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TITLE: State and Local Government Wage Differentials: An Intrastate Analysis(FN\*)

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**PUBLISHER ABSTRACT** **AB** Previous estimates of state and local government wage differentials have been typically based on data aggregated across all states, and such aggregation may produce seriously misleading differential estimates. We estimate intrastate earnings differentials for the state and local sectors in Wisconsin, four other midwestern states, and two states outside the midwest. There is substantial variation in the differentials: aggregated differentials can be misleading. Our work also confirms that state and local government labor markets have reduced earnings dispersion and investigates the possibility that higher public sector earnings may attract an "over-qualified" work force.

## I. INTRODUCTION

Public sector compensation influences both the competence and efficiency of government services. Excessive compensation wastes the resources of state and local governments depriving them of the opportunity to address other problems or to reduce taxes. Excessively low compensation makes it difficult for governments to attract qualified workers to provide public services. Conventional wisdom holds that public sector employees' compensation should be comparable that of their private sector counterparts. As Stephen Venti (1983, p. 148) has written, "Pay comparability between the public and private sectors is supported by both equity and efficiency arguments. Equity considerations dictate that a worker do no better or worse in the public sector than in the private sector. Efficiency considerations imply that the federal [public] sector pays no more than is necessary to attract an adequate supply of employees."

Most past econometric studies of state and local earnings comparability are not specific to particular states but routinely use data aggregated across states and make broad comparisons with a nationwide private sector (Smith, 1976, 1977; Quinn, 1979; Belman and Heywood, 1988, 1990; Moore and Raisian, 1991). This aggregation may provide inaccurate estimates of state and local government earnings differentials and may also produce inappropriate policy decisions. First, state and local sector differentials may vary across states. Public sector workers in some states may earn more than their private sector counterparts while those in other states may earn less. Aggregated data may incorrectly suggest that state compensation is roughly comparable, but disaggregated data may show that this is the result of differentials of offsetting signs. The consequence is more than the simple fact that an aggregated differential may consist of many disaggregated differentials. The aggregate measure of comparability inappropriately indicates that the efficiency and equity goals mentioned by Venti are being achieved. The reality is that states have not achieved the goal: some overcompensate and some undercompensate. Second, the aggregated data necessarily require weighting across states. Thus, even if New York state employees earn the same as their private sector counterparts in New York, aggregation could result in a spurious positive state differential. This could occur if New York state employees earn more than most private sector workers outside New York and if New York state employees are a disproportionate share of all state employees.(FN1)

We estimate intrastate earnings differentials for Wisconsin, four other Midwestern states, and two states outside the midwest for both the state and local government. Even within the midwest, substantial variation in the differentials is found suggesting that, indeed, aggregated results can be misleading.

Apart from this general conclusion about aggregation, our results indicate that within the state of Wisconsin (and also the other midwest states) the public sector pays more at the bottom of the pay and skill hierarchy but pays less than the private sector at the top of that hierarchy, i.e., public sector earnings are less dispersed than private sector earnings. In addition, while the unadjusted per capita earnings of the state and local sectors are substantially above those in the private sector, the state and local sectors consist disproportionately of occupations which receive higher earnings even in the private sector. State and local governments also have a more highly educated work force.

Section II presents the data and general results for the econometric analysis using Wisconsin as a case study. Section III provides comparable estimations for four midwestern states and two states outside the midwest and investigates the extent to which public sector characteristics might "improve" to match higher earnings. The final section contains conclusions and implications for future work.

## II. WAGE DIFFERENTIALS IN WISCONSIN

Two approaches for examining public sector earnings differentials exist in the economics literature. The first examines individual occupations defined as narrowly as possible. Accountants are compared with accountants and computer operators with computer operators (e.g., Fogel and Lewin, 1974). If an overall comparison of public earnings is desired, the individual occupational comparisons are aggregated to the state level with appropriate weightings (see Belman et al., 1994). The difficulty with this approach is that a large share of the occupations in the public sector do not exist in the private sector. In a nationwide study Belman and Heywood (1988) suggest that these occupations, such as police, fire fighters, judges, and legislators, are paid differently than public sector occupations with private sector equivalents. Regardless of whether this is true, the absence of private sector equivalents means that any comparison of occupations will provide a differential based on a portion of the public sector work force.

This difficulty is typically addressed by comparing actual workers rather than their narrow occupations -- the second approach. Using regression analysis, employees' characteristics are standardized, so that any remaining component of earnings is attributable to public rather than private sector employment. Years of education, years of experience, race, gender, marital status, broad occupation, part-time status, unionization status, and urban residency are variables generally used to standardize workers' earnings. These variables influence the earnings of private sector employees and are also used to determine the earnings of comparable public sector workers.

In some circumstances researchers have employed intriguing combinations of both the people and positions approaches. For instance, in their study of the earnings of Houston Metropolitan Transit workers, Moore and Newman (1991) estimate regressions across 133 occupations in the Houston area using the log of each occupation's average wage as the dependent variable.(FN2) The independent variables are aggregated measures of the education, age, and demographics for each occupation. The average values of these characteristics for transit workers are then placed in the resulting earnings regression to estimate the expected wage of these workers. The difference between the actual and the expected wage is an indicator of the public/private differential. This method mimics the people approach by standardizing for human capital and demographic controls; it mimics the positions approach by using occupation as the unit of observation. Thus, the estimated equation is based on a weighting scheme that implicitly assumes that each occupation has equal weight regardless of the number of workers in the occupation. Such aggregation can influence the estimated coefficients of the earnings equation and the resulting differential away from those based on individual data.

We now compare earnings in the different sectors of Wisconsin by standardizing for individual workers' characteristics. Our data are drawn from three consecutive years of the Current Population Survey of the federal Bureau of Labor Statistics. From the combined cross-year data for 1989, 1990, and 1991 we extract all workers from the three sectors in the state of Wisconsin: 5,035 private sector workers; 757 local sector workers; and 300 state workers. While not a huge sample, it is also not unusually small for this type of study (Quinn, 1979).

Table 1 presents the descriptive statistics for the variables in our analysis. If the worker was paid by the hour, we used the exact measure. If the worker was paid over some other time period, we divided the usual weekly earnings by the usual weekly hours. The private sector has the lowest average hourly wage, \$10.23; for the local sector it is \$11.45; and for the state sector it is \$12.68. The private sector wage has a standard deviation of \$6.43 or 63 percent of its average. The local sector wage has a standard deviation of \$5.13 or only 45 percent of its average and the state sector wage has a standard deviation of \$6.26 or 49 percent of its average. Thus, public sector earnings are more compressed around their averages than private sector earnings; thus, the public sector raises the earnings of those at the low end of the pay and skill hierarchy and depresses the earnings of those at the high end of that hierarchy.[cont. on p.191]

The years of education for the private sample average about one and a half less than those in the public samples. The occupational composition also varies sharply with about 24 percent of private sector workers listing their major occupation as professional or managerial, but over 51 percent of the local sector workers and 37 percent of state sector workers list these occupations. Unionization rates present an even more dramatic difference with a private sector unionization rate of 13.4 percent, a local sector rate of 65.0 percent, and a state sector rate of 42.0 percent. Thus, the government work force consists of employees much less likely to be observed in the private work force, a unionized professional or managerial worker. These public sector employees include, but are not limited to, public school teachers.

The variables in Table 1 are used to standardize employee earnings by estimating log earnings regressions for the separate sectors. The results in Table 2 demonstrate different earnings regimes across the three sectors.(FN3)

An additional year of experience is worth far more to state workers with the coefficients on experience .025 for the private and local sectors but .047 for the state sector. These beta coefficients provide a percentage measure,  $e^{\beta-1}$ , so that an additional year of experience results in a 2.53 percent increase in earnings for the private and local sector but a 4.81 percent increase in earnings for the state workers. On the other hand, the state and local districts penalize female workers less, holding constant other characteristics.(FN4) Holding those characteristics constant, the regressions suggest that women earn 21.47 percent[cont. on p.193] less than their male counterparts in the private sector, 10.34 percent less in the local sector, and 1.98 percent less in the state sector.

The coefficients on the occupational variables also show variation among the three sectors. In each case the omitted category of occupations is laborers so the coefficient indicates the extent to which an occupations' earnings are above or below those of laborers. In the private and state sectors professional workers enjoy about a 35 percent premium, but this measure achieves statistical significance only in the private sector. In the local sector the premium is just a few percentage points and insignificant. In sum, the return to education and occupational status is highest in the private sector and the "penalty" to lack of education or occupational status is lower in the public sectors. This is again consistent with a public sector that over-compensates at the bottom of the skill and earnings hierarchy but under-compensates at the top of the hierarchy.

Finally, the influence of unionization also differs across sectors with private sector unionized workers earning 20.4 percent more than their nonunion counterparts. Local sector unionized workers earn a premium of 18.9 percent but state sector unionized workers earn a premium of only 11.6 percent. This might be in accord with the dispute resolution mechanisms allowed within the three sectors. Private sector unionized workers can strike; local workers can often arbitrate final offers; and state workers typically can only meet and confer (and lobby). This ranking of legislated powers corresponds to the premiums.(FN5)

The estimated earnings differentials can now be calculated using Oaxaca's (1973) technique. The private base measures are presented first in which the mean characteristics of the private sector workers are multiplied by the estimated coefficients of local and state equations and the resulting estimate is compared with actual private sector average earnings. The differences are expressed as percentage wage gaps in Table 3 and indicate that state workers are paid 5.87 percent more than their private sector counterparts, but local workers are paid 4.30 percent less than their private sector counterparts. Next, we calculate the public sector base measures by multiplying the mean public sector characteristics by the estimated private coefficients and comparing the estimate with the actual state and local mean earnings. Table 2 presents these measures indicating a state differential of -1.19 percent and a local differential of -8.42 percent. Because there are no strong reasons to favor one base over the other, the average appears in the third row. The average local differential is -6.36 percent and the average state differential is 2.34 percent. In dollar and cents terms, using the average Wisconsin wage across all sectors, there is a positive gap of about 25 cents an hour or \$500 a year overpayment for state workers but 68 cents an hour or over \$1,350 a year underpayment for local workers.

So far one concludes that the state sector compresses earnings, underpaying at the high end of the hierarchy but overpaying at the low end. Furthermore, when the different composition of the state sector is accounted for, the average earnings in the state sector are a few percentage points above what they would be in the private sector. The local sector seems to engage in the same compression of earnings but, given its work force and mix of occupations, average earnings are below what local workers could expect in the private sector.(FN6)

Although we only have three years of earnings data, we compare the rate of increase between the years. These increases are given by the coefficients on the year variables in the regressions in Table 2 as the coefficients measure the increase in earnings holding constant the other variables in the regression. State earnings are increasing slowly while private earnings are increasing slightly faster and local earnings are increasing substantially faster. The estimates are summarized in Table 4 with local sector earnings increasing 10 percent, state earnings about 5 percent, and private earnings just above 6 percent over the two-year period holding all other characteristics constant. If this pattern of increases continues, the sectoral wage differences identified earlier would tend toward zero.

### III. COMPARISONS WITH OTHER STATES

We now compare Wisconsin with the midwestern states of Illinois, Indiana, Ohio, and Michigan and with two states outside the midwest, California and Mississippi. We had hoped to include Minnesota as well, but an extremely small state sector sample made that comparison impossible. Mississippi and California were chosen to provide a stark contrast in terms of region, per capita income, and population.(FN7) We use the same three years

of CPS data to create state-specific samples in the private, local, and state sectors. The general pattern of earnings is provided in Table 5 and mimics that from the Wisconsin sample. In each case the average private sector wage is lowest followed by the local sector wage and then by the state sector wage.

Three earnings equations, directly analogous to those in Table 2, were estimated for each state. We calculate the public-private earnings differential in each of these states by a procedure identical to that used for Wisconsin. The full set of earnings regressions are available from the authors but are excluded to save space.

The averages of the public and private base estimates for each state are presented in Table 6. The projected earnings of all the local sectors fall below the earnings of what that state's private sector would provide with the exception of California. The estimated degree of underpayment ranges from about 4 percent to more than 10 percent. Together with California's overpayment of about 3 percent the entire range in the differential is between 13 and 14 percentage points. Combining these into a single nationwide measure ignores a large underlying variance. The modest overpayment for Wisconsin state workers is matched by a slightly larger overpayment by California. The other extreme is Mississippi where the estimated underpayment is about 2.4 percent with underpayment in Illinois just a bit smaller. As with the local workers, there is underlying variance in the sign and size of the state earnings differential, but it is not as pronounced. State and local government differentials based on national aggregations miss substantial variation even within a single geographic area. Indeed, the state estimates from the midwest alone show that the sign of the differentials varies from state to state. Any policy recommendations based on the aggregate estimates may be inappropriate for any given state.

There is at least one problem of interpretation in the typical differentials of the sort presented here. Specifically, the qualifications of the work force in the public sector may reflect the earnings offered by the state; yet, those earnings may also reflect the employees' qualifications. This reverse causality suggests a potentially improper comparison. For instance, a higher-than-needed wage for a particular state occupation brings a large job queue which, in turn, allows the state employer to hire the best-qualified person. If we compare this person's qualifications to the wage, the wage is not out of line with what a similar person could earn in the private sector. If this scenario describes much of the state's hiring, the consequence is higher wages than needed to get the job done, but not higher wages than the people doing those jobs deserve given the private standard.

While there is no completely satisfactory way of dealing with reverse causation, some insight might be gained by comparing the states in our sample. Thus, we ask how Wisconsin state workers would be compensated in other midwest states. If we compare these estimates to what the workers of those states actually earn, we can examine the extent to which the characteristics of Wisconsin workers are "better" or "worse" than those of the other states. If the estimated earnings of Wisconsin state workers using Indiana's wages are above what Indiana workers receive, reverse causation would exist in Wisconsin. This conclusion is warranted because such a comparison shows that the productivity-enhancing characteristics of Wisconsin state workers are above those of Indiana state workers.

Table 7 presents the comparisons between the estimated earnings of Wisconsin state workers in each of the other four midwestern states and the actual earnings of state workers in those states. The results indicate that, if the work force of the state of Wisconsin was moved to any of its neighbors, it would earn more according to the earnings regimes of those states than do the actual state workers of the neighboring states. This happens because the characteristics of the Wisconsin state work force are "better," an indication that high earnings might have attracted highly-qualified workers.

An alternative explanation for these results is that different states are trying to accomplish different objectives. Thus, Wisconsin might have more highly-educated professionals and managers because it has programs and objectives not present in Indiana or the other states, so Wisconsin state workers would appear more qualified than workers in other states because of the skills required by Wisconsin's programs. If this were true, a thorough review of the different programs would be needed before one could say with confidence that Wisconsin state workers are "over-qualified."

Similar investigations have been completed by the authors for Wisconsin workers in both the private and local sectors. Neither sector exhibits the pattern shown in Table 7. Placing Wisconsin workers in other states generates some higher earnings and some lower earnings. No consistent pattern emerges that could be consistent with the pattern of reverse causation identified for state workers.

The results presented so far assume that unionization is a legitimate wage determinant that should be controlled for when examining the public sector earnings gap. While arguably this is correct, there is an alternative view which emphasizes that the ease of unionization in the public sector may be a cause of higher

public sector compensation. Thus, including unionization as a control might "underestimate" the true extent of any public sector wage advantage.(FN8) While this issue has been explored in the case of federal earnings (Linneman and Wachter, 1990), it is valuable to briefly consider it in the context of states and localities.

It is important to note that the net influence of unions on the public wage differential is not clear theoretically. On the one hand, unionization is far more widespread in the public sector. On the other hand, the premium to unionization is far larger in the private sector. The net effect of unions on the differential is a composite of these offsetting influences.

In order to examine the role of unions we reestimated our wage equations for all sectors in each of our seven states. In each case we simply removed the unionization variable and recalculated the public and private base differentials. This amounts to assuming that unions (in both the public and private sectors) should not be considered a legitimate source of earnings differences and should not be accounted for when examining the public wage gap.

The new estimates are summarized in Table 8 which again presents the simple averages of the two bases. While substantial variation across the states remains, the pattern of change from the earlier results is not uniform. The local differentials in Ohio, Indiana, Illinois, Michigan, Mississippi, and California all moved toward higher relative government earnings (only Ohio actually changed from negative to positive). Only the local differentials in Wisconsin moved toward higher relative private earnings. The state differentials in Ohio and Indiana moved toward higher relative government earnings, but those in the remaining five states moved toward higher relative private earnings with the gap in Michigan changing from slightly positive to negative.

This scattered pattern defies easy generalization other than to point out that the influence of greater unionization seems to dominate in the local estimates but that the influence of lower union premiums seems to dominate in the state estimates. As the local sector was shown to have both greater rates of unionization and larger union premiums than the state sector, this generalization fits with the underlying pattern of the data. If one public sector has higher compensation than the private sector because of its unions it should be the local sector. Note, however, that even after not controlling for the union variable, the local earnings gap is positive in only two states, Ohio and California, and only large in the latter.

#### IV. CONCLUSIONS

State and local earnings are far more compressed than are those in the private sector because the public sectors have higher earnings than the private sector at the low end of the skill and education hierarchy and lower wages at the high end of the skill and education hierarchy. The state and local sectors pay higher wages than the private sector but this results, in part, because the public sectors employ a more educated and professional work force. After correcting for worker characteristics and occupations, Wisconsin state workers continue to have slightly higher wages than their private sector counterparts. Wisconsin and California are the only states in our sample for which this is true to any significant extent. The local sector appears to have lower wages after corrections than does the private sector in all states except California.

Most importantly, there is substantial variation in the pattern of differentials among the seven state and local differentials estimated. Thus aggregate measures of nationwide state and local differentials may be misleading. In particular, aggregated data which suggest state sector comparability are the result of differentials of offsetting signs among individual states. We emphasize that an aggregate differential of zero gives no policy guidance if there is substantial underlying variance. The aggregate differential should not be taken as an indicator of comparability.

We are among the first to explore the possibility of reverse causality in the relationship between earnings and qualifications in this context. This investigation was made possible by the very disaggregation we felt was necessary and stands as an important side benefit.

Several caveats are in order. First, our analysis is limited exclusively to earnings. Fringe benefits are a substantial portion of total compensation but have not been examined here. Belman and Heywood (1991) suggest that the provision of some benefits, especially pensions, may be much more common in the public sector. Second, our local sector differentials are aggregated albeit to the state level rather than the federal level. Surely, the local differential varies within states. Third, we have not examined any of the other job characteristics that may vary across sectors. If public sector jobs are more secure or have better working conditions, the earnings differentials are not satisfactory measures of whether or not compensation is comparable across sectors. One approach may be to estimate the length of the job queue for employment in the state and local sectors (see Heywood and Mohanty,

1993). This approach permits the capture of sectoral differences in net benefits, including compensation and working conditions. Our contribution has been to suggest that the most common measure of comparison, the earnings differential estimated with individual worker data, should be examined at a disaggregated state level.

Added material

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Table 1 Descriptive Statistics for Wisconsin Workers 1989, 1990, and 1991

Variable	Private	Local	State
Hourly Wage(\$)	10.23 (6.43)	11.45 (5.13)	12.68 (6.26)
Education (years)	12.21 (2.22)	13.61 (2.51)	13.92 (2.73)
Work Experience (years)	20.20 (12.8)	22.80 (10.9)	21.66 (12.3)
Experience Squared	571.2 (642.6)	638.9 (545.7)	620.9 (606.8)
Proportion Black	.0296 (.169)	.0396 (.195)	.0267 (1.61)
Proportion Hispanic	.0050 (.070)	.0092 (.096)	.0133 (.114)
Other Minority	.0133 (.115)	.0317 (.175)	.0266 (.115)
Female	.5025 (.500)	.5614 (.497)	.5000 (.501)
Union Member	.1343 (.341)	.6499 (.477)	.4200 (.494)
Works in Urban Area	.6475 (.479)	.5892 (.492)	.6833 (.466)
Married	.6032 (.489)	.7199 (.449)	.6401 (.481)
Widowed or Divorced	.1331 (.339)	.1136 (.317)	.1433 (.351)
Manager	.1247 (.330)	.0885 (.284)	.1633 (.371)
Professional	.1156 (.319)	.4240 (.495)	.3133 (.464)
Technical Worker	.0439 (.205)	.0119 (.108)	.0933 (.291)
Sales Worker	.1400 (.347)	.0066 (.081)	.0067 (.082)
Clerical	.1976 (.398)	.1691 (.375)	.2600 (.439)
Service	.1355 (.342)	.2431 (.429)	.1167 (.322)
Craft	.1764 (.381)	.0357 (.185)	.0400 (.196)
Part-time (20 to 34 hrs/wk)	.1487 (.355)	.1229 (.328)	.1467 (.354)
Part-time (19 or fewer hrs/wk)	.0375 (.190)	.0489 (.216)	.0167 (.128)
From 1989 Sample	.3535 (.481)	.3355 (.473)	.3667 (.489)
From 1990 Sample	.3426 (.474)	.3342 (.472)	.3200 (.467)
From 1991 Sample	.3039 (.460)	.3303 (.470)	.3133 (.464)
No. of Obs., N	5,035	757	300

Source: The observations are drawn from three consecutive years of the BLS cross-year tapes for the Current Population Survey Standard deviations are presented in parentheses.

Table 2 The Earnings Equations for Each Sector (Dependent variable: the individual worker's log wage)

Variable	Private	Local	State
Constant	.9498 (21.8)	1.067 (8.58)	.4299 (1.68)
Education	.0637	.0573	.0674

	(20.4)	(7.76)	(7.27)
Experience	.0246	.0249	.0471
	(14.2)	(5.91)	(8.04)
Experience Squared	-.0004	-.0004	-.0007
	(12.0)	(4.68)	(6.19)
Black	-.0923	-.1061	.0243
	(2.84)	(1.75)	(0.21)
Hispanic	-.0781	-.0058	.0554
	(1.65)	(0.05)	(0.33)
Other Minority	-.0821	-.0895	.0033
	(1.07)	(1.28)	(0.03)
Female	-.2417	-.1092	-.0200
	(18.8)	(4.04)	(0.49)
Union Member	.1855	.1727	.1096
	(10.8)	(6.04)	(2.69)
Works in Urban Area	.1213	.1620	.1056
	(10.3)	(6.50)	(2.53)
Married	.1356	.0798	.1577
	(8.45)	(2.18)	(2.93)
Widowed or Divorced	.0683	.0614	.0482
	(3.27)	(1.28)	(0.68)
Manager	.2857	.1753	.4227
	(10.2)	(1.87)	(1.68)
Professional	.2979	.0214	.3339
	(10.1)	(0.24)	(1.32)
Technical Worker	.2740	.1226	.2087
	(7.99)	(0.90)	(0.83)
Sales Worker	.0417	-.0582	.4426
	(1.57)	(0.35)	(1.35)
Clerical	.0986	-.1653	.1231
	(3.81)	(1.88)	(0.49)
Service	-.1097	-.1139	.0756
	(4.09)	(1.36)	(0.31)
Craft	.1781	.0322	.3740
	(7.13)	(0.32)	(1.44)
Part-time	-.1723	-.2269	-.1090
(20 to 34 hrs/wk)	(10.4)	(6.01)	(2.09)
Part-time	-.2430	-.3766	-.2650
(19 or fewer hrs/wk)	(8.19)	(6.49)	(1.83)
From 1989 Sample	.0372	.0557	.0358
	(2.87)	(1.97)	(0.82)
From 1990 Sample	.0614	.0947	.0480
	(4.59)	(3.32)	(1.08)
R <sup>2</sup>	.5007	.5410	.6444
No. of Obs., N	5,035	757	300

Note: t-statistics are shown in parentheses.

Table 3 Adjusted Percentage Wage Gaps

	Local	State
Private Base	-4.30%	5.87%
Public Base	-8.42%	-1.19%
Average	-6.36%	2.34%

Table 4 Normalized Rate of Increase in Nominal Earnings Year-to-Year

	Private	Local	State
1989 to 1990	3.78%	5.76%	3.67%
1989 to 1991	6.29%	9.97%	4.92%

Table 5 Relative Hourly Earnings in Seven States

	Private	Local	State
Wisconsin	\$10.23	\$11.45	\$12.68
Ohio	10.40	11.38	11.89
Indiana	9.52	9.79	12.13
Illinois	11.35	12.54	12.70
Michigan	11.03	13.07	13.64
Mississippi	7.07	7.83	8.48

California	9.92	11.57	13.09
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Table 6 Estimates of the Adjusted Earnings Gap in Seven States

Local Gap(% )	State Gap(% )	
Wisconsin	-6.36	2.34
Ohio	-4.11	-0.14
Indiana	-10.24	0.00
Illinois	-4.40	-1.93
Michigan	-4.11	0.37
Mississippi	-10.42	-2.44
California	2.99	3.05

Table 7 Comparing Different State Work Forces

Estimated WI LnWage	Actual	%	Difference
Ohio	2.404	2.380	2.43%
Indiana	2.343	2.272	7.25
Illinois	2.441	2.422	1.92
Michigan	2.506	2.501	0.50

Table 8 Estimates of the Adjusted Earnings Gap in Seven State (No controls for unionization)

Local Gap(% )	State Gap(% )	
Wisconsin	-7.39	2.16
Ohio	1.11	2.17
Indiana	-7.04	3.11
Illinois	-2.37	-2.57
Michigan	-.51	-3.04
Mississippi	-9.97	-2.26
California	4.17	2.33

## FOOTNOTES

\* The authors thank the Wisconsin Policy Research Institute for financial support and members of the UWM economics seminar and Sammis White for detailed comments on earlier drafts.

1 This possibility is an example of Simpson's Paradox, a common phenomena in which relative weighting across disaggregated categories can cause the aggregate comparison to have a different sign than any of the comparisons within individual categories. See Samuels (1993) for more details.

2 They use a total of 266 observations reflecting separate observations for males and females in each sector.

3 This is confirmed by two Chow tests which compare each of the public sectors with the private sector.

4 This finding for Wisconsin is duplicated in more general studies. See Moore and Raisian (1991).

5 It has been suggested that unionization should not be held constant when performing the Oaxaca decomposition. For more on this debate, see Linneman and Wachter (1991) and Belman and Heywood (1993).

6 Note that none of our comparisons have attempted to hold the size of the employer constant. Previous work by Belman and Heywood (1990) suggests that this is important but such information is not available in our current data source.

7 Obviously examining states from other regions such as the mountain states and the east coast could round out the comparison.

8 We thank our reviewer for suggesting this line of investigation.

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