

Recent Wage Deceleration in Canada: Short-Run Response or Structural Change?

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Résumé de l'article

Les mouvements récents des salaires au Canada tranchent sur ce qui s'est passé au cours de la décennie 1970 et au début des années 1980. Les taux moyens d'augmentation des salaires, de même que ceux d'autres formes de rémunération, ont atteint leurs niveaux les plus bas au cours des vingt-cinq dernières années et ils sont inférieurs au taux d'inflation. La baisse des salaires nominaux, les gels de salaire et les rémunérations flexibles sous forme de salaires à double palier et de paiements forfaitaires sont devenus fréquents dans les négociations collectives. Il y a eu un déclin notable dans l'importance relative des clauses d'indexation et des ajustements différés de salaires ainsi qu'une tendance marquée vers le report des majorations de salaires dans les conventions collectives de longue durée et le remplacement des négociations types par des règlements salariaux plus spécifiques, plus individualisés. La question se pose donc : ces changements signifient-ils une rupture structurelle dans les mécanismes et les processus de détermination des salaires ou sont-ils simplement une réaction naturelle et temporaire aux conditions de la vie économique en général et à celles du marché du travail?

Pour répondre à cette double question, l'article mesure les équations de salaires en recourant à diverses séries annuelles et trimestrielles. À l'aide d'une simple courbe de Philips, on y compare les changements qui se sont produits dans les salaires aux variations de l'indice des prix à la consommation (c'est-à-dire la mesure des prévisions inflationnistes) et aux taux de chômage, indicateur fondamental des conditions du marché du travail. Les équations salariales ainsi considérées indiquent un fort degré de sensibilité des salaires à l'inflation et à la situation du marché du travail, ce qui laisse voir que le freinage des salaires est pour beaucoup attribuable au déclin soutenu de l'inflation des prix et aux taux élevés de chômage qui persistent depuis 1982.

Pour vérifier s'il y avait eu cassure structurelle dans le processus des règlements de salaires, on a réévalué les équations à l'aide d'une variable prête-nom supplémentaire de 1 pour les années 1983-1985 et de zéro dans le cas contraire. Le coefficient de cette dernière variable est sans signification d'un point de vue statistique dans toutes les équations salariales, à l'exception de celle où l'on utilise les ajustements effectifs du taux de base dans les ententes établies selon l'indice des prix à la consommation. L'article compare aussi les augmentations réelles avec les majorations anticipées selon les équations de salaires estimées pour la période se terminant en 1982 et selon les équations salariales de cinq grands modèles économétriques : le modèle Candide du Conseil économique du Canada, le modèle de Data Resources Inc., le modèle info métrique, le modèle RDX de la Banque du Canada et le modèle MTFM du Conference Board du Canada.

Les augmentations anticipées de presque toutes les équations salariales pour la période 1983-1985 se rapprochent passablement des majorations réelles, ce qui démontre qu'un fort chômage et une inflation faible ont été les causes premières du freinage des salaires au cours des quatre dernières années. L'analyse indique nettement que le déclin de l'inflation des salaires depuis 1972 est surtout une réaction temporaire de courte durée aux changements qui se sont produits dans l'activité économique et sur le marché du travail. Face au freinage et à l'instabilité économique, syndicats et employeurs doivent montrer plus de détermination et plus d'empressement afin d'en arriver à des compromis en matière de rémunération dans un avenir assez lointain et en ce qui concerne les enjeux de l'élasticité du marché du travail. La participation du gouvernement est aussi nécessaire afin d'encourager et de promouvoir des régimes de salaires plus souples (la participation aux bénéfices, par exemple), des consultations et des mécanismes de règlement des griefs plus nombreux entre syndicats et employeurs, un meilleur partage des informations entre eux ainsi que des primes pour les employeurs qui parrainent des programmes de formation et de recyclage.

Ce qui importe encore plus, ce sont des politiques visant à stimuler la croissance et la sécurité de l'emploi en général, conditions premières de l'innovation et du changement.

Recent Wage Deceleration in Canada

Short-run response or structural change?

Pradeep Kumar

The paper reviews recent wage trends and patterns, and examines whether the wage deceleration since 1982 can be explained by the steady decline in inflation and the persistent high rates of unemployment.

Since 1982, wage inflation in Canada has shown a pronounced deceleration. Wage settlements and rates of increase in various measures of earnings have declined to their lowest level in the past 25 years. Wage cuts, wage freezes, de-indexing, and flexible compensation in the form of two-tier wage systems and lump-sum payments in lieu of wage rate increases have become a frequent occurrence in collective bargaining.

A question that is repeatedly asked is whether the recent wage behaviour and related collective bargaining outcomes mark a turning point in industrial relations¹ More specifically, do the wage developments of the past few years reflect a fundamental change in wage setting processes or are they simply a natural and temporary response to the long and severe recession of 1981-82 and the subsequent uneven pattern of economic recovery?

The purpose of this paper is twofold: (a) to review recent trends in various wage indicators, in particular the wage and related outcomes of col-

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¹ See for example the Conference Board of Canada (1986, pp. 13-16), and VOYER, (1985). The discussion on whether the process of wage determination has changed in recent years and whether there is evidence of innovation in wage bargaining is not limited to Canada. A voluminous literature is emerging on this question in the United States and in European countries (See FREEDMAN, 1985; MITCHELL, 1985; KOCHAN, 1985; COE and GAGLIARDI, 1985, and FLANAGAN, 1984).

lective bargaining; and (b) to assess empirically if these trends are a product of the changed economic and labour market conditions or represent a structural change in wage setting processes.

The paper is divided into four sections. The first section looks at various aggregate wage and earnings series, including the negotiated base rate adjustments in new collective agreements, with a view to deriving some firm conclusions on the recent wage behaviour. Wage performance in post-war recessions and recoveries, and the developments in Canada and the United States are also briefly compared and contrasted. The following section examines in more detail wage and related outcomes of collective bargaining. In section three, predictions from estimated Phillips Curve wage equations are compared with actual wage increases to assess whether the recent wage deceleration can be explained by the high rates of unemployment and the steady decline in inflation since 1982, or represents a structural change in wage setting processes. The last section of the paper summarizes the extent and nature of wage flexibility and its policy implications.

TRENDS IN AGGREGATE WAGE SERIES

Wage trends and patterns can be examined by looking at the average annual rates of change in three key series of compensation: (1) average hourly compensation, which covers all forms of employee compensation and is derived by dividing the estimates of labour income with the estimates of total hours worked; (2) average weekly earnings in the non-agricultural commercial sector; and (3) negotiated and «effective» base rate increases in new settlements including the potential payments under cost-of-living (COLA) clauses. All three series show a marked deceleration in wage inflation over the past 4 years following a steady decline in rates of increase in consumer prices and an escalation in the unemployment rate (Kumar, Coates and Arrowsmith, 1986, pp. 82, 442-449). The downward trend began in mid-1982 after one full year of economic recession, gained momentum in 1983 and 1984, and appeared to have stabilized in 1985. Average annual rates of increase in wage settlements and other earnings measures during the period 1984-85 were the lowest in over 25 years. Recent trends and patterns in various series similarly indicate that although rates of increase by industry and region have varied, reflecting uneven labour market conditions, the deceleration has been broad-based.

The length and the depth of wage deceleration since 1982 is also in sharp contrast to the experience in earlier post-war recessions and recoveries, (Wood and Kumar, 1984 & 1985; Finance Canada, 1985), reflecting the unique nature and extent of the 1981-82 recession and subsequent recovery. None of the previous post-war recessions has been as long and as

severe or has had as many serious repercussions on the labour market as the 1981-82 recession; recessions in Canada during the past three decades were mild and short-lived and did not generate long and pronounced deceleration of nominal wages. Similarly, previous recoveries have seldom witnessed such persistent high rates of unemployment as the current recovery or a decline in wage and price inflation of the magnitude of 1983-85.

A comparative analysis of wage behaviour in major industrialized countries also reveals that «Canada recorded the fastest deceleration in wage inflation of any OECD country in 1982 and 1983» (OECD, 1986, pp. 22-24; OECD, 1985, pp. 36-50). A comparison of Canadian and U.S. wage developments similarly indicates that although the wage response to economic conditions was faster in the U.S.,² the wage deceleration in Canada since 1982 has been relatively longer, greater and more extensive.

WAGE AND RELATED OUTCOMES OF COLLECTIVE BARGAINING

Recent wage settlements provide a more complete perspective on the nature and extent of deceleration and its potential implications for labour market flexibility. The negotiated and «effective» base rate adjustments in new settlements including the potential payments from COLA clauses illustrate the dramatic turn-around in union wage behaviour since 1982. In the absence of a non-union wage series, however, it is not possible to confirm whether the unionized sector led the wage deceleration as appears to be the case in the United States³.

2 There may be many reasons for a faster wage response to economic conditions in the U.S. First, the downward trend in inflation started much earlier in the U.S. than in Canada. Inflation rates in Canada peaked in the third quarter of 1981 and did not show any pronounced deceleration until the last quarter of 1982. In the U.S. on the other hand, inflation peaked in the first half of 1980 and had declined almost 8 1/2 percentage points to 5.8 percent in the third quarter of 1981 when the recession began. Second, while the unemployment rate in the U.S. was rising in 1980 and 1981 it was fairly stable in Canada until the last quarter of 1981. A third factor is the more intense competitive pressures in the U.S. in several sectors of the economy and the deregulation of the airline and trucking industries starting in the latter part of the 1970s. Reflecting these pressures, the wage deceleration, including wage freezes and cuts, became widespread in the United States as early as 1981 and gained momentum in 1982 and 1983. See MITCHELL (1985).

3 The U.S. Dept. of Labor figures show that the wage deceleration in the unionized sector was not only quicker but also more pronounced than in the non-union sector. For example the rate of increase in union wages peaked in 1980 and declined from 10.9 percent annually in 1980 to 3.1 percent in 1985. By comparison, non-union wages continued to accelerate until the end of 1981 and the rate of increase moderated from 8.5 percent in 1981 to 4.6 percent in 1985. Also MITCHELL (1985) shows that actual union wage adjustments over the period 1980-84 have been much lower than expected given economic conditions in contrast to non-union wages. While there is no non-union wage series available in Canada, the Conference Board of Canada surveys indicate that wage increases in the union sector have been smaller than those for non-unionized workers.

Many features of the wage experience in collective bargaining are noteworthy:

i) While there was evidence of a downward trend in negotiated wage adjustments as early as the first quarter of 1982, the deceleration became pronounced and widespread only in 1983 with the marked decline in rates of increase in consumer prices and the serious deterioration in labour market conditions. Wage settlements reached a record low in 1984-85 following a steady downward trend in inflation, persistent double-digit rates of unemployment, weak and uneven employment recovery, and the sustained efforts by private sector employers to improve their competitive cost position. In both 1984 and 1985 average base rate increases in new settlements were below the prevailing rate of inflation⁴.

ii) Although wage deceleration has been broad-based, occurring in all settlements with or without a cost-of-living allowance (COLA) clause and in contracts of both short-term and long-term duration, there has been a marked divergence in wage behaviour across firms, industries and provinces reflecting the uneven impact of recession and recovery. For example, compared to the manufacturing industry and provinces such as Ontario, wage settlements have been significantly lower in construction and in the provinces of Alberta and British Columbia which were hardest hit by the recession and where economic recovery has been extremely weak and uncertain. Also, in general, negotiated wage increases in the public sector have exceeded the private sector adjustments.

iii) In many bargaining situations the collective bargaining response to changed economic conditions has also included wage freezes and nominal wage cuts, particularly in the first year of the contract. For example, in 1983 wage freezes or cuts were a feature of 65 settlements (10 percent of the total) affecting more than 200 thousand workers (14 percent of the employees covered by new settlements). The number of settlements providing a wage freeze or cuts in 1984 increased to 139 agreements (25 percent of the total) involving close to 300 thousand workers (one quarter of the total). While the incidence of the freeze dropped off substantially in 1985, there were still 78 settlements (16 percent of the total) affecting 168 thousand workers where wage rates in the first year of the contract were either frozen or cut. Nominal wage freezes or cuts have been particularly marked in the western provinces, where nearly one of every two settlements has included a wage

⁴ An analysis of «effective» wage adjustments, including potential COLA payments, in individual major settlements covering 500 and more workers shows that increases were below the prevailing rate of increase in the CPI in more than half of the settlements concluding in 1983, 1984 and 1985. The below inflation rate adjustments were found in only 18 percent of all settlements negotiated in 1981 and in 49 percent of the agreements in 1982.

freeze or cut, and in the construction industry. In most of these cases, there was either evidence of significant wage escalation in the past, or growing non-union and other competitive pressures, in addition to the extremely weak labour market conditions resulting from the severe recession and/or the poor economic recovery.

iv) Wage settlements in recent years have been more «individualized» and «organization specific», again reflecting the uneven impact of the recession and recovery⁵. The current emphasis on decentralized bargaining is in sharp contrast to the heavy use of pattern bargaining and the trend towards multi-plant, multi-employer settlements in the late 1970s and early 1980s⁶.

v) Unions and management in recent years have also negotiated a variety of other provisions to make compensation more flexible. Prominent among these are two-tier wage systems, lump-sum payments in lieu of wage rate increases, and profit sharing/employee stock ownership plans⁷. Two-tier wage systems have become a popular feature of agreements in retail food stores and airlines. Lump-sum payments have been appearing frequently in settlements in education, hospitals and manufacturing in lieu of retroactive pay or as a no-strike bonus productivity allowance or as a special adjustment. Lump-sum payments are a special feature of settlements where wage rates have been frozen. Profit sharing/stock-ownership plans are perhaps the most infrequent provision due to strong union opposition, negotiated in only about seven settlements so far.

vi) Finally, the recent collective bargaining experience has been characterized by an increasing trend towards multi-year contracts, a decline in the relative importance of COLA clauses, an increase in back-loading, i.e. smaller wage adjustments in the first year compared with later years of the contract, and a marked decrease in the incidence of work stoppages and the resulting loss in working time (Voyer, 1985). In addition, recent years

5 An indication of this trend is the increase in relative dispersion in base rate adjustments in new settlements. The coefficient of variation (standard deviation divided by the mean) in negotiated base rate adjustments has gone up from 32 percent in 1981 to 64 percent in 1985. In effective annual wage adjustments in new settlements the coefficient of variation in 1985 was 55 percent compared with 22 percent in 1981.

6 For changes in bargaining structures between 1965 and 1982 see DAVIES (1986). For recent data see CRAIG (1986).

7 Since 1981, two-tier wage systems have been introduced in 50 major contracts, affecting over 40,000 workers; of the total, as many as 17 (27,000 workers) were negotiated in 1984 and 1985. Although two-tier provisions are largely concentrated in airlines and food stores, they have been spreading to manufacturing, services and utilities. Similarly lump-sum payments have been increasing in frequency. Lump-sum payments were a feature of 46 new settlements, affecting close to 92,000 workers in 1985, 28 settlements affecting 98,000 employees in 1984, 14 contracts in 1983 with 73,000 employees, and of 14 settlements covering 24,000 workers in 1982.

have also seen a growing emphasis on job and income security provisions, training and retraining, flexible work arrangements, pay and employment equity, and, in a limited number of situations, more effective consultation and communication mechanisms (Wood & Kumar, 1985; *et al.*, 1986; Labour Canada, 1985).

EXPLANATIONS FOR THE WAGE DECELERATION AND FLEXIBILITY

The unprecedented length and breadth of wage deceleration and the associated changes in collective bargaining processes and outcomes in a period of economic recovery have raised questions whether these recent developments are simply a natural and temporary response to severe economic and labour market pressures facing labour and management, or signals of a fundamental change in established wage setting mechanisms and practices.

A simple Phillips Curve approach provides the best framework for evaluating the significance of the recent decline in wage inflation⁸. Using this approach, wage changes can be explained by changes in inflationary expectations and labour market conditions. To assess the general validity of this approach, and to examine how well the Phillips Curve framework is able to account for the recent wage deceleration, a number of wage equations were estimated using various annual and quarterly wage series. The dependent variable in all equations was the average annual change in wages. The two explanatory variables were the lagged value of the average annual increase in the Consumer Price Index (a measure of inflation expectations) and the unemployment rate (a key indicator of labour market conditions). Estimates using average annual change in hourly compensation for the total economy, public and private sectors, and manufacturing, and for average weekly earnings and negotiated average annual increases in base rates in new settlements for the sample period 1958-1985 are shown in Table 1. Table 2 presents estimates of wage equations using quarterly «effective» base rate adjustments in new settlements for a number of broad industrial sectors, and in settlements with and without a COLA clause. Estimated

⁸ There have been a number of studies of wage inflation in Canada based on Phillips Curve approach employing alternate specifications of inflationary expectations and labour market conditions (see RIDDELL, 1986 and WILTON, 1986). We have chosen in this paper a very simple specification, largely because our aim was to explore whether or not there has been a structural break in wage setting. Indeed it is surprising how well the simple specification is able to account for recent wage changes. See MITCHELL (1985) and COE and GAGLIARDI (1985) for an application of similar Phillips Curve approach to an examination of changes in wage determination process.

wage equations clearly indicate a very high degree of responsiveness of wages to inflation expectations and labour market conditions. The coefficients of the explanatory variables suggest that nominal wage changes respond positively to changes in consumer prices and negatively to unemployment.

Table 1
Estimated Wage Equations Based on Modified Phillips Curve Approach,
Dependent Variable: Average Annual Change in Hourly Compensation, 1958-1985

	<i>Total Economy</i>			<i>Public Sector</i>		
	<i>1958-85-</i>	<i>1958-82</i>		<i>1958-85</i>	<i>1958-82</i>	
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	10.54 (7.53)	9.57 (5.34)	9.83 (5.90)	11.38 (5.81)	11.59 (4.52)	11.74 (5.11)
\dot{P}_{t-1}	1.05 (7.48)	0.96 (6.01)	1.09 (6.91)	1.22 (5.90)	1.24 (5.47)	1.40 (6.66)
U_t	-1.19 (5.35)	-0.94 (3.04)	-1.10 (6.66)	-1.36 (4.14)	-1.41 (2.90)	-1.57 (3.57)
Dummy (1983-1985)		-1.97 (-1.15)			0.34 (0.12)	
R ²	0.692	0.659	0.659	0.583	0.592	0.666
SEE	1.622	1.616	1.552	2.869	2.928	2.639
F stat	26.9	15.47	21.27	16.789	11.63	21.98
DW	1.85	1.78	1.87	1.91	1.91	1.97
	<i>Private Sector</i>			<i>Manufacturing</i>		
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	10.27 (7.41)	9.46 (5.58)	9.59 (5.78)	8.87 (7.39)	8.59 (5.45)	8.33 (5.70)
\dot{P}_{t-1}	1.02 (7.38)	0.95 (6.30)	1.04 (6.58)	1.20 (9.47)	1.19 (8.61)	1.24 (9.40)
U_t	-1.15 (-5.31)	-0.96 (3.27)	-1.06 (3.55)	-1.10 (5.47)	-1.04 (3.49)	-1.04 (3.71)
Dummy (1983-1985)		-1.64 (-1.00)			-0.46 (-0.26)	
R ²	0.688	0.676	0.636	0.780	0.787	0.816
SEE	1.535	1.536	1.523	1.799	1.834	1.767
F stat	26.44	16.69	19.24	42.59	29.57	48.66
DW	1.78	1.72	1.82	1.91	1.90	1.93

Note: Figures in parenthesis are t- statistics of the coefficients

Table 2
Estimated Wage Equations Based on Modified Phillips Curve Approach,
Dependent Variable: «Effective» Average Annual Increases in New Settlements,
1978 Q1 — 1985 Q4

	<i>All Sectors</i>			<i>Public Sector</i>		
	<i>1978 Q1- 1985 Q4</i>	<i>1978 Q1- 1982 Q4</i>		<i>1978 Q1- 1985 Q4</i>	<i>1978 Q1- 1982 Q4</i>	
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	16.18 (7.24)	16.13 (6.27)	13.65 (9.46)	16.33 (5.24)	16.56 (4.91)	12.01 (6.65)
\dot{P}_{t-8}	0.67 (4.76)	0.67 (4.15)	1.36 (10.89)	0.66 (3.33)	0.68 (3.18)	1.65 (10.55)
U_t	-1.50 (-8.63)	-1.49 (-5.03)	-2.00 (-11.45)	-1.52 (-6.11)	-1.57 (-4.32)	-2.16 (-9.90)
Dummy (1983-1985)		-0.05 (-0.05)			0.28 (0.22)	
R^2	0.813	0.813	0.909	0.688	0.697	0.894
SEE	0.872	0.888	0.648	1.004	1.022	0.803
F stat	61.16	39.04	80.27	30.92	20.69	67.33
DW	2.02	2.02	1.93	2.08	2.05	1.91
	<i>Private Sector</i>			<i>Manufacturing</i>		
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	15.93 (11.75)	15.59 (8.41)	15.85 (8.54)	17.84 (16.78)	18.23 (12.35)	17.90 (11.57)
\dot{P}_{t-8}	0.70 (8.11)	0.68 (6.02)	0.79 (5.12)	0.47 (6.83)	0.49 (5.43)	0.59 (4.76)
U_t	-1.48 (-14.56)	-4.41 (-5.41)	-1.57 (-6.95)	-1.46 (-18.51)	-1.54 (-7.11)	-1.62 (-8.60)
Dummy (1983-1985)		-0.303 (-0.28)			0.34 (0.37)	
R^2	0.924	0.921	0.802	0.943	0.945	0.877
SEE	0.972	0.988	0.960	0.958	0.973	0.900
F stat	169.34	105.37	32.49	230.38	154.06	56.96
DW	1.94	1.94	1.75	1.89	1.91	1.73
	<i>COLA Settlements</i>			<i>NONCOLA Settlements</i>		
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	20.87 (13.13)	18.26 (8.61)	16.86 (9.04)	13.82 (4.49)	15.17 (4.87)	11.95 (5.74)
\dot{P}_{t-8}	0.43 (4.25)	0.28 (2.18)	0.50 (3.23)	0.76 (3.83)	0.85 (4.30)	1.64 (8.62)
U_t	-1.75 (-14.74)	-1.23 (-4.05)	-1.31 (-5.80)	-1.34 (-5.36)	-1.63 (-4.99)	-2.15 (-8.67)
Dummy (1983-1985)		-2.36 (-1.82)			1.38 (1.28)	
R^2	0.906	0.912	0.723	0.666	0.707	0.840
SEE	1.281	1.232	0.960	0.893	0.885	0.778
F stat	134.70	93.25	20.87	27.95	21.71	41.86
DW	2.04	1.99	2.04	2.05	2.00	1.96

Note: Figures in parenthesis are t- statistics of the coefficients

There are two ways in which wage equations based on the Phillips Curve approach can be used to examine whether wage responsiveness has changed in the recent period. First, wage equations can be re-estimated with a dummy variable added as an additional explanatory variable taking the value of one for the years 1983-85 and zero otherwise. The statistical significance of the estimated coefficient of the dummy variable would indicate if there has been a change in the wage determination process over the period 1983-85. A second alternative is to estimate wage equations for the sample period ending 1982. The estimates of these equations can then be used to calculate simulated wage increases for the period 1983-85. A comparison of these simulations with actual increases would show whether the recent wage deceleration has been solely on account of high unemployment and low inflation or due to some other factors.

The experiment with the dummy variable (reported in tables 1 and 2) provided no evidence of any structural change in the wage determination process⁹. In all wage equations, using both annual wage series and quarterly wage settlement data, the coefficient of the dummy variable was statistically insignificant: the only exception was the wage equation using effective base rate adjustments in COLA settlements where the dummy was significant at the 90 percent probability level, suggesting a possible structural break in the wage determination process or the presence of additional factors. Similarly, a comparison of actual and predicted increases based on estimated wage equations for the sample period ending 1982 indicated that wage developments during 1983-85 can be explained by higher unemployment and low inflation in this period. In wage equations using annual data, predicted increases were generally higher for 1983 and slightly lower than the actual for 1984 and 1985. The pattern of prediction errors was somewhat different for quarterly effective wage settlement series: the predicted increases from all wage equations were lower than the actual with the exception of settlements with COLA clauses in which the actual were either the same or slightly higher than the predicted wage increases. We also performed a stability test of the equations using the *ex post* forecast errors (actual minus predicted wage increases), from the equations estimated for the period ending 1982, and the residuals from the equations estimated over the full sample period¹⁰. A comparison of the root mean square errors from the two sets of equations revealed that while the two residuals were similar

9 WILTON (1986) arrives at the same conclusion in his examination of the possible effects of 6-5 program in 1982-83 on wage settlements. In the wage equations using annual wage series we also added another dummy variable to take account of the anti-inflation program during 1976-1978. The coefficient was found statistically insignificant in all equations.

10 See KUMAR (1987) for details of the investigation and its results (Tables 7 and 8).

in equations using annual wage series, they differed markedly in the case of quarterly wage settlement series, suggesting a structural change in wage outcomes under collective bargaining¹¹.

The significance of the decline in inflationary expectations and the persistence of high unemployment for recent wage deceleration was further evaluated by examining the predictive performance of wage equations in five large scale econometric forecasting models — the CANDIDE model of the Economic Council of Canada, the DRI (Data Resources Inc.) model, the Infometrica model (TIM), the RDX model of the Bank of Canada, and the MTFM model of the Conference Board of Canada. Although the individual specifications of the wage equation vary, all five models have a number of common features. Except for the Conference Board model in which wage changes are a weighted average of «nominal output growth, consumer prices and the change in the real interest rate», all models use unemployment and price inflation as the major determinants of wage inflation¹². In all five models elasticity of wages with respect to inflation expectations is unity or close to unity, implying that a percentage point change in inflation leads to a one percentage point change in wages. The impact of unemployment on wages varies between -0.54 and -1.00. While the CANDIDE and Infometrica models use annual data, all others use quarterly series. The wage measure used is labour income per hour or per employed person in the CANDIDE, Infometrica, and DRI models, and the industry composite of average weekly earnings in MTFM and RDX models.

Table 3 presents predicted increases from each of the five models together with the actual increases in respective wage series. The differences between actual and predicted increases are also shown to evaluate how well the models have performed in tracking the wage deceleration. All five models appear to predict fairly well the sharp decline in wage inflation since 1982. Predicted increases account for 50 percent or more of the actual increases, suggesting that higher unemployment and lower price inflation have been the primary source of wage deceleration in the past four years.

11 These results are corroborated by similar studies elsewhere, using the Phillips Curve framework. For example Coe and Gagliardi (1985) estimated nominal wage equations for ten OECD countries including Canada. They found that «the decline in wage growth in the early 1980s and continued moderation through 1984 is relatively well explained by the high rates of unemployment and the addition downward pressures of inflation from commodity prices, direct demand effects on prices, and in some countries, exchange rate movements (p. 28)». Their study discovered no evidence of structural change in wage formation process for any of the ten countries, except the U.K.

12 The five wage equations also include other variables (e.g. labour productivity) in addition to measures of inflation expectations and labour market conditions. For a specification of these models see Grady Economics and Associates (1985).

The pattern of prediction errors also indicates the presence of additional pressures on wage adjustments from the uneven labour market impact of recession and recovery.

Table 3
Actual and Predicted Wage Increases from Forecasting Models

<i>Year</i>	<i>CANDIDE average hourly compensation</i>	<i>Conference Board industry composite of average weekly earnings</i>	<i>DRI labour income per employed person</i>	<i>RDX Industry composite of average weekly earnings</i>	<i>Infometrica Average Annual Earnings</i>
<i>Predicted Increase</i>					
1982	12.4	10.1	8.6	10.1	11.2
1983	9.1	6.7	6.8	7.0	8.1
1984	6.0	4.3	3.0	4.1	3.8
1985	4.9	3.5	2.9	3.4	1.5
<i>Actual Increase</i>					
1982	12.6	10.1	10.6	10.1	10.7
1983	4.9	7.2	4.6	7.2	4.6
1984	3.4	5.5	3.5	5.5	3.5
1985	4.0	3.5	4.1	3.5	4.1
<i>Residual</i>					
1982	0.2	0.0	2.0	0.0	-0.5
1983	-4.2	0.5	-2.2	0.2	-3.5
1984	-2.6	1.2	0.5	1.4	-0.3
1985	-0.9	0.0	1.2	0.1	2.7

Source: Obtained from the research staff of forecasting agencies.

CONCLUSIONS AND POLICY IMPLICATIONS

The recent wage behaviour, marked by pronounced broad-based wage deceleration and innovative flexible pay systems, contrasts sharply with the inflationary wage-price spiral experienced in the 1970s and early 1980s. The decline in average rates of increase in wage settlements and other measures of compensation, the lowest in the past twenty-five years, has been dramatic. Similarly, although not as wide spread, nominal wage cuts and wage freezes, a decline in the relative importance of COLA clauses and deferred adjustments, back-loading of wage increases in multi-year contracts, and replacement of pattern bargaining by more organization-specific wage settlements have been exceptional collective bargaining responses to changes in economic conditions.

Do these changes represent a structural break in wage setting processes and mechanism, and more generally a change in the attitudes and behaviour of workers, unions and employers? The evidence presented in this paper based on estimated wage equations using the simple Phillips Curve framework shows that the recent wage deceleration in aggregate wage series can be attributed largely to a sharp reduction in price inflation and the persistent slack in the labour market since 1982. This conclusion is further corroborated by the evaluation of wage predictions from the large scale econometric forecasting models.

It is clear that the recent wage deceleration and the many union and management initiatives towards wage flexibility are unusual developments. It is much less clear, however, what these developments mean for future labour market flexibility in the union sector and for macro-economic policy making. There is no doubt that many of the changes negotiated at the collective bargaining table and elsewhere are temporary and short-run, a product of the pronounced decline in inflationary expectations and the serious concern over job security in an environment of slow and uneven employment growth and persistent high rates of unemployment. Consequently, if there is a resurgence in inflation or a marked reduction in unemployment, wage pressures would once again reappear with growing demands for catch-up for past losses in real incomes and for relative wage adjustments. At the moment this is a most unlikely scenario in light of the consensus among economic forecasters that economic growth will remain weak and the unemployment level will remain high until at least the early 1990s. Indeed, there are many other reasons for continuing optimism on wage inflation and flexibility. Prominent among these are (a) marked sectoral and regional labour market imbalances, (b) growing international competition and increasing protectionism, (c) accelerated pace of technological change, (d) continuing emphasis on public sector restraints in the face of record high budget deficits of provincial and federal governments and (e) public policy initiatives on privatization, deregulation and freer trade. All of these changes in the external environment, because of their potential short-run adverse employment impacts, are creating added job security concerns on the part of workers and their organizations, and have strengthened management emphasis on wage and employment flexibility.

While there appears to be a greater awareness among both unions and management of the emerging difficult and uncertain environment and the consequent need for a change in adversarial attitudes and behaviour through better communication, more effective consultation and information sharing, there has been very little progress made towards long-term flexibility. For example, unions remain adamantly opposed to profit sharing or gain sharing plans. Changes in work rules and work methods to

enhance mobility and to improve long-term trend productivity growth have been infrequent. Nor has there been much attention paid to training and retraining needs for better adaptation and adjustment to new technology and shifting markets. In brief, much of the collective bargaining response appears to be ad hoc and temporary, a part of the short-run survival strategy rather than an attempt at reassessing the overall compensation and employment systems required for an enduring increase in work flexibility.

It is apparent that for the recent wage responsiveness and flexibility to endure, not only would the unions and employers have to show a greater sense of adventure but the role of public policy in bringing about the change would have to increase. Government action may be required to promote flexible pay systems (e.g. more favourable treatment of profit sharing along the lines of the February 1984 federal budget proposal), appropriate level of information disclosure, universal consultative mechanisms similar to the existing statutory occupational health and safety committees, and to provide incentives for employer sponsored training and retraining. Most importantly, economic policies to stimulate employment growth are desired to ensure job security — a key prerequisite for encouraging innovation and change.

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Le freinage des salaires au Canada: réaction de courte durée ou changement structurel

Les mouvements récents des salaires au Canada tranchent sur ce qui s'est passé au cours de la décennie 1970 et au début des années 1980. Les taux moyens d'augmentation des salaires, de même que ceux d'autres formes de rémunération, ont atteint leurs niveaux les plus bas au cours des vingt-cinq dernières années et ils sont inférieurs au taux d'inflation. La baisse des salaires nominaux, les gels de salaire et les rémunérations flexibles sous forme de salaires à double palier et de paiements forfaitaires sont devenus fréquents dans les négociations collectives. Il y a eu déclin notable dans l'importance relative des clauses d'indexation et des ajustements différés de salaires ainsi qu'une tendance marquée vers le report des majorations de salaires dans les conventions collectives de longue durée et le remplacement des négociations types par des règlements salariaux plus spécifiques, plus individualisés. La

question se pose donc: ces changements signifient-ils une rupture structurelle dans les mécanismes et les processus de détermination des salaires ou sont-ils simplement une réaction naturelle et temporaire aux conditions de la vie économique en général et à celles du marché du travail?

Pour répondre à cette double question, l'article mesure les équations de salaires en recourant à diverses séries annuelles et trimestrielles. À l'aide d'une simple courbe de Philips, on y compare les changements qui se sont produits dans les salaires aux variations de l'indice des prix à la consommation (c'est-à-dire la mesure des prévisions inflationnistes) et aux taux de chômage, indicateur fondamental des conditions du marché du travail. Les équations salariales ainsi considérées indiquent un fort degré de sensibilité des salaires à l'inflation et à la situation du marché du travail, ce qui laisse voir que le freinage des salaires est pour beaucoup attribuable au déclin soutenu de l'inflation des prix et aux taux élevés de chômage qui persistent depuis 1982.

Pour vérifier s'il y avait eu cassure structurelle dans le processus des règlements de salaires, on a réévalué les équations à l'aide d'une variable prête-nom supplémentaire de 1 pour les années 1983-1985 et de zéro dans le cas contraire. Le coefficient de cette dernière variable est sans signification d'un point de vue statistique dans toutes les équations salariales, à l'exception de celle où l'on utilise les ajustements effectifs du taux de base dans les ententes établies selon l'indice des prix à la consommation. L'article compare aussi les augmentations réelles avec les majorations anticipées selon les équations de salaires estimées pour la période se terminant en 1982 et selon les équations salariales de cinq grands modèles économétriques: le modèle *Candide* du Conseil économique du Canada, le modèle de *Data Resources Inc.*, le modèle *infométrique*, le modèle *RDX* de la Banque du Canada et le modèle *MTFM* du Conference Board du Canada.

Les augmentations anticipées de presque toutes les équations salariales pour la période 1983-1985 se rapprochent passablement des majorations réelles, ce qui démontre qu'un fort chômage et une inflation faible ont été les causes premières du freinage des salaires au cours des quatre dernières années. L'analyse indique nettement que le déclin de l'inflation des salaires depuis 1972 est surtout une réaction temporaire de courte durée aux changements qui se sont produits dans l'activité économique et sur le marché du travail. Face au freinage et à l'instabilité économique, syndicats et employeurs doivent montrer plus de détermination et plus d'empressement afin d'en arriver à des compromis en matière de rémunération dans un avenir assez lointain et en ce qui concerne les enjeux de l'élasticité du marché du travail. La participation du gouvernement est aussi nécessaire afin d'encourager et de promouvoir des régimes de salaires plus souples (la participation aux bénéfices, par exemple), des consultations et des mécanismes de règlement des griefs plus nombreux entre syndicats et employeurs, un meilleur partage des informations entre eux ainsi que des primes pour les employeurs qui parrainent des programmes de formation et de recyclage. Ce qui importe encore plus, ce sont des politiques visant à stimuler la croissance et la sécurité de l'emploi en général, conditions premières de l'innovation et du changement.