

Fisher, Dennis U.

Working Paper

An Analysis of Agricultural Workmen's Compensation Insurance Rate Differentials- Oregon Compared to Other States

Staff Paper, No. SP 74-21

Provided in Cooperation with:

Charles H. Dyson School of Applied Economics and Management, Cornell University

Suggested Citation: Fisher, Dennis U. (1974) : An Analysis of Agricultural Workmen's Compensation Insurance Rate Differentials- Oregon Compared to Other States, Staff Paper, No. SP 74-21, Cornell University, Charles H. Dyson School of Applied Economics and Management, Ithaca, NY,
<https://doi.org/10.22004/ag.econ.185788>

This Version is available at:

<https://hdl.handle.net/10419/276420>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

AN ANALYSIS OF AGRICULTURAL WORKMEN'S
COMPENSATION INSURANCE RATE DIFFERENTIALS -
OREGON COMPARED TO OTHER STATES

By

Dennis U. Fisher

September 1974

74-21

AN ANALYSIS OF AGRICULTURAL WORKMEN'S
COMPENSATION INSURANCE RATE DIFFERENTIALS -
OREGON COMPARED TO OTHER STATES

Dennis U. Fisher

The study being reported here was initiated in response to concern expressed by farm organizations over the high workmen's compensation insurance rates paid by Oregon farmers. The concern was well founded. The author concluded that Oregon appeared to have the highest agricultural rates in the nation. This will be illustrated later.

High workmen's compensation insurance rates can have several negative effects. The relative competitive position of Oregon employers is adversely affected. Due to the elasticity of demand for agricultural products at the farm level, additional labor costs come from the employers profits or add to his losses. Employees also are affected. Since the cost of any given quantity of labor is greater than would be the case with lower rates, the quantity of labor demanded will be reduced. Due to the nature of the agricultural labor force and the fact that the less skilled are usually idled first, the unemployed will have difficulty finding employment elsewhere.

To argue that rates are high and cause serious consequences is not to argue for lower rates. High rates can provide significant benefits for injured workmen. However, the high rates and the serious consequences do emphasize the need to understand the reasons behind the high rates.

*Presented in Contributed Papers Session of the 1974 Agricultural Economics Association Meetings held August 18-21, 1974, Texas A and M University, College Station, Texas.

Therefore, this study was designed to identify those reasons.

Previous studies of workmen's compensation insurance have dealt with coverage provisions, benefit levels, and delivery of services to injured workmen [1]. The National Commission on State Workmen's Compensation Laws (1972) has published a report examining performance and recommending national standards in these areas [12]. Senators Williams and Javits have introduced legislation which would establish national standards based partially upon the National Commission study.

Studies of workmen's compensation costs have focused on the rating process [3, 8, 9] and auditing of insurance companies for solvency [2, 10, 11]. Studies are conducted each year in both of these areas in most states.

Two studies have concentrated on the costs to employers. Cristman [5], estimated loss ratios for agricultural classifications in Michigan in response to questions about relatively high rates. His empirical results suggested that rates were higher than the most current loss ratio estimates would support. Due to time lags involved in data collection and the rating process, rates were responding slowly, to lower loss ratios for farm classifications. No attempt was made to go beyond the loss ratios in explaining the rates. In Oregon insurance companies had longer experience with farm risks and the causes of high rates did not include a time lag between loss experience and rate change.

The study most closely related to the study reported here was conducted by John Francis Burton Jr. [4]. Burton examined both the significance and the causes of interstate variations in employers workmen's compensation cost. The variable he was explaining, net employer cost, was a weighted average for a selected set of industrial classifications. The weights were

designed to adjust each state's cost data to a common industrial mix. This technique has been used in the author's study to remove from the data the effects of different levels of hazardousness due to differing industrial mixes.

Most of the statistical results from Burton's study were not conclusive. This was probably because the relationships between employer costs and various causal factors were estimated using a single equation model. The mechanics of workmen's compensation systems and the rating process indicate that simultaneous equations procedures may provide a more appropriate model specification. The employer cost can be broken into average cost per claim and frequency of claims by type of claim. Because different parts of the workmen's compensation system and law affect each component of employer cost, these components should be explained separately rather than in the aggregate.

Also, Burton indicated that the aggregated net costs to employers varied by only 1.5 percent of payroll - an amount "...very unlikely to influence plant location decisions..." [4, p. 248]. This small difference was observed because Burton's subset of industries, while including a high proportion of total payroll, focused on those industries with low risk and therefore low workmen's compensation insurance rates. Also some of the states with the higher rates were omitted from his study for lack of data. In contrast, the 1972 agricultural rates for the 43 states examined in the study reported here varied by as much as 15.5 percent of payroll.

Several steps were used here to examine the causal factors behind Oregon's high workmen's compensation insurance rates. First, interstate rate comparisons were made to determine whether Oregon rates were significantly higher than other state's rates. Next, a set of states (group A) was selected with

workmen's compensation systems sufficiently similar to Oregon's to warrant comparison. The rating formulas were compared between states. Then the inputs into the rate estimation process were isolated and compared between states. The intent was to identify the inputs responsible for Oregon's rates being higher than other states. This would limit the reasons for higher rates to the factors which would affect those inputs. A brief summary of the empirical results is presented below.

Empirical Results

Rates

Several rates were considered in order to determine the relative magnitude of Oregon's agricultural workmen's compensation insurance rates. This was necessary, because all states have more than one "industrial classification" and thus, more than one rate designated for agriculture. Thirty states use eight industrial classifications to categorize agricultural employers - nurserymen (0005), general farm (0006), gardening (0008), poultry (0034), florists (0035), landscape gardening (0042), farm machinery operation - contracting (0050), tree pruning, spraying - contracting (0106). Twelve additional states use this system, which is published by the National Council on Compensation Insurance (NCCI), and separate out "state special" classifications [3]. One state included in the comparison, Washington, uses a completely different classification system. In order to compare rates between states, rates for state special classifications have been placed within one or more of the eight general classifications from which they were derived [6, pp. 54-64]. Seven states are omitted from the comparison due to lack of data: Delaware, Nevada, North Dakota, Ohio, Pennsylvania, West Virginia, and Wyoming.

Oregon's rate of \$16.35 per \$100 of payroll was the highest in the nation for the general farm classification. This rate was 3.6 times the median rate and well above the second highest rate of \$9.49 for Montana farmers.

Viewed another way, Oregon's rates were among the highest three states for seven of the eight general agricultural classifications. Washington held this distinction for three of the eight classifications; Texas, Florida, and Louisiana for two of the eight classifications; and Idaho, Montana, Michigan, New Jersey, Hawaii, Oklahoma, Kentucky, and Arizona for one of the eight classifications [6, p. 3]. On the basis of this evidence, the author concluded that Oregon appeared to have the highest agricultural rates in the nation.

Oregon's high workmen's compensation insurance rates were not isolated to agriculture. According to the National Commission on State Workmen's Compensation Laws, Oregon employers paid a higher percentage of payroll for workmen's compensation insurance coverage in 1972, than paid by employers in any of the other 40 states included in their analysis [12, pp. 145-146]. Thus, relatively high rates are affecting production costs and employment in non-agricultural industries as well as in agriculture.

Comparison States

The comparison states were chosen on the basis of payroll limitations, numerical exemptions, and industrial classification systems. A payroll limitation is a maximum on the amount of an employee's weekly pay which can be used for premium calculation. Some states have payroll limitations that are sufficiently low to exclude a significant proportion of the covered payroll from premium calculation and rate estimation. This means that, ceteris paribus, a state with a lower payroll limitation would require a higher workmen's

compensation insurance rate to generate sufficient premiums to cover a given volume of losses than a state with a high payroll limitation or no limitation. The states of Alaska, Florida, Louisiana, Missouri, Oklahoma, and Texas were considered dissimilar to Oregon because of low payroll limitations. Oregon has no payroll limitation.

Twenty-one additional states were excluded from the original comparison group based on numerical exemptions. It was assumed based on opinions expressed by rating officials that smaller employers operated more hazardous units than larger employers. Thus, ceteris paribus, states excluding employers with a given number of employees or less would experience lower workmen's compensation rates than states with no numerical exemptions.

Five additional states use industrial classification systems which are significantly different than the system published by the NCCI and were omitted from the comparison group. This primary comparison group, referred to as group A, includes the following states: Colorado, Connecticut, Hawaii, Idaho, Illinois, Indiana, Iowa, Maryland, Minnesota, Montana, Nebraska, New Hampshire, New York, Oregon, South Dakota, and Utah.

Rating Process

The next step involved examination of the rating process. There are three major inputs into the rating formula: 1) historic payroll, 2) historic incurred losses, and 3) a series of procedures designed to make allowance for overhead expenses and profit and adjust payroll and losses to accurately reflect present conditions. The rating process works generally in this manner. Historic losses are obtained for each industrial classification. These losses are incurred losses including both cash paid to injured workmen and reserves established by insurance companies against open claims. These

incurred losses are then adjusted to reflect recent changes in the workmen's compensation law. Then overhead cost and profit are added as a percentage of the incurred losses. These incurred adjusted losses are then divided by payroll to estimate a manual workmen's compensation rate per \$100 payroll for each industrial classification. This brief description of the process omits a number of the technical details but generally portrays what occurs during rate making.

On the basis of some audit reports and some information published by the NCCI, several conclusions were drawn: 1) Rating formulas are basically the same across the United States. This is particularly true for the states within group A. The percentages allowed within the rating formula for overhead and profit, vary by only 3.1 percentage points for states from group A. 2) Incurred losses were as conservative an estimate of actual losses in Oregon as in other states [2, 10, 11]. These conclusions indicate that differences in rates between states are due primarily to differences in workmen's compensation incurred losses per payroll dollar.

Losses Per Payroll Dollar

The data used to examine incurred losses per payroll dollar was furnished by the NCCI and covered one policy year for each state within the time period 1968-70. This was data from every policy in each state used for rate making purposes. The data includes information on losses by type of claim and type of payment (medical or indemnity), payroll and the number of each type of claim. Data on all industrial classifications was used because 1) the problem of high rates existed in all industries, 2) coverage for non-agricultural classifications is more comparable between states than for agricultural classifications, and 3) evidence from the total system may be of

more use in the political process. No attempt was made to account for differences in industrial mix between states. This was done in subsequent analysis.

Oregon's losses per \$100,000 of payroll ranked highest among the states from group A. Oregon's losses were 185 percent of the median losses and 17 percent above the next highest state, Hawaii.

Throughout the study, Oregon's position as a percentage of the median and Oregon's rank are used as comparisons with other states. If the Oregon statistics had been close to the median the use of these measures would have been difficult. However, in most cases Oregon was either at the median or ranked first or second. The basic question being asked, "Why are Oregon rates higher than rates in other states?" makes the percent of the median and rank natural standards of comparison.

Data on losses were separated into various types of claims - death (D), permanent total disability (PTD), permanent partial disability (PPD), temporary total disability (TTD), and medical only (MO). This was done because the types of claims are handled differently through the filing and determination process and specific parts of the workmen's compensation law apply to each type of claim.

Type of Claim

The empirical results indicate that the high losses were due almost exclusively to PPD and PTD claims. PPD claims accounted for 73.6 percent of the difference between Oregon's losses and the median losses PTD claims accounted for 18.5 percent of that difference. Death and TTD claims accounted for 7.3 percent of that difference and MO claims .6 percent. PPD and PTD claims together accounted for 92.1 percent of the difference between Oregon's losses and the median losses.

The losses per payroll dollar for each of these five types of claims were further divided into the average cost per claim and the frequency of claims per payroll dollar. This was done to further isolate the potential causal factors affecting Oregon's high workmen's compensation insurance rates. It was assumed that the average cost per claim would be affected by two factors: 1) the statutory benefit levels written into Oregon's workmen's compensation law and 2) the process of handling claims. It was assumed that three factors would affect the frequency of claims per payroll dollar: 1) the wage rate, 2) statutory definitions of each type of claim and the interpretation of those definitions, and 3) the hazardousness of employment due to the industrial mix.

Average Cost Per Claim

The data revealed that the average cost of PPD and PTD claims added little to Oregon's high losses. Oregon's average PPD claim cost (\$4,995) was \$25 less than the median average cost. Thus, average cost per PPD claim have no affect on 73.6 percent of Oregon's losses in excess of the median losses. Second, Oregon's average PPD claim cost (\$60,898) was 123 percent of the median average cost. However, Oregon's total losses for PTD claims were 1,190 percent of the median losses. Thus, the average cost of PTD claims had a small effect on Oregon's losses in excess of the median losses.

Death, TTD, and MO claims, accounted for only 7.9 percent of Oregon's losses in excess of the median losses. Thus, average cost for these three types of claims could have little affect on Oregon's high losses. It was concluded that average cost per claim was not a major cause of Oregon's high rates.

Frequency of Claims

With average costs of PPD and PTD claims contributing little, attention was turned to the frequency of these claims. Oregon's frequency of PPD claims per \$100,000,000 payroll ranked second among the states from group A. This was 240 percent of the median number of PPD claims and 22 percent above the next highest state, Illinois. Oregon's frequency of PTD claims ranked first and was 567 percent of the median. This was 2.4 times the next highest state, Idaho. Oregon's relatively high frequencies of PPD and PTD claims were clearly demonstrated.

The median frequency of all claims for group A was 2,074 per \$100,000,000 payroll. Oregon's frequency of all claims (2,160) was 4 percent above the median. Oregon's losses for all claims were 185 percent above the median. Thus, the frequency of all claims contributes little to Oregon's losses in excess of the median losses.

Additional States

Sufficient political attention was focused on this research problem that it was felt necessary to include a comparison between Oregon and the states previously omitted from the comparisons. Due to data limitations not all states could be included. The addition of other states did affect the statistics, but the basic findings were not changed.

The analysis thus far, narrowed the potential causal factors to three: 1) wage rate, 2) statutory definitions of the different types of claims and interpretations of those definitions, and 3) hazardousness of employment. By process of elimination, the factors were narrowed to one.

Wage Rates

The first factor, wage rate, is inversely proportional to the workmen's compensation insurance rate. The higher the wage, the lower a workmen's compensation insurance rate required to cover a given amount of losses. The average hourly wage rates for hired farm workers (1968-70), the average weekly wage for injured workmen filing workmen's compensation claims (1968-70), and the average hourly earnings in 1969 for some selected standard industrial classifications were examined. The standard industrial classifications used included contract construction and manufacturing of durable goods, and non-durable goods. Using these three different sets of data, wage rates were eliminated as a potential causal factor.

The results indicate that Oregon's wage rate was 90 percent or more of the maximum wage rate for all three sets of data. Oregon's wage rate was the maximum in several cases. This finding indicates that Oregon's frequencies of PPD and PTD claims per \$100,000,000 payroll are not inflated, relative to other states' frequencies by wage rate differences. Wage rates in Oregon are not low relative to other states from group A, and therefore, do not contribute to Oregon's high frequency of PPD and PTD claims.

Hazardousness of Industrial Mix

Oregon's industrial mix, if more hazardous than in other states, could explain the high frequency of PPD and PTD claims per \$100,000,000 payroll. However, if this were the causal factor the frequency of each type of claim and all claims would be high relative to other states.

The effects of differences in hazardousness were removed by using data from a selected set of industrial classifications covering two policy years, within the time period 1965-69. Logging and agriculture, two hazardous

industries, were purposely omitted. The classifications chosen, were assumed to have a similar degree of hazardousness between states.

This set of data was altered so that the industrial mix in each state was the same as existed in Oregon. If the differences in hazardousness between states were a major causal factor, then one would expect the removal of these differences to result in a decrease in Oregon's frequencies of the various types of claims relative to other states. This did not occur.

An analysis of the data revealed that Oregon's frequency of PPD and PTD claims were 167 percent and 1,300 percent of the medians respectively. Oregon's frequency of death and PPD claims decreased relative to other states, while the frequencies of PTD, TTD, MO, and all claims increased. Oregon's frequencies of PPD and PTD claims ranked third and first respectively. Hazardousness of Oregon's industrial mix was not a major contributing factor to Oregon's high frequency of PPD and PTD claims per \$100,000,000 payroll.

Statutes

By process of elimination the reasons are narrowed to the statutes pertaining to determination of PPD and PTD claims and interpretation of those statutes. A state by state comparison of the statutes and their interpretations would provide the most powerful additional test of this causal factor. However, such an effort was beyond the scope of this research. Instead, the effects of these statutes are examined indirectly. The average distribution of 1,000 claims by type of claim is compared for states from group A. The data used is from the selected industrial classifications. The effects of differences in hazardousness due to industrial mix have been removed from this data.

At this point it is important to distinguish between two types of statutory rules. The one has to do with compensability. The other has to do with level or type of award. For all practical purposes, the rules regarding compensability are the only ones used to determine if a filed claim is a compensable death claim. For PTD, PPD, TTD, and MO claims, both types of rules are used. A PPD or PTD claim could have been a TTD or MO claim or no claim at all.

The data revealed that Oregon claims were distributed disproportionately toward PTD, PPD, and TTD claims and away from MO claims. Oregon's relative distribution of PTD claims was 1,367 percent of the median, of PPD claims was 171 percent of the median and of MO claims was 91 percent of the median.

This additional empirical evidence supports the conclusion that Oregon's high frequencies of PPD and PTD claims per \$100,000,000 payroll were due to the statutes pertaining to determination of these two types of claims and interpretation of those statutes. And the high frequencies of these two types of claims were responsible for the high rates.

Summary of Findings

Oregon's workmen's compensation insurance rates were high because of statutes pertaining to determination of permanent partial disability and permanent total disability claims and interpretation of those statutes.

A summary of the finding which led to this conclusion is presented below:

1. Oregon's high workmen's compensation insurance rates were not due to differences in rating formulas between states but to high losses per payroll dollar.
2. These high losses were due, almost exclusively, to two types of claims--permanent partial disability claims (PPD) and permanent total disability claims (PTD).

3. The average cost per claim for PPD and PTD claims contributed little to Oregon's workmen's compensation losses being higher than losses in other states.

4. Oregon's high workmen's compensation losses were primarily due to the high frequency per dollar of payroll of PPD and PTD claims. The frequencies of all types of claims summed together contributed little to the high losses.

5. Wage rates in Oregon were relatively high. Thus, wage rates were not the reason for the high frequencies of PPD and PTD claims per dollar of payroll.

6. Hazardousness of Oregon's industries was not the reason for the high frequencies of PPD and PTD claims per dollar of payroll.

7. By process of elimination, the high frequencies of PPD and PTD claims per dollar of payroll in Oregon were due to the statutes pertaining to determination of PPD and PTD claims and subsequent interpretation of those statutes. The statutes are interpreted by several divisions of the Workmen's Compensation Board and the Oregon court system.

References

1. Analysis of Workmen's Compensation Laws, (prepared and published annually) by the Chamber of Commerce of the United States, Washington, D. C., 1972 edition.
2. Audit Report, State of Oregon, State Compensation Department (currently State Accident Insurance Fund), Industrial Accident Fund, year ended June 30, 1969, Touche Ross Company, Certified Public Accountants.
3. The Basic Manual of Rules, Classifications and Rates for Workmen's Compensation and Employers' Liability Insurance, issued by the National Council on Compensation Insurance, New York.
4. Burton, John F., Jr., LL.B., The Significance and Causes of the Interstate Variations in Employers' Costs of Workmen's Compensation, Ph. D. dissertation, University of Michigan, 1965.
5. Cristman, Scott, A Study of Workmen's Compensation for Agricultural Employers in Michigan, Master's thesis, Michigan State University, 1971.
6. Fisher, Dennis U., An Analysis of the Rates and Provisions of Workmen's Compensation Insurance Carried by Oregon Employers, Agricultural Experiment Station, Oregon State University, Corvallis, Oregon, Circular of Information 646, March 1974.
7. Fisher, Dennis U., Highlights of an Analysis of Workmen's Compensation Insurance Rates Paid by Oregon Employers, Oregon State University, Extension Service, Special Report 405, March 1974.
8. Fratello, Barney, "Workmen's Compensation Injury Table and Standard Wage Distribution Table", reprinted from Proceedings of the Casualty Actuarial Society, Vol. XLII, pp. 110-201.
9. Heitzmann, Robert D., LL.B., "Workmen's Compensation Manual Rate-Making", CPCU Annals, Fall 1964, pp. 197-212.
10. Oregon State Accident Insurance Fund: Actuarial Analysis, June 1, 1968 to June 30, 1970, Woodward and Fondiller, Division of Martin E. Segal Co., Inc., New York, April 30, 1971.
11. Oregon State Accident Insurance Fund: Supplement to Analysis of Reserves as of June 30, 1968, Woodward and Fondiller, Division of Martin E. Segal Co., Inc., New York, January 22, 1970.
12. The Report of the National Commission on State Workmen's Compensation Laws, Washington, D. C., July 1972.