wage-earners

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Employment covered: Male wage-earners (see Series 22220 in this section).

c) Definition: Average annual earnings computed as the wage total paid to male wage-earners divided by the corresponding employment.

d) Period covered: 1950-1959.

22220 : Employment of male wage-earners (annual averages)

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Definition: Number of male wage-earners in " large establishments " (in general with a minimum of 6 persons engaged).

c) Period covered: 1950-1959.

22326 : Index of production 1955 = 100

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Period covered: 1950-1959.

22380 : Ratio of labour costs to sales

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Definition: Ratio of total wages and salaries to total gross value of production.

c) Period covered: The data used are the arithmetic average of the ratios calculated for the years 1955, 1956 and 1957.

SECTION 47

Classification studied : See section 46.

22130 : Annual earnings of salaried employees

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Employment covered: Salaried employees (see Series 22230 in this section).

c) Definition: Average annual earnings computed as the salary total paid to salaried employees divided by the corresponding employment.

d) Period covered: 1950-1959.

22230 : Employment of salaried employees (annual averages)

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Definition: Employment of salaried employes in " large establishments " (in general with a minimum of 6 persons engaged).

c) Period covered: 1950-1959.

22326 : Index of production

See section 46.

22380 : Ratio of labour cost to sales

See section 46.

SECTION 48

Classification studied : 25 industries:

Coal mining; Metal mining; Stone quarrying, gravel and sand pits; Mineral quarrying; Gas supply; and 20 Manufacturing industries (see section 46).

22100 : Hourly earnings of male wage-earners (annual averages)

a) Source: " Norges industri," *Statistik Sentralbyrå.*

b) Employment covered: Male wage-earners (see Series 22220 in section 46).

c) Definition: Average earnings per hour worked, derived by division of male wage-bill by employment of male wage-earners.

d) Period covered: 1955-1959.

22220 : Employment of male wage-earners

See section 46.

BELGIUM

SECTION 49

Classification studied : 11 industries including Mining; Tool manufacturing; Building and construction; Transport and communication; Trade; Financial enterprises; Agencies (various); Hotels, restaurants and cafes; Personal care, cleaning and hygiene; Amusements.

11100 : Daily earnings of male wage-earners (June)

a) Source: Data supplied by the Belgian expert, derived from " Statistiques de la Securité Sociale."

b) Employment covered: Male wage-earners (see Series 11200 in this section).

c) Period covered: 1949, 1955 and 1962.

11200 : Employment of male wage-earners (30th June figures)

a) Source: Data supplied by the Belgian expert, derived from " Statistiques de la Sécurité Sociale."

b) Definition: Number of workers covered by Social Security and at work on the 30th June, including those whose work or employment contract was in abeyance following sickness or accident as well as those whose absence from work was due to holidays, partial unemployment, justified or unjustified absence. Fully unemployed workers are excluded as are invalids, pensioned workers and totally incapacitated persons.

c) Period covered: 1949, 1955 and 1962.

SECTION 50

Classification studied : 23 manufacturing industries which exhaust total manufacturing:

Food; Drink; Tobacco; Animal and vegetable fats and oils including margarine; Chemical industries, n.e.s.; Rubber; Wood and cork; Paper; Printing and photography; Leather and skins; Textiles; Clothing (excluding footwear); Footwear; Production and distribution of electricity, gas, water and urban heating; Petroleum derivatives; Non-metallic minerals (excluding glass); Glass; Metal production (melting, milling, forging, and wire drilling); Manufactures of metal, n.e.s.; Machinery manufactures (including electrical, automobiles, naval and aeronautical); Manufacturing of precious and artistic objects; Manufacturing industries n.e.s. or not fully identified.

11100 : Daily earnings of male wage-earners (June figures)

See section 49.

11200 : Employment of male wage-earners (June figures)

See section 49.

NETHERLANDS

SECTION 51

Classification studied : 20 manufacturing industries:

Bricks; Cement products; Printing; Manufacture of soap, toothpaste, etc.; Wood sawing; Wood products (except Furniture); Made-up textile goods; Manufacture of leather; Leather products; Shipbuilding and repairing; Manufacture of paper; Manufacture of strawboard; Spinning and weaving of wool; Knitting manufactures; Manufacture of stockings; Manufacture of floor coverings; Baking; Manufacture of sweets and chocolates; Canning and preserving of fruits and vegetables; Cigar manufacturing.

21120/21121 : Hourly (weekly) earnings of male semi-skilled workers (3rd quarter)

a) Source: Data supplied by the Dutch expert, based on material collected for " Statistiek der Lonen."

b) Employment covered: Male semi-skilled workers.

c) Period covered: 1954 and 1960.

21220 : Employment of male semi-skilled workers

a) Source: Data supplied by the Dutch expert, based on material collected for " Statistiek der Lonen."

b) Period covered: 1954 and 1960.

SECTION 52

Classification studied : See section 41.

21130/21131 : Hourly (weekly) earnings of male unskilled workers

a) Source: Data supplied by the Dutch expert, based on material collected for " Statistiek der Lonen."

b) Period covered: 1954 and 1960.

21230 : Employment of male unskilled workers

a) Source: Data supplied by the Dutch expert, based on material collected for " Statistiek der Lonen."

b) Period covered: 1954 and 1960.

DENMARK

SECTION 53

Classification studied : 57 occupations.

13182 : Earnings of skilled and unskilled male workers in selected industrial occupations

a) Source: *Statistiske Efteretninger and Statistikken.*

b) Definition: Data include all supplements except overtime, and cover workers in large towns only.

c) Period covered: Figures for 1952, 1953 and 1954, and for 1959, 1960 and 1961 were averaged together for each occupation and treated as referring to 1953 and 1960.

d) Remark: Occupations for which data were not available for each of the six years are excluded; as are occupations in which the numbers employed were too low to ensure consistency of the data.

PART III

SERIES DEFINITIONS: SEPARATION RATES

UNITED STATES

a) *Series used:* " Separations per 100 employees," " Quits per 100 employees."

b) *Source:* " Monthly Labour Review," " Employment and Earnings."

c) *Coverage:* The data are collected monthly from establishments in the manufacturing, mining and communication industries. In terms of employment, the approximative coverage is actually between 50 and 60 per cent in the manufacturing industries.

d) *Definitions:*

Separations are terminations of employment during the calendar month and are classified according to cause—quits, layoffs and other separations as defined below.

Quits are termination of employment initiated by employees, failure to report after being hired, and unauthorised absences, if on the last day of the month the person has been absent more than 7 consecutive calendar days.

Layoffs are suspensions without pay lasting, or expected to last, more than 7 consecutive calendar days, initiated by the employer without prejudice to the worker.

Other separations are terminations of employment because of discharge, permanent disability, death, retirements, transfers to another establishment of the company, and entrance into the Armed Forces, expected to last more than 30 consecutive calendar days.

Each type of action is cumulated for a calendar month and expressed as a rate per 100 employees. Total employment, the base used to compute the rates, is reported for 1 week ending nearest the 15th of the month.

e) *Periodicity:* Monthly; the annual rates used in the report are obtained as the sum of 12 monthly rates.

f) *Remarks:* The data relate to all employees, whether full or part-time, permanent or temporary, including executive, office, sales, other salaried personnel and production workers.

Transfers to another establishment of the same company are included, only beginning with January 1959.

Data relating to men and women separately were abstracted for the first month of each quarter only. The annual rates used in the report are three times the sum of the four rates used to represent the quarters in the years studied.

a) *Series used :* " Separation rates (per 100 persons on payroll)."

b) *Source :* " Hiring and Separation Rates in certain Industries " (DBS 72-006).

c) *Coverage :* The survey of hirings and separations is conducted by the Unemployment Insurance Commission. Industrially the coverage is coincident with the coverage of the Unemployment Insurance Act with a few exceptions. Reporting covers single establishments with 10 or more employees having any insured workers, and all multi-establishments having any insured workers complete the reports for all their employees whether insured or not. The number of employees reported is between 60 and 70 per cent of the number of paid workers reported in the Canadian labour force survey. Outside of agriculture and service industries the survey coverage is quite high despite the fact that small firms are not required to report. Government service is not included.

d) *Definition :* Separations or terminations of employment consist of persons whose employment with an establishment has been terminated during a period and whose names have been removed from the payroll either because they have quit, been laid off or discharged, or have separated for miscellaneous reasons such as marriage, retirement or death.

Separations are expressed as a monthly rate per 100 persons on payroll. Payroll figures used each month are the average (mean) of the number on the payroll at the beginning and at the end of the month.

e) *Periodicity :* Monthly (the survey is conducted semi-annually). The annual separation rates used in the report are the sum of 12 monthly rates.

f) *Remarks :* An *establishment* should be distinguished from a firm or department. A firm may own or operate several establishments. The establishment, in turn, may be composed of departments carrying on dissimilar activities. An establishment may be considered for the survey as an office, plant, factory, works, premises or place where one or more employees are employed in insured employment. However, reports from more than one establishment may be consolidated by a firm where these establishments are located within the same city or town and operating in the same line of business.

Workers engaged for a particular job or jobs of a *casual nature* for periods of six or less working days are excluded from the survey.

Part-time employees engaged to work only part of the normal working day or part of the normal working week, and short-time employees, those who because of industrial conditions have been placed on a work schedule less than the normal day or week, are included in the survey.

Employees *on strike* or *locked out* are considered as still employed except where replaced by other workers. Employees temporarily laid off with definite instructions to return to work within 30 days are considered still on the payroll. If the employee quits, or is dismissed within this period, however, a separation is recorded.

Employees absent from work because of *sickness* or *accident* or other justifiable reasons with intent of reinstatement are considered still on the payroll until such time as they may quit or be dismissed. Employees on paid or unpaid *vacation* are considered on the payroll.

UNITED KINGDOM

a) *Series used :* " Number of discharges and other losses per 100 employed at beginning of the period."

b) *Source :* " Ministry of Labour Gazette."

c) *Definition :* The figures are based on information obtained in returns from employers. The number of discharges and losses is obtained by adding the numbers engaged during the period (the number of employees on the payroll at the end of the period who were not on the payroll at the beginning of the period), to the numbers on the payroll at the beginning of the period and deducting from the figures thus obtained the numbers on the payroll at the end of the period. The number of discharges and losses is expressed as a rate per 100 employed at the beginning of the period.

d) *Periodicity :* The information is collected every third month (every month before 1957) for 3, 4 or 5 week periods. The annual rates used in the report are derived by adjusting the sum of the rates available within each calendar year period to bring the time coverage up to 52 weeks.

e) *Remarks :* The figures of engagements obtained as indicated above do not include *persons engaged during the period who were discharged* or otherwise left their employment before the end of the same period.

The figures for any industry represent the aggregated totals of the numbers engaged and discharged by *firms* in the industry.

GERMANY

A. a) *Series used :* " Fluktuationsquote."

b) *Source :* " Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung."

c) *Coverage :* All economic sectors.

d) *Definition :* Number of job cessations during the year expressed as a percentage of average employment during the year.

e) *Periodicity :* Annual.

f) *Remarks :* The separation data are based on manpower service files covering employer/employee relations.

B. a) *Series used :* " Spezifische Arbeitsplatz-Wechselquote bei den Arbeitern."

b) *Source :* " Amtliche Nachrichten der Bundesanstalt für Arbeitsvermittlung und Arbeitslosenversicherung."

c) *Coverage :* All economic sectors: production workers only.

d) *Definition :* Ratio of the number of job changes (including reemployment, after unemployment, in the same enterprise), to the total of job *changes* (not changers) plus number of job-holders not changing their employment.

e) *Periodicity :* Special enquiry for 1961.

f) *Remarks :* The information was obtained from a 5 per cent sample of the data in manpower service files.

FRANCE

a) *Series used :* " Taux de rotation " (turnover) or its inverse, " Coefficient de stabilité " (stability coefficient).

b) *Source :* " Etudes Statistiques " (supplement to the " Bulletin Mensuel de Statistique ").

c) *Coverage :* All establishments in the private sector except agriculture and employers of domestic servants; the public and semi-public sectors except the civil service proper (central and local government) and a number of educational, research and cultural organisations.

Data are obtained by sampling the " 1024 " fiscal returns made by employers.

d) *Definition :* The turnover rate is the ratio of the number of persons to whom remuneration was paid during the year to the number of persons on the payroll at December 31st.

e) *Remarks :* Due to the method of derivation of the data, separations followed by reemployment in the same firm during the year are not counted.

Firms have the option of compiling a 1024 in respect of each branch separately, or of making a single declaration in respect of the enterprise as a whole.