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The Relationship Between Public and Private Sector Wages in the Province of Alberta

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The purpose of this study is to determine the nature and magnitude of any relationship between wage and salary changes in specified occupational classifications within the Alberta Civil Service and wage and salary changes in similar occupational classes in Alberta industry. In particular, the possibility of the « leader » role that public service wage and salary changes may play in the determination of occupational wage and salaries in other employment sectors within the Province of Alberta will be articulated.

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The hypothesized « leader » role of public service wage and salary changes is based upon two issues. First, by sheer numbers, the Alberta public service has become a « dominant » employer of many occupa-

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tional classifications in the Province. Secondly, a clearly institutionalized practice of exchanging wage data for comparative purposes exists within the Province. These exchanges of data help determine the wages and salaries actually paid to defined occupational groups. The sharing of wage and salary data on occupational classes takes place in many ways and is a continuing almost daily occurrence (either privately or through participation in numerous co-operative wage plans).

The major exchange in Alberta is embraced within the annual wage survey conducted by the Alberta Bureau of Statistics.¹ It is generally agreed that the survey provides representative data of occupational wage and salaries in the Province. It appears that the raw data collected for the annual survey reports can be used to establish the desired relationships between provincial and private sector wages.

THEORETICAL AND EMPIRICAL MODEL

Should there be any reason for government wages to affect private wages? At first glance, the answer must be no. Wages in the market should be set on the basis of productivity and consequently, unless the government lays some workers off as a result of higher wages, there should be no effect on the unionized or non-unionized sector. Stepping away from economics, the reader must realize that the laws of competition are not so closely adhered to. The Province of Alberta constitutes something less than a perfect labour market. With only two major urban centers some 200 miles apart, substantial labour mobility may be lacking between Edmonton and Calgary as well as from the surrounding areas into these cities. Given this situation some segmentation of labour markets must occur. With the Alberta government providing a relatively uniform wage structure throughout the Province, their emergence as a wage leader seems likely. There are additional reasons why private sector wages depend upon the public wage. In the private unionized sector, collective bargaining makes resulting wages indeterminate. The government settlement can affect the bargaining strategy in a number of ways. First a high wage settlement can be used by union negotiators as a wedge in their demand with private employers pointing to equal pay for equal work (whether the employer is a private or public firm). At the same time, the government settlement becomes the negotiators' and union leaders' paragon which must be beaten to keep members happy. A large government settlement would therefore make the union less strike resistant. In sum, both

¹ Alberta Bureau of Statistics, *Annual Report — Salary and Wage Rate Survey*. Edmonton. Queens Printer.

effects tend to make for a positive relationship, *cet. par.* between government and private unionized sector settlements.

How does the government affect the private non-union sector? Presumably employers in non-union establishments have a vested interest in keeping unions out as well as labour turnover down. If they do not keep pace with government (if not total equality, a constant differential), either unfavorable circumstance can occur.

The above cases have postulated that government wages affect union and non-union yet implicitly assumed the government wages are unaffected by union and non-union wages. This clearly is not the case. We know, from specific government memoranda, that government wage settlements are affected, after a lag, by private and municipal wages.

In order to separate out these two-way effects, we must develop a recursive model where wage changes in the private and municipal labour market lead to changes in the provincial labour market at a later time period and these public wage changes induce a new set of wages in the « private »² sector at a still later time. Fortunately, such a time path can be constructed. The Province of Alberta negotiated with its employees during the first half of 1969 and 1971. For the « private » sector, 85% of the firms responding to a special questionnaire either bargained collectively with a union or conducted broad salary reviews in 1970 and 1972. Thus it seems reasonable to construct the following time path for recent wage rounds : « private » wages 1968 → provincial wages 1969 → « private » wages 1970 → provincial wages 1971 → « private » wages 1972.

The incremental effect of provincial wages upon private and municipal wages can be estimated by formulating the following hypothesis. The wage paid any worker in occupation *i* working for a private or municipal enterprise *j* depends upon his own wage last year and last year's wage rate of workers in the provincial government who perform the same job. In symbolic form, 1970 and 1972 « private » sector wages are expressed by the following equations :

$$(1) \quad W_{ij1970} = a_1 + b_1 W_{ij1969} + C_1 W_i G_{1969}$$

$$(2) \quad W_{ij1972} = a_2 + b_2 W_{ij1971} + C_2 W_i G_{1971}$$

² « Private » will be used to refer to all non provincial government wages included in the sample.

where :

W_{ij} = wage of worker in occupation i for firm j .

WiG = wage of worker in occupation i for the provincial government.

The coefficients C_1 and C_2 represent the impact of the provincial wage settlement on « private » wages the following year, holding constant what « private » wages were at the time of the Alberta government settlement. Equations (1) and (2) are not entirely satisfactory because provincial government wages in 1969 and 1971 are likewise correlated with « private » wages in 1968 and 1970 respectively. Thus the coefficients C_1 and C_2 will likely overestimate the provincial government impact because it contains the influence of « private » wages in 1968 and 1970 on « private » wages in 1970 and 1972, respectively. A better specification of the model would be that a worker's wage in occupation i and « private » enterprise j depends on his own wage for the past two years and last year's provincial government wages for occupation i :

$$(1') \quad W_{ij1970} = a_1 + b_{11}W_{ij1969} + b_{12}W_{ij1968} + C_1WiG_{1969}$$

$$(2') \quad W_{ij1972} = a_2 + b_{21}W_{ij1971} + b_{22}W_{ij1970} + C_2WiG_{1971}$$

With no wage data prior to 1969 available, (1') cannot be estimated. Equations (1), (2) and (2') are therefore estimated using linear regression techniques. It should be noted, however, that the estimates of provincial government wage settlements upon « private » wages in equations (1) and (2) will likewise be greater than the government's actual impact.

To measure the private and municipal sector's impact on the government wage settlement, provincial wages in occupation i are hypothesized to depend upon past wages and past wages of workers in the same occupation for a « private » enterprise :

$$(3) \quad WiG_{1969} = a_3 + b_3W_{ij1970} + C_3WiG_{1967}$$

$$(4) \quad WiG_{1971} = a_4 + b_4W_{ij1970} + C_4WiG_{1969}$$

Data constraints only allow estimation of equation (4), which will measure the « private » impact upon the 1971 government wage bargain, holding 1969 government wages constant, 1969 being the last time wages were changed.

The data come from the Alberta wage surveys from 1969 to 1972. The sample is composed of all average monthly wages and salaries paid to workers whose job classification corresponds to work performed by

provincial employees. Only firms with fifty or more employees were included. The resulting sample contains 3840 observations on average monthly wages paid in 63 firms for approximately 75 jobs performed in both the public and « private » sectors. An additional survey administered by the provincial government allowed us to classify whether office and non-office workers were unionized in any of our sample firms. Accordingly equations (1), (2), (2'), and (4) are estimated for various sub-groups as well as the total sample.

In the final section of the empirical results we remove all municipal enterprises from the sample to segregate provincial government linkages to the private sector. Equation (2') is re-estimated using this limited sample.

EMPIRICAL RESULTS

Table 1 summarizes the impact of the Provincial government on various sub-groups of the private and municipal sector for 1970.

Although the 1969 provincial wage settlement was unrelated with « private » wages overall in 1970, the government appears to have influenced the wages paid to « private » office workers. A one dollar per month increase in provincial government office wage correlates with an extra \$.125 per month for unionized and \$.10 for non-unionized office workers in the private sector. By contrast the provincial government wage settlement is not significantly related to « private » non-office wages in 1970.

Table 2 presents the estimates of the Province's effect upon 1972 « private » wages. For each sample the regression is estimated with « private » wages lagged for one year (specification I) and « private » wages lagged for two years (specification II). The two year lag is theoretically superior while the one year lag is more comparable with results for 1970 wages (Table 1). In general, the 1972 provincial government impact appears to have been greater than during the 1970 wage round. For office work, a \$1 increase in monthly provincial office wages corresponds to 1972 wage increases \$.19 a month as opposed to \$.11 in 1970. These results hold for both the unionized and non-unionized subsectors of office work. One important conclusion to be drawn is that the provincial government has become a more important locus of wage comparison for office jobs in the eyes of both organized labor and non-union employers.

TABLE 1
1970 Wages in the Private and Municipal Sectors

	<i>Constant</i>	<i>Private and Municipal Wage 1969</i>	<i>1969 Provincial Gov't Wage</i>	<i>R²</i>	<i>F/d.f.</i>
Total Sample	46.68	.920 (73.2)	-.001 (0.2)*	.84	2794. (2,1026)
All Office	31.60	.932 (44.9)	.110 (4.7)	.84	1624. (2,618)
Union	43.39	.920 (25.4)	.125 (3.0)	.84	498. (2,185)
Non-Union	29.62	.934 (36.9)	.104 (3.6)	.84	1110. (2,430)
All Non-Office	17.39	.974 (63.0)	.005 (1.9)*	.91	2017. (2,386)
Union	30.82	.956 (59.4)	.006 (1.8)*	.91	1795. (2,336)
Non-Union	-53.29	1.06 (16.7)	.104 (1.9)*	.92	153. (2,300)

T-Statistic in Parenthesis.

All coefficients are significant at the 1% level except :

* Not significant.

** Significant at the 5% level.

The best estimates of the provincial wage impact came from Table 2 specification II. Here we were able to lag private and municipal wages for two years, thereby removing a source of positive bias. A \$1 a month increase in provincial wages negotiated in 1971 correlates with an increase of \$.16 a month for all office workers in the « private » sector for the following year. In percentage terms, a one percent increase in 1971 provincial wages corresponds to a .13% increase for unionized office workers and .142% for non-union office workers. The 1971 provincial wage agreement called for a 6.4% flat increase which translates to an extra .9% wage increase for private and municipal workers the following year. We believe this is a non-trivial impact.

TABLE 2
1972 Wages in the Private and Municipal Sector

		<i>Constant</i>	<i>Private and Municipal Wage 1971</i>	<i>Private and Provincial Municipal Government Wage 1970</i>	<i>Wage 1971</i>	<i>R²</i>	<i>F/d.f.</i>
Total Sample	I	5.43	.926 (70.1)	—	.133 (9.8)	.95	9702. (2,1026)
	II	25.25	.669 (19.9)	.312 (8.3)	.074 (4.9)	.95	6914. (3,1025)
All Office	I	-7.49	.882 (66.1)	—	.190 (13.7)	.97	10316. (2,618)
	II	.50	.771 (19.)	.138 (2.9)	.160 (9.3)	.97	6962. (3,617)
Union	I	-3.66	.918 (42.4)	—	.167 (7.5)	.98	5115. (2,186)
	II	-1.22	.845 (17.1)	.101 (1.6)*	.142 (5.3)	.98	3442. (3,184)
Non-Union	I	-6.00	.876 (53.4)	—	.188 (11.0)	.97	6270. (2,430)
	II	6.53	.719 (12.9)	.192 (3.0)	.148 (6.9)	.97	4258. (3,449)
All Non Office	I	.40	1.01 (34.7)	—	.065 (2.3)**	.90	1705. (2,386)
	II	.38	.703 (12.3)	.391 (6.2)	.027 (.9)	.91	1259. (3,385)
Union	I	-5.71	1.01 (34.2)	—	.070 (2.4)**	.91	1671. (2,336)
	II	-2.77	.633 (10.1)	.481 (6.8)	.016 (.6)*	.92	1277. (3,335)
Non-Union	I	39.23	1.02 (7.1)	—	-.013 (.0)*	.80	59. (2,30)
	II	34.73	.978 (5.2)	.039 (.2)*	-.012 (.0)*	.80	46. (2,29)

T-Statistic in Parenthesis.

All Coefficients are significant at the 1% level except :

* Not significant.

** Significant at the 5% level.

TABLE 3
1971 Provincial Government Wage

	<i>Constant</i>	<i>Provincial Government Wage 1969</i>	<i>Private and Municipal Wage 1970</i>	<i>R</i> ²	<i>F/d.f.</i>
Total Sample	133.64	.041 (6.1)	.830 (54.1)	.76	1598. (2,1026)
All Office	126.43	.033 (1.2)*	.846 (38.6)	.79	1138. (2,618)
Union	93.61	-.039 (.85)*	.946 (26.0)	.83	465. (2,185)
Non-Union	131.62	.063 (1.9)*	.813 (30.1)	.77	724. (2,430)
All Non-Office	133.21	.024 (3.6)	.861 (24.6)	.63	325. (2,386)
Union	119.58	.104 (3.2)	.882 (24.2)	.65	311. (2,336)
Non-Union	232.26	.031 (1.1)*	.679 (4.0)	.42	14. (2,30)

T-Statistic in Parenthesis.

All Coefficients are significant at the 1% level except :

* Not significant.

** Significant at the 5% level.

We turn our attention to the impact of the private sector on the provincial government. From Table 3 we see that in virtually every sample the 1970 « private » sector wage is vastly superior to the 1969 provincial wage in predicting the 1971 provincial wage. It does appear that changes in the unionized private sector seem to be given more careful consideration by provincial negotiators than non-union changes. For office workers the unionized « private » enterprise impact is .946 while the non-union impact is .846. Similar results occur for non-office jobs. In general, these results are consistent with the acknowledged position of The Alberta Government negotiators that one of their primary concerns is a settlement which compares closely with the private sector. The resulting bargaining pattern appears to be as follows. Major wage level and structure changes occurring in the « private » sector are incorporated into the provincial wage

settlement. Then these public wage changes act as a small ratchet on next years office wages.

Table 4 reports the relationships between the 1971 provincial wage settlement and 1972 wages in purely private industry. In particular, all municipal enterprises including hospitals and schools have been removed from the sample. Provincial wages are only related to the wages of non-union office workers in private enterprises. No significant impact on other wages exists. A \$1 monthly increase in provincial government wages corresponds to a 14¢ a month wage increase for non-union office workers. In percentage terms, the 6.4% wage increase granted by the government links to average wage increases of .77% for these private sector workers.

TABLE 4
1972 Wages in the Private Sector

	<i>Constant</i>	<i>Private Wage 1971</i>	<i>Private Wage 1970</i>	<i>Provincial Government Wage 1971</i>	<i>R²</i>	<i>F/d.f.</i>
Total Sample	37.02	.649 (14.)	.303 (5.9)	.073 (3.7)	.95	3360. (3,301)
All Office	-15.33	.745 (14.)	.289 (5.9)	.105 (3.8)	.95	1795. (3,301)
Union	67.40	.893 (8.)	.172 (1.7)*	-.157 (1.8)*	.96	227. (3,27)
Non-Union	-28.76	.704 (16.)	.330 (6.1)	.143 (4.7)	.95	1617. (3,269)
All Non-Office	11.36	.757 (8.)	.346 (3.7)	-.010 (0.2)*	.88	452. (3,177)
Union	8.12	.647 (6.3)	.469 (4.0)	-.014 (0.3)*	.90	435. (3,129)
Non-Union	17.30	.989 (4.2)	.052 (0.2)*	.003 (0.0)*	.79	37. (3,29)

T-Statistics in Parenthesis.

All Coefficients are significant at the 1% level except :

* Not significant.

The important findings of this study can be summarized as follows :

- (1) Changes in provincial wages and salaries for office workers have had a significant positive influence upon wages of similar occupations in the private and municipal sectors for the 1969 and 1971 wage rounds. No such relationship is found for wages of non-office workers.
- (2) Of the two wage rounds, the Province clearly had a stronger positive relationship with private and municipal wages in 1972. One reasonable hypothesis is that provincial government wage rates are becoming a more important locus of comparison to unions and employers of non-unionized firms. One might expect an even greater impact on « private » sector wages from the 1973 provincial government wage negotiations.
- (3) As well as being a wage leader, the provincial government is a strong follower of « private » wages, particularly in the unionized labor market.
- (4) The influence of 1971 provincial government wage increases on purely private enterprises is smaller in magnitude and only significant for non-union office wages in 1972.

Les rapports entre les secteurs public et privé en matière de salaires en Alberta

L'Alberta est loin de constituer un marché du travail parfait. Ne comptant que deux centres urbains importants situés à quelque deux cents milles l'un de l'autre, il ne peut guère exister de mobilité de la main-d'oeuvre entre Edmonton et Calgary et entre leurs banlieues respectives. Les marchés du travail ne peuvent donc, dans une certaine mesure tout au moins, qu'être fragmentés. Étant donné que le gouvernement albertain applique une structure des salaires relativement uniforme d'un bout à l'autre de la province, il va de soi que, à cause de son importance comme employeur, il joue un rôle considérable dans la détermination des taux de rémunération. En outre, les négociateurs syndicaux du secteur privé peuvent utiliser comme coin contre les employeurs un règlement sur les salaires dans le secteur public. De plus, l'entente entre le gouvernement et ses employés devient pour les dirigeants syndicaux une réussite à dépasser en vue de faire le bonheur de leurs membres. Ces deux faits ont évidemment une influence marquée sur les ententes qui sont négociées tant dans le secteur privé syndiqué que dans le secteur public.

La politique du gouvernement en matière de salaires pèse aussi d'un certain poids sur le secteur privé non-syndiqué. Si les taux de salaires payés par les employeurs du secteur privé non-syndiqué sont trop inférieurs à ceux que versent le

gouvernement, il est probable que la capacité des employeurs de contenir la montée du syndicalisme et d'empêcher le roulement de la main-d'oeuvre sera réduite.

Le gouvernement ne fixe pas les salaires de ses employés sans tenir compte des taux qui sont payés tant dans les entreprises syndiquées que dans les entreprises non-syndiquées. Nous savons, à partir de documents explicites, que le règlement des questions salariales subit, avec un certain décalage, l'influence des taux de salaires qui sont versés par les entreprises privées et les municipalités.

L'Alberta a négocié avec ses employés pendant la première moitié des années 1969 et 1971. Quatre-vingt cinq pour cent des établissements qui n'appartiennent pas au secteur gouvernemental ont négocié de nouvelles conventions collectives ou ont procédé à une révision générale des salaires en 1970 et en 1972.

En conséquence, est-il possible de tracer un modèle régressif où il apparaîtra que le salaire payé à un employé exerçant le métier « i » travaillant pour une entreprise privée ou une municipalité « p » est fixé en tenant compte à la fois du salaire qu'il touchait au cours des deux années précédentes et du taux de salaire des employés du gouvernement provincial qui exécutent un travail identique. Ce modèle est tiré de données extraites de relevés du gouvernement d'Alberta pour les années 1969 et 1972.

Ainsi, peut-on résumer les constatations de cette étude de la façon suivante :

1. Les changements dans les traitements des employés de bureau du gouvernement provincial ont eu une influence positive marquée sur les traitements des employés de même catégorie dans l'entreprise privée et les municipalités en ce qui concerne les rondes de négociation des années 1969 et 1972. On ne décèle aucune relation semblable en ce qui a trait aux autres groupes d'emplois.
2. De ces deux rondes de négociation, c'est celle de 1972 où la Province a exercé le poids le plus marqué sur la fixation des taux de salaires dans l'industrie et dans les municipalités.
3. Même s'il exerce une influence sur les salaires, le gouvernement, en contrepartie, subit aussi fortement l'influence des taux de salaires qui sont fixés dans le secteur privé, principalement là où il existe des syndicats.
4. Lorsqu'on exclut les municipalités de l'échantillonnage, l'influence des augmentations de salaires accordées par le gouvernement est moins grande sur les entreprises privées et n'a été significative en 1972 que dans le cas des employés de bureau non syndiqués.