

# **Inflation, Wage Behaviour and Labor Mobility**

## **Inflation, salaires et mobilité de la main-d'oeuvre**

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Article abstract

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# Inflation, Wage Behaviour and Labor Mobility

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Politics is said to be the art of the possible. To this it might be added that a function of the economist is to advise on what is possible. However, it does not always work this way, as experience with attempts to "control" inflation demonstrates. The politician says that something must be done to stop or at least slow down inflation, the economist tells the politician what actions are required (unfortunately, not all economists agree on what these actions are), to which the politician may reply that such actions are not politically possible.

The purpose of this paper is not to discuss the political feasibility of alternative anti-inflationary measures. Rather, it considers some economic implications of certain proposals for controlling inflation through actions directed at wage behaviour by examining the effectiveness of the Canadian wage system in our labour markets, in the light of the present state of our knowledge about it, and how this might be influenced by the successful application of some form of "guidelines".

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This paper was prepared for presentation to a seminar at Carleton University, Ottawa in January, 1969. The writer is head of the wages research division, Economics and Research Branch, Canada Department of Labour. The opinions expressed in this paper are those of the writer and not necessarily those of the Canada Department of Labour in which he is employed.

Lest there be any confusion over the issue, it should be made clear that the federal government has not advocated or announced the intention of using guidelines in the sense of applying specific limits to what would be considered "acceptable" increases in prices and wages. In the government white paper issued in late 1968, *Policies for Price Stability*, it is said that primary emphasis will be placed on educating the various interest groups in the country on the "causes and consequences" of inflation and discovering how they can be avoided.<sup>(1)</sup> The Task Force on Labour Relations, appointed by the federal government, has advised against guidelines<sup>(2)</sup>; so has the Economic Council of Canada, especially in its Third Annual Review.<sup>(3)</sup>

However, there is a school of thought that deserves a respectful audience that contends that deliberate measures must be taken by a public authority to hold down to a specified level the general rate of wage increases if inflation is to be controlled. It was expressed forcefully and authoritatively by the Organization for European Economic Co-operation in 1961 in a report of a group of independent experts appointed to study the problem.<sup>(4)</sup> The study emphasized that it is essential that the stabilization authorities have a wages policy, by which is meant "... that the authorities themselves must have a reasonably precise view, estimated by the best means which they can devise, of the average increase in wages that is appropriate to the economic situation and consistent with stability of the price level."<sup>(5)</sup>

The O.E.E.C. report and a subsequent report, published by the Organization for Economic Co-operation and Development (the successor to the OEEC),<sup>(6)</sup> have given considerable impetus to the advocacy of wage-price guidelines and the cost-push doctrine of inflation that is implicit in their approach. Of course, this approach does not exclude appropriate monetary and fiscal policies for dealing with the demand side of inflation.<sup>(7)</sup>

This paper considers briefly the cost-push doctrine and why, if one accepts it, guidelines appear to be the logical remedy for inflation.

(1) *Policies for Price Stability*, paragraph 59, p. 28; Queen's Printer, 1968.

(2) *Canadian Industrial Relations (The Report of the Task Force on Labour Relations)*, especially paragraphs 654, 672, pp. 188-193; Queen's Printer, December 1968.

(3) Economic Council of Canada: *Prices, Productivity and Employment*; Queen's Printer, November 1966.

(4) O.E.E.C.: *The Problem of Rising Prices*, 1961.

(5) *ibid.*, p. 57.

(6) O.E.C.D.: *Wages and Labour Mobility*, 1965.

(7) See *The Problem of Rising Prices*, p. 56.

(To forestall possible misunderstanding, it should be said at the outset that the writer has serious doubts about the validity of the cost-push doctrine as a general explanation of inflation.) This necessarily attenuated analysis is followed by an examination of Canadian wage behaviour, ending with particular attention to the effectiveness of the Canadian wage system in allocating manpower throughout the economy. In the course of the analysis, some judgments can be made as to the practicability of guidelines; however, it is necessary to stress the tentative nature of the conclusions. The enormous gaps in our knowledge of Canadian wage behaviour impart a highly speculative quality to such judgments.

### The Cost-Push Doctrine

Whatever else we may call it, we would have to agree with Harry Johnson who has called inflation a sustained rise in prices. It might be amended for purposes of this paper by calling it an acceleration of a sustained rise in prices. It has been pointed out that at the heart of cost-push explanations of inflation is a condition of insensitivity, on the part of sellers of labour, and of goods, to changes in conditions of demand.<sup>(8)</sup> When prices continue to rise at the same time as there is a sustained increase in the unemployment rate, one might suspect a cost-push situation, assuming that money supply and aggregate demand have not exhibited unusual expansion.

The doctrine assumes oligopolistic market structures and downward wage rigidity. There are other kinds of cost pressures besides those exerted from the labour side, but this discussion is confined to wage-push. As Bronfenbrenner and Holzman say, in their well-known survey article,<sup>(9)</sup> a necessary condition for wage-push must be market power under non-competitive conditions; they cite a number of American studies that demonstrate empirically that the opportunities for obtaining wage increases in the absence of increasing demand are greatest in enterprises operating in oligopolistic market structures.<sup>(10)</sup> Under such conditions of what is a form of administered pricing,<sup>(11)</sup> the guidelines approach arises naturally;

(8) Glenn H. Miller Jr. : *The Process of Inflation* (a review of the literature), p. 8; Staff Economic Studies No. 12, Board of Governors of the Federal Reserve System, Washington, 1965.

(9) Martin Bronfenbrenner, and F. D. Holzman : "Survey of Inflation Theory", *American Economic Review*, September 1963, p. 614.

(10) *ibid.*, p. 616.

(11) Incidentally, many explanations of inflation, including the Schultze "demand shift" doctrine and the "target-return pricing" theory also assume conditions of oligopoly, at least in the product market.

it is not necessary for the authorities to grapple with amorphous forces determining wages and prices, it is only necessary to apply appropriate persuasion on those who in fact administer the prices and wages.

Another important aspect of cost-push inflation is described by Charles L. Schultze who also dubs it "income share inflation": "Inflation arises out of the competition of various groups to maintain their real incomes at a higher level than the real output of the economy can afford." (12) Unions with monopoly power in their labour markets and oligopolistic firms engage in this tug of war. And from this condition emerges another corollary that is implicit in any guidelines program that seeks to hold all wage and (presumably, profit) increases to a common percentage rate—namely, that there should be no change in existing income shares in the national economy (or they should not depart from what they would be if there were no competition between labour and capital to increase their share).

The rationale for limiting wage increases (and, for that matter, increases in the rewards to other factors) to the general rate of increase of productivity, and incidentally, holding steady the shares of national income going to each factor is well stated by W.E.G. Salter who, referring to British experience, points out that labour's share of national income has remained relatively constant. "Given this, it follows almost as a mathematical necessity that the percentage increase in labour productivity in the economy as a whole (including services, etc.) has been equal to the percentage increase in real wages. And, if increases in labour productivity have been accompanied by increases in the productivity of non-labour factors then constant shares imply that their real rate of reward has increased or decreased proportionately with their productivity. . . . If wages and productivity were linked together in each industry, the inter-industry structure of costs and prices would be less responsive to unequal productivity movements. This would seriously inhibit the structural changes which make such an important contribution to increases in aggregate productivity." (13)

However, Salter does not believe that wages should never increase more than would be permitted by the general rate of increase of productivity. Ordinarily, wages in a declining industry should be the same as in a growing industry, inducing, it is hoped, a reduction in employment

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(12) Charles L. Schultze : *Recent Inflation in the United States*, p. 40 ; Study Paper No. 1, Joint Economic Committee, U.S. Congress, 1959.

(13) W.E.G. Salter : *Productivity and Technical Change*, pp. 156-157 ; Cambridge University Press, 1960.

by the "declining" employer and perhaps capital substitution and greater efficiency, thus reversing the decline ; but expanding industries may have to offer higher than average wages to obtain all the manpower they need. <sup>(14)</sup> But he does not believe very much in this latter resort because, as he says elsewhere in his book, "The market for labour is common to all industries and, over the long run, the movement of wages in the economy as a whole . . . in view of the extreme unevenness of productivity movements, any direct link between wages and productivity in individual industries would soon lead to a hopelessly distorted wage structure." <sup>(15)</sup>

Salter's book is not concerned with inflation as such or with wage-price guidelines, but it espouses a point of view that embodies much of the guidelines approach :

- (1) he posits constancy of factor shares because the actual relative productivities of the factors (primarily, labour and capital) have not changed much over the years, an assumption that seems implicit in "pure" guidelines ;
- (2) he sees little evidence of or, alternatively, he does not believe in, particularized labour markets, contending that wage levels should be determined by what are called "macro" forces and not by conditions peculiar to a particular industry.

Perhaps this last point is not essential to guidelines, but if true, it makes guidelines a lot easier because the application of general criteria need not be impeded by a lot of peculiar "micro" considerations.

Subsequently, this paper points to qualities of Canadian wage behaviour that depart considerably from Salter's ideal and from British wage behaviour that would seem to make application in Canada of across-the-board guidelines a doubtful undertaking. On the other hand, with respect to constancy of labour's share in national income, a comparison of two different sets of data for postwar United Kingdom with data prepared for Canada <sup>(16)</sup> shows a similar degree of constancy in both

<sup>(14)</sup> *Ibid.*, p. 153.

<sup>(15)</sup> *Ibid.*, pp. 115-116.

<sup>(16)</sup> Kurt W. Rothschild : *Income Distribution by Factor Shares in Post-War Western Europe*, O.E.C.D. document, 1967. — H. A. Turner and H. Zoetewij : *Prices, Wages, and Incomes Policies in Industrialized Market Economics*, p. 35 ; International Labour Office, 1966. — Allan A. Porter and others : *Wages in Canada and the United States, a Comparative Analysis*, not yet published.

countries. However, there has been a secular trend towards an increasing labour share in Canada which is probably not as evident (if it is at all) in the United Kingdom, because it has been caused in Canada largely by a decline in farm and small business income, a condition not likely to be matched in Britain.

Of what significance in recent Canadian experience with price increases in terms of the cost-push hypothesis? As of December 1968, the Consumer Price Index (1949 base) was 158.0, but for a comparison with the detailed components, one must go back to October because, at the time of writing, the full details have not yet been published for later months. At that time the combined index was 156.8, but for services, excluding shelter, it was 217.6, and under this category the index for health and personal care was 200.3; at the same time the index for recreation and reading was 177.4. These services are provided by industries that are not ordinarily considered to be oligopolistic (although this may be a moot point for health care). Compared with the index for services (excluding shelter) of 217.6, the commodities index was only 141.2.

So that we can compare, albeit only in a rough and ready way, price and wage trends, some of the price indexes have been converted to a 1961 base. The all-items price index for 1967 was 115.3, while for food it was 118.1, for clothing 117.6 and for housing 113.4. However, wage rates in the food beverages industries had by 1967, increased 39.9 percent over 1961, compared with food price increases of 18.1 percent; wage rates in the knitting and clothing industries increased 24.4 percent, compared with 17.6 percent in clothing prices. At the same time, footwear prices increased much more than average, 21.0 percent, but so did wages at 39.2 percent, compared with 31.7 percent for all manufacturing. It is not possible to present a statistic on increases in wages in housing which covers a multitude of products and services as well as the cost of land (a not unimportant consideration). (It is true that the wage and price indexes are not strictly comparable, not covering exactly the same activities and products in each comparison but they are sufficiently comparable for present purposes.)

Thus, for commodities prices have risen most where wages have done so although, in spite of almost equal increases in wage rates in foods and footwear, prices of the latter increased rather more than for the former, which could mean many things, such as less improvement in productivity in footwear manufacturing, greater increases in raw material

costs, a higher profit margin, or all of them or none of them. The relevant point is that wages and prices moved pretty much as one would expect if wage-push is a factor.

What is the situation with respect to services? The price index for combined services was 127.0, compared with an index of only 112.4 for commodities; service prices rose more than twice as fast. The index of wage rates for services was 133.9, which is not much greater than the index of 131.7 for all manufacturing. The wage rate index for services covers fewer services than the price index, the former covering only laundries, cleaners and pressers, and hotels and restaurants. However, its coverage is probably sufficient to indicate that wages have been increasing only slightly more than in manufacturing, while the cost of services to the consumer has been going up more than twice as fast as for manufactured commodities.

What does this do to the wage-push variant of the cost-push doctrine? Does it confirm it or refute it? In place of a reply to such a question, this paper offers a few comments:

- (1) Labour costs must be increasing much more in the service industries because productivity is apparently increasing less than in manufacturing, and not because labour (through collective bargaining or otherwise) is extracting much larger wage increases than average. Thus any cost-push from the wage side must be a generalized one throughout the economy, since wage increases in services at 33.9 percent (and, incidentally, in retail and wholesale trade, at 32.5 percent), are very close to the 31.7 percent for manufacturing.
- (2) In view of the relative decline in recent years of manufacturing employment and the increase in service employment, suggesting a relative increase in demand for labour in services, one might have expected labour to press for percentage wage increases in the service industries much in excess of those obtaining in manufacturing, but this was apparently not happened. The reason seems to be that labour has not had the bargaining power (monopoly power in the labour market, if you like) in service that it has enjoyed in manufacturing. One of the elements of cost-push, a strong monopoly position on the labour side, has not been as much in evidence as the doctrine would cause



one to expect if the greater price increases in this area are to be explained in terms of union "pushfulness".<sup>(17)</sup>

- (3) The service industries are, on the average, much lower wage industries than manufacturing, so that higher wage increases than in manufacturing would be necessary to cause service wages to catch up. This has not happened. The question then arises: have service and trade wages increased more or less at the same rate as in manufacturing because of certain general conditions of labour demand and supply throughout the economy or because wages in services and retail and wholesale trade have followed the manufacturing "pattern"?

The cost-push doctrine assumes that "pattern-setting", "key" industries initiate high wage increases that are passed on to other industries.<sup>(18)</sup> That there is a "spillover" of wage increases from key industries or firms to other parts of the economy has been demonstrated for the United States by Eckstein and Wilson in their now famous article.<sup>(19)</sup> The existence of a spillover in Canada, although its existence seems to be taken for granted by many people, has not yet been statistically demonstrated. A regression analysis carried out by John Vanderkamp<sup>(20)</sup> finds little evidence of what he calls "invidious wage comparisons or competitive emulation" which would include "wage rounds" or "pattern bargaining". A tabular analysis by George Saunders of wage settlements in bargaining units of 500 workers or more between 1956 and 1962 (and in another table, between 1959 and 1962) demonstrated little apparent similarity in wage settlements among industries or within industries and a weak relation between settlements in large bargaining units

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(17) Since this paper was written, more recent information, prepared in the Canada Department of Labour, shows that wage settlements in large bargaining units (at least 500 workers each) have, of late, been greater in service than in manufacturing industries. However, this does not alter the fact that, up to 1967, wage rates rose very little more in services than in manufacturing. But it does suggest that service unions are gaining bargaining strength.

(18) See Glenn H. Miller: *op. cit.*, pp. 14-15. Miller says the wage increase in the key industry is in excess of productivity gains. This does not seem necessary so long as the pattern increase followed in other industries is in excess of their productivity.

(19) Otto Eckstein and Thomas Wilson: "The Determination of Money Wages in American Industry", *Quarterly Journal of Economics*, August 1962.

(20) John Vanderkamp: "Wage and Price Level Determination — An Empirical Model for Canada", *Economica*, May 1966.

and general wage movements in individual industries. <sup>(21)</sup> A scatter diagram illustrating the distribution of negotiated wage settlements in large bargaining units in 1966, produced by the Department of Labour, <sup>(22)</sup> confirms Dr. Saunders' finding for earlier years, namely the wide dispersion of settlements.

This limited Canadian research does not decisively prove that there is no "spillover" phenomenon in Canada. More research on the transmission of wage change needs to be undertaken and such a study has been initiated in the Canada Department of Labour under the writer's direction. However, we can say that, considering the evidence we have so far that is to the contrary, the existence of widespread wage spillover in Canada will need a lot of proving.

Whatever the possible absence of wage spillover may mean for the validity of the wage-push doctrine in Canada, it does have a significant bearing on efforts to influence wage behaviour through guidelines. The successful application of guidelines requires effectively influencing "key" wage decisions, the effect of which will be transmitted through the economy. If no such transmission takes place, guidelines will need reinforcement by other forms of voluntary persuasion if they are to be successful.

### Canadian Wage Behaviour

A theme of this paper is that the facts demonstrate that the Canadian wage system has, in the postwar years at any rate, exhibited more flexibility and greater responsiveness to changing economic circumstances than has generally been the case in the western European countries and even in the United States. George Saunders has said, "Market forces probably play a more important role in wage determination in Canada than in most, if not all, of the advanced industrial countries of the world". <sup>(23)</sup> He refers to the conclusion reached by Lloyd Reynolds and Cynthia Taft that in the Canadian economy there is an unusual degree of decentralization and freedom in wage determination, leading to rapid shifts in wage differentials prompted mainly by labour demand and supply developments. <sup>(24)</sup>

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(21) George Saunders: *Wage Determination in Canada*, p. 37; Department of Labour, Occasional Paper No. 3, 1965; Queen's Printer, Ottawa.

(22) Canada Department of Labour: *The Behaviour of Canadian Wages and Salaries in the Postwar Period*, Chart 12B, p. 69; Queen's Printer, Ottawa, 1967.

(23) George Saunders: *op. cit.*, p. 21.

(24) Lloyd G. Reynolds and Cynthia Taft: *The Evolution of Wage Structure*, Yale University Press, New Haven, 1956, p. 315

Ten years ago, Sylvia Ostry wrote, "... the interindustry wage structure in Canada since the war has not shown a strong tendency toward equalization but has rather, in recent years exhibited a centripetal [sic] trend." (25) She went on to say that, "... there were at least three factors in the Canadian situation that would suggest, a priori, a stronger tendency toward widening of the wage structure in that country than in the U.K. or U.S.: a more rapid rate of industrial development over recent years, a lower initial level of industrialization, a relatively 'purer' laissez-faire economy." (26)

Dr. Ostry made her observations ten years ago, Dr. Saunders made his four years ago, and Reynolds and Taft, their observations 13 years ago. We shall now examine Canadian wage behaviour in more recent years and see whether it continues to fit the descriptions just cited.

Most of what follows arises from an examination of D.B.S. data on average hourly earnings, chiefly for the manufacturing industries, although reference will be made to other types of data on labour earnings. Because average hourly earnings data are an average of actual earnings, interindustry differences and changes over time will reflect differences in the skill mix of various labour forces, in the amount of overtime and shift premium pay, the relative importance of piecework as opposed to time work — these and other differences, in addition to "pure" wage rate differences. Nevertheless average hourly earnings data best serve the purposes of this analysis. Furthermore, it appears that changes in such data reflect pretty well changes in "pure" wage rates. Ranking indexes of average hourly earnings for the 16 manufacturing industry groups for 1964 (over 1949) (27) with indexes of wage rates produced in the Canada Department of Labour produced a coefficient of rank correlation of .91, significant at the one percent level.

Dr. Ostry has referred to the stability of the Canadian interindustry wage structure in terms of the ranking of manufacturing industries. (28) She found a rank correlation of .96 for annual earnings of production workers in 88 manufacturing industries between 1949 and 1956. She used annual data because no other data were available. The writer

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(25) Sylvia W. Ostry: "Interindustry Earnings Differentials in Canada, 1945-1956", *Industrial and Labour Relations Review*, April 1959, p. 351. It is quite clear she meant "centrifugal", not "centripetal".

(26) *ibid.*, p. 351, footnote 45.

(27) The year 1964 had to be used because of subsequent changes in the Standard Industrial Classification that render comparisons back to 1949 quite difficult.

(28) H. D. Woods and Sylvia Ostry: *Labour Policy and Labour Economics in Canada*, MacMillan of Canada, Toronto, 1962, pp. 450-451.

examined annual averages of average hourly earnings in 52 manufacturing industries in 1949 and 1964 and found a rank correlation of .93, significant at the one percent level. The stability has persisted. However, as Dr. Ostry points out, we must clearly distinguish ranking and dispersion, and there have been changes in the latter.

Recent studies in the Canada Department of Labour show that in spite of the stability in the ranking of manufacturing wages, there has been an increase in interindustry dispersion. Average weekly wages and salaries in the industrial composite increased by 139.3 percent between 1949 and 1967, but this included increases as high as 216.9 percent in construction and 180.6 percent in forestry and as low as 119.7 percent in retail and wholesale trade. (The other components of the industrial composite, mining, manufacturing, transportation, public utilities, finance, and service had indexes in between the extremes.) Turning to average hourly earnings in the manufacturing industries: between 1949 and 1965 the increased 114.1 percent for all manufacturing, but the increases ranged from a low of 82.9 percent for clothing (textile and fur) to a high of 137.4 percent for petroleum and coal products.<sup>(29)</sup> In terms of position in the wage structure, tobacco products shifted from having average hourly wages in 1949 that were 12.2 percent below the unweighted average for 15 manufacturing industry groups to being 4.2 percent above average in 1965;<sup>(30)</sup> the clothing industry that was 21.4 percent below

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(29) This analysis and most of what follows does not go beyond 1965, when comparisons are made with earlier years, especially 1949, because wages data are now only available on the basis of a thoroughly revised industry classification under which it is just not possible, for some industries, to make comparisons with 1949. D.B.S. gathered the information on both classification bases in 1965, but published it only on the basis of the now one, so the data were compiled in the Department of Labour from D.B.S. ledgers, to fit the unrevised classification, to make 1949-1965 comparisons possible. These appear in the chartbook on postwar wage behaviour, cited earlier.

(30) The wage behaviour chartbook examined wage structure in 1949 and 1965 for the 17 manufacturing groups that make up the industry under the unrevised Standard Industrial Classification. However, the wages in each industry were related to a weighted average of wages for all manufacturing. In our comparative study (yet to be published) of wages in Canada and the United States, we compare individual industry wages, also for 1949 and 1965, with an unweighted average of the wages shown for 15 industry groups. In order to put the Canadian and U.S. industry classifications on a common base, it has been necessary to reduce the number of industry groups from 17 to 15. The relative figures used here are drawn mostly from the Canada-U.S. study because it is felt best to discuss wage structure in terms of relations to an unweighted average rather than a weighted average, as used in the chartbook. However, the picture is much the same on either basis.

average in 1949 was 34.1 percent below average in 1965. Of the 15 manufacturing groups, eight had changed their position in wage structure by more than five percent between 1949 and 1965. The average change, up or down, was 7.8 percent, which, it might be pointed out, was also exactly the same for these industry groups in the United States. In this respect Canadian U.S. wage behaviour is much the same. But it contrasts sharply with the situation in Europe where a United Nations analysis of wages in manufacturing industries in ten western European countries between 1953 and 1965 shows, with only a few exceptions, remarkable stability of relative wages. <sup>(31)</sup>

In certain other respects Canadian and U.S. wages have behaved differently. While interindustry dispersion of wages (i.e., average hourly earnings) among the 15 manufacturing industry groups already alluded to (in footnote 30) was greater in the United States than in Canada in 1949, the situation was reversed by 1965. The 1949 unweighted coefficient of variation (the standard deviation expressed as a percentage of the unweighted average) was 14.3 percent for Canada and 16.7 percent for the United States; by 1965 the Canadian coefficient was 19.6 percent and the U.S., 18.8 percent. Both measures of dispersion had increased, but the U.S. coefficient by only 12.6 percent, compared with 37.1 percent for the Canadian coefficient. <sup>(32)</sup> It should be added that the 52 Canadian manufacturing industries that showed stability of wage ranks between 1949 and 1964 showed an increase in the coefficient of variation around an unweighted average from 15.9 percent in 1949 to 19.8 percent in 1964. (Time did not permit a similar computation at this level of disaggregation for U.S. industries).

Another contrast with U.S. wage behaviour is that the range of wages for the 15 manufacturing groups increased considerably, between 1949 and 1965, in Canada but not in the United States. In 1949 the highest Canadian wage was 64.0 percent more than the lowest, while the U.S. range was higher, at 80.0 percent; by 1965 the Canadian range

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(31) United Nations: *Incomes in Post-War Europe*, Chart 5.1 (Economic Survey of Europe in 1965: Part 2), Geneva, 1967.

(32) It might be argued that some measure of dispersion such as the interquartile range, would be preferable since it would give less weight to extreme cases. In fact, a measure like that is used in our forthcoming Canada-U.S. study, but it is desirable in this analysis to allow for extreme cases. It might also be contended that it would be better to compare averages for a group of years at each end of the 1949-1965 period and not merely the terminal years. It can only be said that time did not permit, but it might be attempted later.

had widened to 106.4 percent, an increase in the range of 66.3 percent, while the U.S. range hardly changed, slipping from 80.0 to 79.2 percent.

To complete the comparison of Canadian and U.S. wage behaviour : Between 1949 and 1965 employment in Canadian manufacturing shifted towards the middle 50 percent of the wage range, accompanied by a substantial reduction of employment in the top quarter of the range and a modest reduction in the lowest quarter. The net result was some shift of Canadian employment towards relatively lower wages. In the United States the shift was in the opposite direction ; the proportion of employment in the top quarter of the wage range more than doubled while the proportion in the second quarter was almost halved. The net result was a shift from 45.5 percent of employment in the top half of the range in 1949 to 54.5 percent in 1965, compared with shift in Canada from 58.9 percent in 1949 down to 52.4 percent in 1965.

Thus, recent research tends to confirm that the Canadian wages system still exhibits the volatility, combined with some elements of stability, described by students of the subject in earlier years. We shall next consider briefly its "responsiveness" to changing economic conditions.

Canadian wage behaviour contrasts strongly with the picture of European wage behaviour presented in the United Nations study cited previously : "It may well be suggested that in contemporary conditions in Western Europe the pattern of relative pay — although differing from country to country — is, within obvious limits, a datum to which other characteristics of the economy, including perhaps the price structure and the structures of employment, become adjusted. The pay structure may even appear to become an exogenous variable, determined independently by history and social institutions, rather than the result of the play of market forces." (33)

In view of what this paper has already observed, Canadian wage behaviour can hardly be characterized in such words. However, lest we make too much of the difference in behaviour, it must be emphasized that even in this country, it is far from easy to isolate with much exactitude the economic and social determinants of our wage system or to measure the relative influence of each. However, an attempt will now be made to summarize, perforce in abbreviated form, some of the findings of Canadian research.

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(33) United Nations : *op. cit.*, Chapter II, p. 33

Only in the most recent years has Canadian wage behaviour been subjected to much intensive economic and statistical scrutiny. Up until ten years ago it was left almost entirely to the "institutionalists" (except for a very few people, like Sylvia Ostry, Gilles Beausoleil, Harry Morritt) who wrote historical, sociological or quasilegal descriptions of industrial relations. These studies served many good purposes but didn't help much in explaining the behaviour of our wages. A characteristic of many Canadian studies that have been carried out in recent years is that (in contrast with much research in the United States) they have been in "macro" terms dealing with quite large aggregations like all manufacturing, services and so on. Because of this, the "explanatory variables" must be macro factors, likely the general level of (or rate of change in) unemployment or prices. Part of this is the direct influence of the "Phillips curve" discussion which was originally in macro terms. Two other reasons may also be suggested, first, that aggregative analysis must precede disaggregative research, and these studies lay the groundwork; and secondly, that good statistics at fine levels of disaggregation are much harder to find than aggregate data.

The point is that macro-economic variables are not adequate to explain the differential rates of wage change among Canadian industries and regions and the accompanying increase of interindustry and inter-regional dispersion. Nor are they sufficient to indicate whether wages in particular industries are responding in the appropriate manner to shifting forces of labour demand and supply. The United Nations study mentioned above says that incomes policies operating in terms of simple aggregative concepts or measures are bound to be unrealistic; aggregate incomes must be influenced through directly influencing specific groups in terms of prices or wages.<sup>(34)</sup> Conceptually and statistically, there are dangers in drawing inferences from highly aggregative data, as an O.E.C.D. study points out;<sup>(35)</sup> and it is readily admitted that this analysis has this shortcoming and must be followed up by closer study of more finely classified data.

The widespread adoption of the digital computer in its many sophisticated forms is producing increasing numbers of studies in many fields of economics, including that of wage behaviour, that are almost entirely statistical, consisting largely of many kinds of regressions, simple and multiple, linear and non-linear. Much recent research into wage behaviour

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(34) *ibid.*, Chapter I, p. 2.

(35) O.E.C.D., *Wages and Labour Mobility*, p. 98

has consisted of trying out this variable or that, singly or together ; using relative levels in cross-sectional analysis ; or rates of change, or first differences, in time series analysis ; using annual data, quarterly data, monthly data, coincident series or some lagged behind others. There has been great variation in the level of aggregation, or disaggregation, in the time periods covered, and in the quality of the empirical data. Finally, because these studies embody " models " that are very often little more than a set of formulas for regressions with very little theoretical foundation, it is possible for two people, with substantially similar regressions and correlations, to interpret them differently.

The purpose of this digression on the current state of Canadian research in this field is to stress the tentative nature of their findings and to underline the need for far more intensive research, which must go on not only in the government (at its different levels) but in the universities. Too many of our universities have played down the importance of labour economics and research into manpower, wages, and related matters. This really must change.

Efforts to associate short-term changes in wages with economic variables usually include some or all of the following : <sup>(36)</sup>

- (1) the demand for labour — measured by unemployment, unfilled vacancies, or by labour turnover ;
- (2) changes in consumer prices ;
- (3) ability to pay of employers — measured by rate of profit or degree of concentration in the industry ;
- (4) measures of trade union pressure ;
- (5) productivity changes ;
- (6) changes in output or average hours worked, reflecting changes in the general level of business activity.

A logical point of departure is the relation between wage change and employment change, including unemployment. These are generally conceived as indicators, in macro terms, of the general state of the economy, and in micro terms, of the particularized state of labour demand and supply. Furthermore, discussion of " tradeoffs " which has become so popular of late, thanks to the " Phillips curve " and its successors, starts

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(36) This formulation of the problem follows the terms used in the U.N. study, already cited.



off with the amount of inflation that must be accepted as the "price" of varying degrees of reduction in the amount of unemployment, and moves on to the relation between money wage rates and unemployment.<sup>(37)</sup>

This kind of tradeoff discussion can be criticized as oversimplifying in that all the multifarious influences on wage and price behaviour and on unemployment are reduced to a two-dimensional structure. (It has recently been suggested that expectations of a given amount of inflation will themselves influence the tradeoff,<sup>(38)</sup> so that the structure must be three-dimensional, with time as the third dimension.) Such criticisms were made of the original Phillips study, and many other variables have been scrutinized, not only in the study of British wage behaviour (Phillips' concern) but of Canadian wage behaviour as well.

On the wage-employment relation, the O.E.C.D. had this to say: "Both in North America and the European countries studied, there is some tendency for a stronger relation between employment and earnings 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 aspects of the Canadian labour market (its big land surface, geographical compartmentalization, and decentralized 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."<sup>(39)</sup>

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<sup>(37)</sup> Of course, all of this began with A. W. Phillips: "The Relation between Unemployment and the Rate of Change in Money Wage Rates in the United Kingdom, 1862-1957", *Economica*, November, 1958, followed by R.G. Lipsey: "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1862-1957: a Further Analysis", *Economica*, February 1960. Actually, Phillips considered only wages and unemployment, while Lipsey introduced prices (i.e., inflation), but conceptually, the analysis often begins with the inflation — unemployment tradeoff first, then the relation between wage rates and unemployment. See R. G. Bodkin, G. L. Reuber et al.; *Price Stability and High Employment, The Options for Canadian Economic Policy*, Economic Council of Canada, Special Study No. 5, 1966, Queen's Printer, Ottawa.

<sup>(38)</sup> Milton Friedman: "The Role of Monetary Policy", p. 10, *American Economic Review*, March 1968. See also E. S. Phelps: "Phillips Curves, Expectations of Inflation and Optimal Unemployment Over Time", *Economica*, August 1967.

<sup>(39)</sup> O.E.C.D.: op. cit., p. 10.

The O.E.C.D. found a positive, but usually weak correlation between changes in relative earnings and relative employment in the countries studied.<sup>(40)</sup> It goes on: "... there is some tendency for a greater concentration of significant positive coefficients (of correlation) 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. . ." <sup>(41)</sup> The series mentioned are for periods between 1948 and 1961. From 1945 to 1956, Sylvia Ostry found that, "In the main, the larger absolute and percentage increases in earnings went to the fastest-growing industries, suggesting that the Canadian labour market was fairly flexible". <sup>(42)</sup>

Both the O.E.C.D. and Ostry studies examined data on wages and employment for a large number of industries, which lends credibility to their findings. The writers has not seen any more recent analysis of wage-employment relations, and rather hasty, last-minute attempts at such analysis carried out for this paper were inconclusive. The analysis did produce a rank correlation of .74 (significant at one percent) between 1964 indexes (over 1949) of wages and salaries and of total employment for the 16 manufacturing industry groups, but the correlation between these same indexes with 1964 on a 1961 base, was only .10. Correlations of indexes of average hourly earnings and of wage-earner employment in the same industries, for 1965 over 1949 and over 1961 were not significant. Rank correlations of indexes are probably unsatisfactory because they do not indicate any year-to-year association of wage and employment change; moreover, we produced these at too high a level of aggregation. Nevertheless, there is reason to suspect that there is not as direct a wage-employment relation today as there was a decade ago because of the impact of technological change on labour requirements. There is probably just as strong a relation but it is less of a straight, linear association such as found by Ostry and the O.E.C.D. Be that as it may, these later tendencies, if that is indeed what they are, have not been sufficiently demonstrated to warrant a conclusion that our wage system is less flexible. The recent trend towards a widening of skill and other occupational wage

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<sup>(40)</sup> Gideon Rosenbluth: "Wage Rates and the Allocation of Labour", *The Canadian Journal of Economics*, August 1968 criticizes the O.E.C.D. emphasis on correlating employment and wage change on the conceptual ground essentially that it assumes equal labour supply and demand elasticities. This is a valid point, but this paper follows the O.E.C.D. rationale, *faute de mieux*.

<sup>(41)</sup> O.E.C.D.: *op. cit.*, pp. 101-102.

<sup>(42)</sup> H. D. Woods and Sylvia Ostry: *op. cit.*, p. 457.

differentials suggests that in this important area, our wage structure continues to exhibit a significant degree of flexibility. <sup>(43)</sup> In this respect Canadian wage behaviour differs from the European pattern in that the narrowing of the Canadian occupational wage structure has not been as pronounced as in Europe. <sup>(44)</sup>

Unemployment is considered in a number of studies. S.F. Kaliski <sup>(45)</sup> found a strong association between changes in the level of unemployment and changes in money wage rates, for the postwar period (1946 to 1958). In the interwar period (1922-1939) he found a high association between wage change and changes in consumer prices, but no association with unemployment. In the postwar years, a high correlation is found between unemployment and price change, suggesting that the association is really between wages and prices, rather than unemployment. Another study confirms the presumably reverse tie-in between unemployment and price change in relation to changes in wages ; M. A. Zaidi <sup>(46)</sup> found, for almost the same period, that while the unemployment rate (not the level, as with Kaliski) could "explain" 60 to 71 percent of the variance in money wages, introduction of the cost of living variable made the unemployment rate insignificant at the five percent level. However, when the rate of change of the unemployment rate was dropped from the equation, the rate of change of consumer prices, together with the unemployment rate, explained 91 to 93 percent of the wage rate variance. However, both studies are highly aggregative (Kaliski aggregating data for all industries that were available, Zaidi aggregating for all manufacturing), so that they cannot explain the differential wage movements we have observed within manufacturing.

The sensitivity of Canadian wages to inflation and unemployment is compared with that of wages in the United States and some European countries in a study prepared for the Economic Council of Canada. <sup>(47)</sup> Canadian wages are apparently less sensitive to unemployment than wages

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<sup>(43)</sup> On trends in skill and occupational differentials, see Charts 9A to 11D inclusive in the Canada Department of Labour chartbook on postwar wages and salaries, already cited.

<sup>(44)</sup> O.E.C.D. : *op. cit.*, p. 123.

<sup>(45)</sup> S. F. Kaliski : "The Relation Between Unemployment and the Rate of Change in Money Wages in Canada", *International Economic Review*, January 1964.

<sup>(46)</sup> M. A. Zaidi : *The Determinants of Wage Rate Changes in Canada — an Empirical Study*, Ph.D. dissertation, University of California Berkeley, 1966.

<sup>(47)</sup> Bodkin, Reuber, et al. : *Price Stability*, etc., already cited, pp. 262-267.

in some European countries, but Canadian wage sensitivity to inflationary economic conditions is one of the greatest. (All this refers to postwar experience.) But this study emphasizes the complicating influence of Canadian sensitivity to wage changes and economic conditions in the United States.

John Vanderkamp<sup>(48)</sup> examined quarterly data from 1947 to 1962 for two groups of industries, those he called "organized" (that is, unionized, made up of mining, manufacturing, construction, transportation, communication and storage, and public utilities) and the "unorganized" (agriculture, fishing and trapping, forestry, retail and wholesale trade, finance, insurance, and real estate, and services). He found that changes in consumer prices, unemployment in the unionized industry sector, and in real output per man explained 82 percent of average annual wage change in the organized sector, and that, in the unorganized sector changes in the same variables (except that unemployment and real output per man relate to the unorganized sector) explained only 52 percent of wage variation. He did not find the profit rate or rate of change in employment to be significant variables in the organized sector. They were "tested" for the organized (but apparently not for the unorganized) sector on the grounds that profit rates may influence a union's wage demands, and the more employment increases, the less inhibiting will be the impact of wage increases, on employment, a factor unions might consider. One might compare this last finding with that of the O.E.C.D.<sup>(49)</sup> that in Canada relations between wage changes and profits changes improved in the recession years after 1957, at the same time as there was evidence of a decline in the strength of the association between earnings and employment changes.

So Vanderkamp, the O.E.C.D., and hasty computations made for this paper suggest some decline in the importance of employment change as an explanatory variable. Vanderkamp found productivity (he used real output per man as the measure) to have some significance. For Zaidi, it was not significant; he looked at output per manhour for all manufacturing between 1948 and 1962.<sup>(50)</sup> Other studies, in the United States, but by no means all of them, attach little significance to productivity.

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(48) John Vanderkamp: "Wage and Price Level Determination — An empirical Model for Canada", *Economica*, May 1966.

(49) O.E.C.D., *op. cit.*, p. 105.

(50) M. A. Zaidi: *op. cit.*, pp. 123-124.

This calls for three comments :

- (1) As Zaidi says, according to neoclassical theory, productivity should play a role in the determination of real, not money wages ; the association should be between money wages and revenue productivity or real wages and physical productivity.
- (2) As the U.N. report says, productivity is probably more of a longrun factor ; its role, one might add, may be more as an actual determinant.
- (3) Both Zaidi and Vanderkamp consider productivity at a high level of aggregation, and it is doubtful that its significance can be measured at such a level.

None of these Canadian studies consider industrial production as a factor. However, it might be useful as a proxy for the state of demand in the product market. The O.E.C.D. study used the index of industrial production as a kind of proxy for profits and found for most countries that there was a high correlation between changes in relative wages and relative output. A quickly calculated index of rank correlation of indexes of average hourly earnings (1965 over 1949) for 16 manufacturing industries with their indexes of industrial production was .56 (significant at the five percent level) but a similar correlation between indexes of 1965 over 1961 was  $-.07$ , in other words, of no meaning. It suggests that over a number of years covering all phases of the business cycle, there may be an association, but when economic conditions become quite buoyant, as they have since 1961, different rates of growth of output in industries do not affect wage changes as much as other influences. Of course, this is highly tentative because some kind of measure is required that is better than rank correlation, and a finer level of industrial disaggregation is called for.

The gist of this brief review of the economic parameters of Canadian wage behaviour must be that we still don't know very much about our wage system shows the greater flexibility it has, in comparison with European wages. Canadian wages appear to be somewhat more sensitive to inflation and less to unemployment than European wages, suggesting an upward flexibility in our wages. Our wages appear to show a stronger association with employment change than is the case in Europe and this is also apparently true in the matter of shifting skill and occupational requirements. The influence of the United States on our wages is a persuasive force but we don't know to what extent it is a differentiated influence,

and our concern here is primarily with differential wage behaviour. Thus, our wage system does seem to be somewhat more responsive to economic variables than is the case in most western, industrialized countries.

### Labour Mobility and the Wage System

In a recent study of population mobility in Canada, Vanderkamp concluded that, "The geographical mobility processes clearly operate much more strongly under conditions of high employment than when the labour market has a great deal of slack."<sup>(51)</sup> It will be recalled that the O.E.C.D. report observed that there has been a tendency for a stronger relation to obtain between earnings and employment when unemployment is especially low, and this tendency has been particularly marked in Canada. Surely these statements, considered together, indicate the importance of wages in manpower allocation in this country.

The allocative function of the wage structure is often belittled by those who stress the importance of non-monetary, psychological or "institutional" factors. However, it is difficult to believe that immediate and longrun expectations of earnings are of negligible importance to young people especially when they enter the labour market and, as is well known, change jobs frequently in their first years of employment. Dr. Ostry has pointed out that between 1952 and 1956 more than half of the labour force covered by unemployment insurance changed jobs at least once a year, involving either industry, occupation, area or a combination thereof, an "astonishingly high" rate of turnover compared with the United States.<sup>(52)</sup>

Thus, we have reason to believe the Canadian labour market is a pretty restless one. This is reinforced by the recent news that very soon half our population will be under 25 years of age. Indeed, we might say that Canadian labour markets are in a state of dynamic disequilibrium.

The O.E.C.D. points out that industries have, in general, been able to meet their new employment needs without changing wage differentials. On the other hand, it recognizes that the same evidence that shows movements of labour to be preponderantly wage-insensitive might also show that the slight and temporary variations that do occur may be sufficient to effect a substantial reallocation of labour. This report seems to over-

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(51) John Vanderkamp: "Interregional Mobility in Canada — A Study of the Time Pattern of Migration", *The Canadian Journal of Economics*, August, 1968, p. 607.

(52) H.D. Woods and Sylvia Ostry: *op. cit.*, p. 345.

look, except in what is implied in the statement just cited ; that while its comparisons are of average wages and total employment, it is only movements of wages and employment at the margin that are relevant to the allocative function of a wage system. It is also of special relevance, in the light of the peculiar conditions of the Canadian labour market, to remember that relative wages have a function in *retaining* workers in their present employment, and because there is evidence of greater changes in employers' labour requirements and of workers' job aspirations in Canada than in many other countries, we must expect frequent shifts in relative wages.

This analysis concludes with a quotation from Gideon Rosenbluth's recent study. He traced the movement of relative wage and employment in 17 manufacturing industry groups between 1951 and 1965 and found a "remarkable degree" of positive conformity between them.

"The rather small variation<sup>(53)</sup> in wage rates shown on the graphs may make it hard to accept the hypothesis of an influence on wage rates of labour supply. In most cases the variation in relative wage rates is well under 10 percent, and in many cases the trend movements or major fluctuations are under 5 percent, and in many cases the trend movements or major fluctuations are under and move to one in another industry for a gain of a few cents on the dollar in his earnings. It is important to note, however, that the hypothesis of an influence of wage rates on the labour supply does not require the assumption that employees quit their jobs in response to wage incentives. It is well known that turnover rates, and even gross movements between industries, are many times as high as the net movements reflected in the employment statistics. Whatever the reasons for voluntary and involuntary separations may be, a vast number of them take place every month in every region and every industry. It is therefore only necessary to suppose that relatively small wage differentials play a role in the *re-employment* decisions of persons who, for one reason or another, have already left or are about to leave their present employment. This seems very plausible indeed."<sup>(54)</sup>

Dr. Rosenbluth concludes by stating that an incomes policy that does not manage to adjust earnings differentials to the shifting demand for labour "may well get into trouble". The findings of this paper would support such a conclusion.

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(53) These variations are by no means small when compared with the variations in European countries shown in the U.N. report see footnote 24 of this paper.

(54) Gideon Rosenbluth : op. cit., p. 581.

## INFLATION, SALAIRES ET MOBILITÉ DE LA MAIN-D'OEUVRE

L'emploi de la méthode des « balises salariales » (guidelines) pour stabiliser les salaires et les prix fait supposer que la doctrine de l'inflation due aux coûts est valable. Si la pression exercée par la demande globale est la cause première de l'inflation, les mesures de restriction sur les coûts seront insuffisantes pour lutter contre l'inflation. Pourtant, la doctrine de l'inflation due aux coûts suppose que les marchés des produits et de la main-d'oeuvre sont sujets à des conditions de non concurrence. Dans des situations qui équivalent à une détermination des prix par des organismes administratifs, les pouvoirs publics n'ont qu'à employer des moyens de persuasion appropriés, telles que des balises salariales, auprès des employeurs et des syndicats qui déterminent les prix et les salaires.

L'élément « pression due aux salaires » de la théorie de l'inflation due aux coûts pose en hypothèse que les augmentations de salaire naissent dans certaines industries-clés et qu'elles se disséminent ensuite dans les autres industries. Si tel est le cas, il devient d'autant plus facile d'appliquer les balises salariales parce qu'il n'est besoin de les appliquer qu'aux industries-clés que les autres industries suivent.

Les recherches visant à préciser l'évolution des salaires au Canada n'ont pas révélé jusqu'ici cette sorte de contagion générale (widespread « spillover ») des hausses de salaires qui, partant de certains secteurs-, industries- ou entreprises-clés, se propagent à l'ensemble de l'économie. Pourtant, des études ont montré qu'au cours des années de l'après-guerre la structure des salaires au Canada a manifesté plus de souplesse et s'est mieux adaptée aux variations de la situation économique que l'ensemble des pays d'Europe occidentale et même les États-Unis.

Entre 1949 et 1967, la dispersion interindustrielle des salaires s'est accrue considérablement au Canada comme aux États-Unis, alors que de 1953 à 1955, dans les pays d'Europe occidentale, les salaires relatifs pratiqués dans les industries de la fabrication sont caractérisés par une grande stabilité. Toutefois, un trait qui différencie les salaires canadiens des salaires américains est celui de l'étendue de l'éventail des salaires (c'est la différence entre les salaires les plus bas et les plus élevés) qui a augmenté beaucoup dans 15 groupes d'industries manufacturières au Canada, mais point du tout aux États-Unis.

Les études, encore peu poussées, qu'on a faites sur l'influence des forces économiques dans l'évolution des salaires au Canada révèlent que ceux-ci, par rapport à ce qui s'est passé en Europe, sont plutôt sensibles à l'inflation mais peu influencés par le chômage, ce qui indique que la souplesse des salaires au Canada se traduit par une tendance à la hausse. Les salaires au Canada semblent être plus solidaires des modifications (shifts) de l'emploi que ce n'est le cas en Europe.

À la lumière de ce que nous savons de la grande mobilité géographique qui caractérise la population canadienne, du taux élevé des mouvements de la population active ainsi que des répercussions sur la mobilité et les mouvements de main-d'oeuvre qui vont vraisemblablement se produire du fait que près de la moitié de la population canadienne est âgée de moins de 25 ans, il n'y a pas lieu de s'étonner que les marchés du travail et les salaires soient dans un état de déséquilibre instable.

Devant une situation aussi fluctuante, il serait peut-être imprudent d'essayer d'imposer des balises salariales uniformes.