WAGE RATES, REGION AND CITY SIZE: AN OCCUPATION-SPECIFIC APPROACH

Lewis A. Soroka
Department of Economics
Brock University
St. Catharines, Ontario
L2S 3A1

Introduction

The existence of regional income differences has long been established, as well as income differences by city size. Studies of these differences usually utilize aggregate income data of one form or another, and frequently attempt to standardize for such variables as industrial structure and labour force quality [7]. In this study, regional and city size differences are examined in a microeconomic way by using occupation-specific wage data. A separate equation is estimated for each of forty-four clerical and maintenance occupations; in each case, the dependent variable (the wage rate) is regressed on a series of independent variables including city size and region. This approach, which suffers from being unable to cover the full population of occupations, nonetheless has several useful features. It greatly reduces the need to standardize incomes, for each occupational group can, with the exception of a few variables discussed below, be regarded as homogeneous. This leads, in turn, to a more detailed understanding of what we might call the structure of aggregate income differentials; i.e., the extent to which they are due to differences in the job content of a region's or city's economy, as opposed to differences in wage rates. At a second stage, the occupation-specific results are grouped so as to examine regional and city size differentials by both sex and type of occupation. This analysis produces some rather striking regularities, particularly with regard to the effects of region and city size on male versus female workers. These
results highlight the extent to which labour markets within regions and cities consist of segregated sectors.

The distinction between average and occupation-specific differentials is an important although sometimes neglected aspect of regional problems. The occupation-specific approach focuses attention on problems of horizontal equity, or the equal treatment of equals across a country. We may think of the equity issue in two dimensions. First, individuals in different regions may have access to different levels of public services since, in a federation such as Canada where provincial governments are responsible for a significant proportion of the public sector, low income taxpayers can lead to the fiscal impoverishment of the provincial government and consequently a low level of public services. This is not, however, a major concern in Canada because of the existence since 1957 of federal-provincial equalization payment agreements. The agreements, which have been renewed and generally expanded every five years, provide for payments from the federal to provincial governments to make up for any revenue shortfalls due to lower than average per capita tax bases in the provinces. The plan thus ensures that provincial governments have the fiscal resources to provide a national average level of service irrespective of their own tax bases. One can then argue that a substantial remaining component of the regional problem is the extent to which individuals with similar occupations and skills are treated differently across the country. An understanding of regional differences in occupation-specific wage rates can contribute to an appreciation of this problem and, in particular, the degree to which the regional problem is a significant equity issue. The results of this study suggest that the principle of interregional equity is perhaps better served than is suggested by more aggregative analyses.

A reasonable degree of horizontal equity can also have some effect on the interregional adjustment mechanism. Neo-classical growth models argue that regional disparities are reduced over time by flows of factors responding to interregional differences in factor prices [3]. In such aggregative models the relevant factor price is not always carefully specified, but the literature on labour migration suggests that it is some combination of interregional differences in earnings and employment opportunities which produces migration of workers; before migration takes place, however, these interregional differences must be sufficiently great to overcome both the economic and psychic costs of moving. While general economic conditions in regions - average income levels, unemployment rates, growth rates - may be useful indicators of these earnings and opportunity differentials, it is also likely that some potential migrants respond to rather more specific variables such as wage rates in particular occupations. An understanding of interregional differences in occupation-specific wage rates can therefore contribute to a better appreciation of the migration process and through that the neo-classical adjustment process. If, for example, interregional differences in occupation-specific wage rates are smaller than are differences in average incomes, implying considerable differences in the occupational mix across regions, the neo-classical adjustment process might not operate despite the existence of what appear to be poor regions. It is not the purpose of this study to deal directly with this problem, but our findings on occupation-specific wage rates have some implications for the neo-classical adjustment process.

The concurrent examination of the effects of region and city size on wage rates can provide some guidance for regional policies. One way in which Canadian regions differ significantly from each other is in the size of the cities they contain; cities are generally much smaller in the poorer regions. While it is generally recognized that wage rates rise with city size, it is important to know if the extent of the increase is sufficient to make a policy of urban development a reasonable approach to overcoming regional disparities. Our findings suggest that it is not, although there does appear to be some special potential for the development of typically urban-based office occupations in the poorer regions.

Hypotheses

Theoretical reasons for a relationship between city size and wage rates have been elaborated on elsewhere [8; 10]. It is nevertheless useful in the context of the present study to briefly review these hypotheses in a somewhat specific framework. First, there are some population hypotheses which predict that wage rates will rise at approximately the same rate for all occupations as city size increases. These hypotheses include the cost-of-living argument, which suggests that wage rates will respond positively to higher living costs, including commuting costs, in larger cities [12]. It has also been argued that some perceived disamenities of big city living - congestion, pollution and crime are three which are frequently mentioned - will necessitate higher wage rates in larger
cities. In both cases, we would expect the positive relationship between wage rates and city size to be reasonably uniform across occupations. Other hypotheses lead to a prediction of rising wage rates for some, but not all, occupations as city size increases. Higher levels of productivity in larger cities, whether a result of higher capital/labour ratios or agglomeration advantages, are likely to affect some occupations more than others [19; 23]. The greater likelihood of oligopsony in a small city would produce rising wages for some occupations as city size increased. A differentiated impact would also be produced by different patterns of demand for different types of workers, especially if labour supply cannot respond freely. An important example is the case of married female workers who may not be able, because of family ties, to move to centres where there is greater demand for typically "female" occupations such as office workers; this is referred to as the captive worker hypothesis, and it leads to a prediction of wage rates for females rising more rapidly than for males as city size increases.

A different, but related hypothesis suggests that wage rates may be positively related to the city's growth rate because of a lagged response on the part of labour supply, through migration, to a rapidly increasing demand for workers. We test for this effect, and anticipate that it should be greater for less mobile occupational groups; in the context of this study, we would expect a greater impact on wages of female workers who, for the reasons outlined above, are likely to be less mobile than male workers.

Regional wage rate differentials may arise for many reasons, some of them similar to those hypothesized for the population variable. In fact, city size itself has been cited as one cause of such differentials [7], but this is not a consideration in this study since regional effects are estimated independently of city size effects. Studies of regional differences in average incomes have also had to consider the effects of regional variations in labour force participation rates and unemployment rates; once again, we ignore these factors since we are dealing here with individual wage rates. The productivity hypotheses discussed above are, however, as relevant for regions as for cities [7], as is the captive worker hypothesis. Overall, then, we expect regional wage rate differentials to be significant for all categories of workers, but larger for females than for males because of the effect of captive workers.

We do not consider industry mix to be an important determinant of regional differences in occupation-specific wage rates. This may at first appear surprising, since industrial structure is a major determinant of the demand for different types of labour and is thus sometimes viewed as a major cause of interregional wage rate differentials [8]. Goldfarb and Yezer [10:353] dispute this view, arguing that it "ignores both the necessity of cooperating supply side factors and the strong possibility that the industries in question are high wage because other cost advantages dictate that they locate in a high wage area." Their analysis of industry mix supports this view. Apart from these theoretical considerations, the relatively small size and varied industrial structures of Canadian cities result in many cities not having many industries, or having sufficiently few firms in an industry so that confidentiality requirements preclude the publication of data by Statistics Canada. Nevertheless, the second stage of this analysis, utilizing discriminant analysis, does include some broad measures of industry mix; they turn out not to be significant.

The other variables which enter the equations described below are intended more to provide a homogeneous wage series than to test specific hypotheses. We anticipate that a greater degree of unionization in an occupation will accompany a higher level of wage rates. Similarly, there has been some evidence that wages tend to be higher in larger sized establishments [16; 14; 18]. Finally, the equations include a variable for the effect on wage rates of employment in manufacturing as opposed to other industries. This variable is of some interest in a regional context, for the manufacturing sector is more likely to serve national markets than is the service sector. This increases the likelihood of the manufacturing firm being efficient in a national context; it also frees the firm from purely local demand conditions, which can be especially important in lower income areas. These considerations, when combined with the possibility of oligopoly profits, lead to a prediction of a positive relationship between wage rates and employment in manufacturing industries.\(^5\)

\(^3\)As a referee has pointed out, this hypothesis can also be applied to large cities. This is not considered to be of major importance in this study both because of high rates of car ownership and the decentralization of employment opportunities; it could, of course, remain a factor where these tendencies are less pronounced. For a discussion of the problem of "captive" workers in an urban area, see Chinitz [4].

\(^4\)It should be noted that this variable does not provide a test of industrial structure, since it measures only the proportion of the sample group employed in manufacturing. A more explicit manufacturing variable is tested below.

\(^5\)These hypotheses are distinct from any effects which may be created by the high degree of unionization in the manufacturing sector; unionization is considered separately above.
Data and Results

The testing of these hypotheses is carried out by fitting a separate regression equation for each of forty-four office and maintenance occupations. The equation for each of the occupations is of the form:

\[ WR = \text{POP} a \times \text{DA} b \times \text{DQ} c \times \text{DP} d \times \text{MAN} e \times \text{UN} f \times \text{SI} g \times \text{RPOP} h \]

where
- \( WR \) = average wage rate in 1974
- \( \text{POP} \) = population of city
- \( \text{DA}, \text{DQ}, \text{DP}, \text{DB} \) = dummy variables for the Atlantic, Quebec, Prairie and British Columbia regions respectively (Ontario is the benchmark region)
- \( \text{MAN} \) = percentage of workers in the survey group employed in manufacturing industries
- \( \text{UN} \) = percentage of workers in the survey group who were unionized
- \( \text{SI} \) = percentage of workers in the survey group employed by establishments with more than 100 employees
- \( \text{RPOP} \) = percentage increase in the city's population, 1970-1975

The population variables (POP and RPOP) are measured for Census Metropolitan Areas (CMA) and Census Agglomerations (CA); a CMA is essentially a CA with an urbanized core of over 100,000 people. The data for POP are from the 1971 census, while those for RPOP come from the 1971 and 1976 censuses [21; 22]. The cities in the sample range in size from 25,253 (Charlottetown) to 2,729,211 (Montreal). The specification of POP in the equations implies that population has a continuous non-linear effect on wage rates, rather than the step effects sometimes hypothesized for city size groupings [10; 15]. This specification is used largely for data reasons, because there are relatively few sample cities in some size categories.\(^6\) The data for four of the variables (WR, MAN, SI and UN) are taken from the 1974 Labour Canada survey of all firms employing more than 20 workers [13]. The year 1974 was selected because the sample of cities (35) was a little larger than usual in that year. The wage rates (WR) for the sixteen female and twelve male office occupations in the study are weekly wages for full time employees; hourly wage rates are used for the sixteen male maintenance and service occupations. Occupations were selected for this study on the basis of the availability of data for as many cities as possible; while there are some missing data in the sample used here, there are at least twenty-eight cities for each occupation, and more usually in excess of thirty. The occupations themselves are rather narrowly defined; a typical office occupation is "accounting clerk, junior, female", while a typical maintenance category is "welder, maintenance, male".

It is difficult to know precisely how representative the workers in the occupations examined here are of the broader work force in the cities. We do know from census data [21] that female office workers make up from 23.0 to 45.2 percent of the employed female labour force in the sample cities. Male office workers constitute from 4.6 to 12.3 percent, and male maintenance workers from 7.5 to 12.9 percent of the employed male labour force; overall, these two categories include from 15.1 to 22.9 percent of the employed labour force in the cities used. While it is difficult to generalize without knowing the statistical properties of the Labour Canada survey, we can say that the types of occupations represented by the forty-four used in this study constitute a substantial proportion of the employed urban labour force.

The dummy variables are based on the five commonly used regions of Canada. The regions are all large, and lack internal homogeneity except in very broad ways. The four Atlantic provinces make up the poorest region, followed by Quebec. The three Prairie provinces contain some diversified manufacturing (Manitoba), an oil sector (Alberta and, to a lesser extent, Saskatchewan), and agriculture; these industries have in the past combined to produce a regional average income a little below the national average. The resource-based industries of British Columbia have produced the highest average income in the country, just slightly ahead of Ontario, which is the most heavily industrialized province.\(^7\) It would have been preferable in this study to deal only with individual provinces, but the provinces within the two regional groupings have too few cities to permit this degree of disaggregation.

The regression results are generally satisfactory.\(^8\) The coefficients are, almost without exception, correctly signed. The R\(^2\) is...

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\(^6\)The equations were all run omitting Vancouver, Toronto and Montreal, the only CMAs with populations in excess of 1 million. The coefficients and fits of the equations did not substantially change.

\(^7\)For a recent discussion of the economic situation and development prospects in the regions, and in individual provinces, see Department of Regional Economic Expansion [6].

\(^8\)Detailed results are not reproduced here, but are available on request from the author.
usually good, and sometimes very good, for cross-section data - it is above 0.5 for 26 of the 44 equations, and below 0.3 for only 3 equations. Table 1 shows the regression results in summary form. The table contains, for each variable, the average value across occupations of the coefficients which are significant at 5 percent; the coefficients of the regional dummies have been converted to wage differentials, so the numbers in those columns may be read directly as the percentage difference between Ontario and the other regions' wage rates. The table also contains, in parentheses, the percentage of occupations for which the coefficient is significant. The regional variables are very important for three of the four regions outside of Ontario. In the Atlantic region, 61 percent of the occupations show significant coefficients for the regional dummy variable and the average value of the differential for the occupations affected indicates wage rates 13.62 percent below Ontario wage rates. In Quebec, 68 percent of occupations are affected, but the average wage rate in affected occupations is only 11.86 percent below the Ontario standard. Only 27 percent of occupations are affected in the Prairies region, with the average wage in these occupations 9.82 percent below Ontario levels. British Columbia shows a positive regional differential in 52 percent of the occupations, and the average value of the differential is 18.10 percent.

The effect of city size is not as widespread as might have been expected, for only 23 percent of the occupations show significant population coefficients. The magnitude of the city size effect is, however, substantial for those occupations affected. The average value of the significant coefficients is 0.0341, indicating an average increase in wage rates for affected occupations of 3.41 percent for each doubling of city size, or a differential of 13.64 percent between a city of 125,000 people and one of 2 million people.

The weakest explanatory variable is RPOP - the city growth rate. Its coefficients are significant in only 5 of 44, or 11 percent, of the occupations, and the signs are mixed. The coefficients of the manufacturing, establishment size and unionization variables are significant in 36, 30 and 43 percent of the cases respectively. The establishment size variable does not produce the expected effect in that, with the exception of two cases, its coefficients are equal to the average value of the significant coefficients times the percentage of occupations for which the differential is significant. These average differentials, which amount to unweighted averages of coefficients across all occupations in the sample, are shown in Table 2, column 1. The average differential for the population variable is only 0.0078, indicating a 0.78 percent increase in wage rates with each doubling of city size; on this basis, wage rates would be 3.12 percent higher in a city of 2 million people as compared with a city of 125,000.

The average differential for the regional dummy is only -8.31 for the Atlantic region, -8.06 for Quebec, -2.65 for the Prairies and 9.41 for British Columbia. While the regional differentials measured in this way are substantial, they are a good deal lower than the differentials usually associated with Canadian regions except for British Columbia, where the positive differential of 9.4 percent exceeds other estimates. For example, the Economic Council of Canada [7:39] cites data which produce, in comparison with Ontario, differentials in wages and salaries per employed person...
The two estimates of differentials are not irreconcilable, given the differences in the levels of aggregation used as well as the standardization for city size employed in this study; nonetheless, the substantially smaller differentials in occupation-specific wage rates shown in this study cast the problem of regional income disparities in a somewhat less harsh light, and suggest that a significant portion of the average income differentials are produced by different occupational mixes in the regions.

**Occupational and Sex Differences**

An examination of results by sub-category provides further insights into the pattern of differentials. The sub-categories used are office workers, maintenance and service workers, female workers, male workers, and male office workers. There is considerable overlap among these groups, since over half the office workers are female and all maintenance and service workers are male. Much of the discussion which follows is, therefore, restricted to three mutually exclusive groups - maintenance and service (referred to as “maintenance” for simplicity), male office and female office. Results for all groups are, however, shown in Table 1.

The effects of region are strong and strikingly consistent. Where regional differentials are negative - in the Atlantic, Quebec and Prairie regions - significantly lower wage rates are experienced more often by females as compared with males. In British Columbia, where the regional differential is positive, higher wage rates are experienced less often by females. This provides strong support for the captive worker hypothesis, particularly since, within the office category, fewer males than females are affected by negative differentials. Generally, though, the size of the differential is somewhat lower for females as compared with males.

A word of caution is in order on these results. The dichotomy examined here is not of the same type as those contained in other studies, for there is no direct comparison of female with male earnings. Rather, the comparison is with the same gender group in Ontario. Further, it is difficult to draw conclusions as to the reasons for the male-female differences which this study produces, for we do not consider, nor would the data make it possible to consider, the effects of any differences between male and female factor endowments [17; 11; 20].

Despite these constraints, however, one can say the following. Given that there is evidence of discrimination against female workers in Ontario [17], these results suggest a greater degree of discrimination in other regions unless differences between male and female factor endowments and industry of employment are substantially greater in other regions than in Ontario. If we suppose that this is not the case, there appears to be support for the view that there is a regional factor involved in the size of male-female wage differentials. The captive worker hypothesis, which is precisely this sort of regional argument, may well have some validity.

These results produce clear patterns for average differentials, shown in Table 2. Negative regional differentials for the Atlantic, Quebec and Prairie regions are always larger for female workers than for male workers. Within the office category, however, these differentials are larger for male than for female workers. The regional variable for British Columbia produces the opposite effect - the differential, which is positive, is larger for male than for female workers, and for female office workers than for male office workers. Generally, then, wage rates are lower relative to Ontario for office occupations than for maintenance occupations; where the office category wages for male workers are lower relative to Ontario than are female wages. Quebec is the exception, with male office workers doing somewhat better than female

*These results are contrary to the findings of Goldfarb and Yezier [10], who found that, in the U.S., both regional and city size effects were more pronounced for blue collar workers than for white collar workers.
office workers relative to Ontario; this is not unreasonable given
that the large, diversified economy in Quebec includes a well-
developed office sector. The results for the population variable indicate little support for the cost and amenity hypotheses, although they too are consistent with the captive worker hypothesis. The average differential for city size is only 0.0078, and the pattern is very similar to that for the regional dummy variables: as city size rises, wage rates rise more rapidly for office than for maintenance workers, and for female more rapidly than for male workers. This variable also has more impact on male office workers as compared with maintenance workers. Quite clearly, city size affects office workers, both male and female, far more than maintenance workers. Further, the coefficient of variation for the (significant) population coefficients within occupational groups is far larger than for the regional dummy variables. For example, for male occupations the coefficient of variation for Atlantic region dummies is 0.0423, while for the population variable it is 0.2558. Thus, if any variable provides a relatively consistent effect on wage rates across occupations it is the regional, not city size, variable. And while there may be a cost-amenity component to the regional differentials, it is not likely to be substantial given the size and lack of internal homogeneity in the regions.

It is also interesting to note that the regional differentials are far larger than are the wage rate differentials produced by city size. Imagine, for example, a female office worker in Charlotte-town which, with a 1976 population of just under 25,000, is the smallest Atlantic city in the sample. The average population coefficient for this worker, shown in Table 2 as 0.0117, indicates that a move to the Halifax-Dartmouth CMA, the largest city in the region with a population of 268,000, would raise that worker's wage rate by about 4 percent. This is less than half the 9.2 percent regional differential for this worker. Looked at slightly differently, the female office workers in an Atlantic city of over a quarter of a million people would still have a wage rate more than 5 percent below the wage rate for a similar worker in an Ontario city of 25,000. The results would be similar, with minor variations, for male workers, and would apply as well for workers in Quebec. Only in the Prairie region, where the regional differentials are relatively low for all categories of workers, is it possible to imagine that a movement to a larger city within the region could raise a worker's wage rate by as much as a move to a small city in Ontario. A move to British Columbia, with its positive wage differentials, can be expected to produce a greater increase in a worker's wage rate than almost any move to a larger city within any region. This dominance of the regional effect has some implications for policy, which will be discussed below.

The remaining variables, which were included in the equations primarily to standardize the sample data, are less conveniently interpreted than are the regional and city size variables. Employment in manufacturing is clearly more important for male workers, especially those in the maintenance occupations. As shown in Table 2, employment in manufacturing tends to raise wage rates for maintenance workers more than for office workers; it also has a greater positive impact on male office workers as opposed to female office workers, and for male maintenance, as opposed to male office workers. The size variable produces opposite effects - lower wage rates for maintenance and male workers, as well as for males within the office group and maintenance within the male group. This latter result is contrary to expectations, although the effect is not very strong. It may be correct to attribute the result more to the particular set of occupations in the sample, rather than to general characteristics of larger industries.

The unionization variable produces only one unexpected result - it is negative for male office workers. This results in the overall effect of unionization being greater for female office workers than for male office workers, but lower for female office workers than for maintenance workers; one would not want to attribute a causal relationship to this result, which may only mean that unionization of male office workers has occurred where wage rates for this group are low.

The results do not confirm the hypothesis that a city's growth rate of population has a stronger positive impact on less mobile occupations. While the coefficient of RPOP is significant more often for females than males (25 percent versus 4 percent), the signs are mixed. The most probable explanation is that rapid population growth affects the supply side of the labour market at least as rapidly as the demand side.

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10 A referee has raised the possibility that the results for office workers are affected by employment in the government sector, where wage rates are likely to be higher than in the private sector. This is indeed a possibility, but one which is not easily tested using the data in this study since the occupational wage series contain no information on the number of workers in the sample who are employed in the government sector.

11 The Economic Council of Canada [7:129], has not found important cost-of-living differences across city sizes. It suggests that housing costs in larger cities are offset by lower food costs.
Analysis of Residuals

The residuals from the wage equations provide the opportunity for a city-by-city view of wage rates. Occupation-specific wage rates in a city may be expected to be above the levels predicted by the equations for some occupations, and below the predicted levels for others; one might expect, as a working hypothesis, that one-half the occupations would fall into each category. Any city with a significantly larger proportion of occupational wage rates above predicted levels may be classed as a high wage city. This critical proportion is two-thirds, using the normal approximation to the binomial distribution at a 2.5 percent significance level. We can thus distinguish nine cities with occupational wage rates significantly above predicted levels. Conversely, we can identify 11 low wage cities on the basis of their having two-thirds or more of their wage rates below predicted levels. One would expect that some aspect of general labour market conditions would differ between these two groups of cities, conditions not captured by the variables used in the wage equations. In order to test this, discriminant analysis was run on twenty-five variables which may be placed into the following broad categories: labour supply (participation rates, age structure of the population); industrial composition (percentage of labour force employed in manufacturing, agriculture and other sectors); productivity (value added per worker in manufacturing); and labour quality (educational levels). Of the twenty-five variables tested three proved to be significant, all within the labour supply category. The low wage cities tended to have higher female participation rates in both 1971 and 1961, a higher proportion of the population in the 20-24 year old age group, and fewer in the 35-44 year old age group. This suggests that the relatively low wage rates in these cities were produced, at least in part, by a relatively large supply of workers made up of an (historically) above average female participation rate and a relatively large number of young people, combined with a relatively small stock of older workers. We would therefore conclude that aggregate labour supply considerations play an important role in causing occupation-specific wage rates to diverge from their predicted levels.

This conclusion is not altered by examination of the residuals within categories of workers. Cities which can be classified as low wage cities for maintenance workers have a strong tendency to have low wages for office workers as well, for only one of the 11 low wage cities is not low for both categories of workers. Of the nine high wage cities, five are high for both types of workers, two for maintenance workers only, and two for office workers only.

There are no cities in the sample which have significantly high wage rates in one category and significantly low wage rates in the other. This similarity across categories of workers suggests that if a city's wage rates diverge from predicted levels it is because of general labour market conditions which tend to affect all categories of workers in the sample.

Policy Implications

The implications of this analysis for regional policy can only be suggestive, for the sample of occupations studied is hardly representative of the population of occupations in any region. Whole sectors of the economy are excluded, with the problematic agricultural and fisheries sectors perhaps the most obvious. Nonetheless, the study does make clear the fact that wage rate disparities are larger for some occupational (and sex) groups than for others. As the discussion in the Introduction suggests, horizontal equity is an important dimension of the regional problem, and too little attention has been paid to it. Horizontal equity does, of course, imply more than just (real) wage rate equality; employment opportunities as reflected in unemployment rates and in a diversity of occupational choices come to mind immediately. Nevertheless, focusing some attention on those categories of workers for whom the wage disparities are greatest has the potential to provide some real improvement in horizontal equity, especially in the Canadian institutional context discussed above. The results of this study suggest that the appropriate group for this kind of attention is office workers, both male and female. If we are correct in arguing that the captive worker hypothesis explains at least part of the wider male-female and office-maintenance wage differentials which exist outside Ontario, there appears to be an argument for a policy of office decentralization. While this is just another variation on the "bringing work to workers" argument, it may offer some advantages over the more common blast furnace approach to regional development. First, white collar industries are typically located in urban areas, and can therefore contribute significantly to urban growth; as we have seen, occupation-specific wage rates do in some measure increase with larger urban size, although our results suggest there is little likelihood that urbanization alone can overcome regional wage disparities. Second, there may be greater potential for interregional reallocation of white collar activities than for manufacturing and processing activities; the development of efficient technologies for the processing and transmission of information may well make the white
collar sector a good deal more footloose than are the goods-producing industries strongly tied to materials sites or, increasingly, to market sites.

While some countries, notably the U.K., have followed policies of office decentralization for some time, we have only recently come to know more about the ties, or contacts, which link office sectors. As Goddard [9] points out, there is considerable variation in the frequency and type of contact which takes place among office sectors; perhaps more important, there is some evidence that the "communications damage" caused by an office move may be negligible in some cases due to a firm's ability to adapt its operations to a new environment. Thus, while the evidence is still scanty, there are some reasons to be optimistic about the possibilities for office decentralization.

A policy of office decentralization in Canada would not, however, operate with quite the same purpose as that of some European countries, where decentralization of government employment is used as a means of moving jobs out of congested areas. Congestion in large cities is hardly an issue in a country whose largest metropolitan area has a population of just over two million people. Rather, the purpose would be to foster development of the office sector in those "peripheral" cities which show some potential for sustaining such development. It is not clear, however, whether this is an appropriate means of fostering economic development in low income recipient regions. As Courchene [5:166] points out, "the addition of a battery of highly paid federal employees in some provinces will serve to increase and rigidify what is already an excessive wage structure." In this view, factor mobility - both labour mobility out of, and capital mobility into the province - is impeded by federal wages above what is necessary to hire labour in local markets. It may therefore be argued that federal government decentralization is a potentially useful development tool only if federal employees are paid different wage rates across the country, wage rates which reflect local labour market conditions; this is contrary to current federal government policy.

A different strategy might be to explore the possibilities for encouraging private sector decentralization through a broadening of the grant eligibility criteria under the Regional Development Incentives Act. Removal of the bias against labour, as discussed by Woodward [24], would also contribute to the development of this sector. Finally, one might ask whether it would be any less reasonable to subsidize the transmission of information than it is to subsidize the transport of goods. But whatever the policy alternatives may be, Goddard emphasizes the need for a careful examination of both the target areas and the kinds of office activities to be relocated, for there must be the potential for the development of an adequate office infrastructure if any relocation policy is to be successful. He suggests further that there be coordination among location, transportation and communications policies, a point which may be of great importance in a geographically dispersed country such as Canada.

Conclusion

It is to be expected that region and city size would influence wage rates. The analysis does, however, produce some previously unspecified dimensions of this influence. First, regional differences in the occupation-specific wage rates examined here are substantially lower than are estimates of average income differences produced by more aggregative studies. This puts the problem of regional disparities in a modified context, suggesting that horizontal equity - the equal treatment of equals - may not be as badly served as has been thought. Interregional wage rate differences also turn out to vary a great deal by sex and occupation. Wage rates for females are further below the Ontario standard than are male wage rates in the Atlantic, Quebec and Prairie regions; they are above the Ontario level in British Columbia, but by a smaller amount than are male wage rates in that province. Generally, then, in all regions females outside of Ontario do worse, relative to their Ontario counterparts, than do males. The same pattern prevails for office occupations, male or female, as compared with maintenance occupations. If we rank these results, the group that "suffers" most, or gains least, by being in a region other than Ontario is male office workers, followed closely by female office workers and, at a greater distance, by maintenance workers.

The effect of city size is not unlike that of region, but is much smaller. Wage rates turn out to be higher the larger the city, although this effect is limited to only 23 percent of the occupations in the sample. On average, the data indicate an increase in wage rates of 0.78 percent for each doubling of city size. Once again, the effect of this variable is stronger for female workers than for male workers, and for office workers - both male and female - than for maintenance workers. These results are not strongly supportive of cost-of-living or amenity hypotheses on city size, which would be expected to produce rather more widespread and uniform results for all groups. The results for both city size and region are, however, consistent with the captive
worker hypothesis, suggesting that there is an over-supply of female relative to male workers in smaller cities and in all regions outside Ontario.

There are some cities where wage rates are generally above the levels predicted by the equations, and others which are generally below predicted levels. The explanation for this appears to lie in labour supply factors; low wage cities generally have higher female participation rates and more people in the younger age groups.

These results lead to several suggestions for policy. Because the wage rate disparities produced by region are so much greater than those produced by city size, the possibilities for a reduction of regional disparities through a policy of urbanization in poorer regions are remote. There does, however, appear to be some real potential in fostering the development of the office sector in poorer regions; such a policy, if successful, would assist those workers who, on the basis of the results of this study, appear to be most disadvantaged relative to their counterparts in other areas of the country.

References