Washington Pension System Review

Upjohn Institute Technical Report No. 08-025

Submitted by:

W.E. Upjohn Institute for Employment Research
300 S. Westnedge Avenue
Kalamazoo, MI 49007-4686

Authors:

Professor Peter Barth, Emeritus, The University of Connecticut;
Professor Heather Grob, Saint Martin's University;
Professor Henry Harder, University of Northern British Columbia;
Dr. Allan Hunt, W.E. Upjohn Institute for Employment Research; and
Dr. Michael Silverstein, The University of Washington

A Deliverable under L&I Contract No. K1018

Submitted to:

State of Washington
Department of Labor & Industries
P.O. Box 44100
Olympia, WA 98504-4100

November 12, 2008

Contents

6 Summary and Findings

Tables

Figures

Appendices

ACKNOWLEDGMENTS

This project would not have been possible without the unwavering support of the Department of Labor & Industries. In addition to providing the financial resources needed, they made Sandra Torstenson and Russ Redding available to the research team. These individuals provided invaluable support and advice as the study progressed. We could not have done it without them.

The retired L&I employees who served as our claim reviewers also made a huge contribution to the project, as did Roger Thompson who was able to review our claim review plans on short notice with his usual competence and good cheer. The Saint Martin's university students who handled many of the data processing issues made a significant difference to the project and, hopefully, gained some valuable experience as well.

Judy Schurke and Bob Malooly maintained a lively interest in the project that kept us on our toes; and Vickie Kennedy and Jeff Miller made sure that we kept our promises. Other L&I personnel who were very helpful included Cheri Ward, Linda Norris, and all the IT people that we bothered over the course of the project.

The Actuarial Department at L&I was very efficient in providing data to us, and also very effective in promoting their view of the world. We are particularly indebted to Bill Vasek and Russell Frank for the many hours they spent supporting our efforts.

Last, we thank the staff at the Upjohn Institute for their administrative, technical, and clerical support. Special kudos to Sue Berkebile who not only processed every single word, but actually read them as well! It takes a large crowd behind the scenes to mount an effort of this magnitude.

Finally, as this project is wrapping up, it is time to ask forgiveness from our families and friends for all the events we missed, the time taken away from other duties, the late nights and early mornings, and that far away look in our eyes as we pondered the latest finding or groped with the latest challenge. Thank you for your support.

November 2008
PB, HG, HH, AH, MS

EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this study is to analyze the incidence of Total Permanent Disability (TPD) pensions in Washington State's workers' compensation program. Concerns exist at both the legislature and in the Department of Labor and Industries as there appears to have been a sharp upturn in the number of pensions awarded since late in the 1990s. This report examines the factors that may be causally related to any upsurge in such awards. Our task is to evaluate pension incidence for both the state fund and the self-insured populations, with a view towards identifying causes of the trend in both sectors, although we concentrate more on the state fund claims due to data limitations.

Interest in pensions arises both because of their costs and because of the widely held view that wherever possible injured workers should be enabled to return to productive employment. In total, TPD pension claims account for more than one-fourth of workers' compensation costs for state fund insureds in Washington. Yet total permanent disability claims do not represent a very large share of overall benefit costs in other states because the incidence of such claims is low. At least two factors account for the importance of pensions in Washington. First, it appears that Washington has a higher incidence of total permanent disability cases than do other states. Second, these benefits are adjusted annually to reflect increases in the state's average annual wage, and there is concern about the unfunded liability of the Supplemental Pension Fund. Inflation adjustments of this or similar kinds are found in 15 other state systems and represent a sizeable portion of the cost of these claims. In Washington, one-half the costs of such inflation adjustment are borne directly by the state's workers.

Our report can be summarized in five major sections which we treat as questions:

- Are the rates of TPD pension award high in Washington State?
- What factors are associated with claims that result in pensions?
- Has there been substantial growth in pensions?
- What factors are associated with the growth in pensions?
- How can the future course of pension claims be predicted?

ARE TPD PENSION RATES HIGH IN WASHINGTON STATE?

Making interstate comparisons in workers' compensation is always challenging. State laws, practices, terminology, data availability and reporting all vary. The speed with which jurisdictions close claims can vary substantially. The problem of the "long tail" of claims increases the difficulty in making certain kinds of comparisons, and this is certainly true with regard to the incidence of TPD claims. In Washington it has not been unusual for claims to remain open and active for more than 10 years before they are resolved with the award of a pension. A special challenge for comparisons is that most states allow insurers to use compromise and release settlements to close claims and terminate liability. The problem with such agreements for purposes of a comparative analysis is that there are claims that might have resulted in TPD compensation in the absence of the settlement, but they are not recorded as such in other jurisdictions.

The National Council on Compensation Insurance (NCCI) reports on the incidence of total permanent disability cases for 44 states and the District of Columbia. The number of pensions awarded per 100,000 covered employees is very high in Washington compared with other states; roughly four to eight times the 36-state average, and about two to four times as high as any other jurisdiction. Washington is also very high when evaluated in terms of TPD claims per 1,000 time-loss claims or the ratio of TPD awards to permanent partial disability awards.

Because the broad structure of workers' compensation in British Columbia is similar to Washington's approach, we regard it as a valuable source of benchmark comparison. This was especially so before some legislative changes made in B.C. after a 2002 "Core Review." Adjusting for the obvious differences in claim counts, examining the TPD experience in the two jurisdictions reinforces our conclusion that the incidence of pensions in Washington is very high, roughly two to two-and-a-half times as high as in British Columbia.

WHAT FACTORS ARE ASSOCIATED WITH CLAIMS THAT RESULT IN PENSIONS?

A Structural Source of Pensions in the Washington System

In terms of TPD pensions, we believe that Washington's approach is almost unique in a very significant way. Only one other state, Nevada, provides compensation in basically the same way as Washington does for total permanent disability.

First, Washington is different from most of the other states in that its workers' compensation program does not allow for compromise and release agreements for indemnity benefits to decisively close claims. We believe that only eight states either do not allow such agreements or place important limits on their use (See Table 1). While 19 states including Washington pay PPD benefits for unscheduled injuries or illnesses solely on the basis of the extent of medically determined impairment resulting from the injury or illness, only six of these limit lump-sum settlements.

Of these six jurisdictions only Washington and Nevada compensate total permanent disability based on (medical) impairment (for conditions specified in the statute) **or** for work disability. In Washington the worker is totally disabled for the purposes of a pension when the injury or disease permanently incapacitates the worker from obtaining and performing any work at any gainful occupation. As a result, the opportunity to return to work is central to the pension award decision, aside from those specific conditions listed in the statute which account for relatively few cases annually.

Table 1 Arrangements for Permanent Disability Compensation among State Workers' Compensation Systems

Limits on lump-sum settlements for indemnity benefits for permanent disability	Permanent partial disability benefits based solely on impairment (unscheduled injuries)	Total permanent disability benefits paid only for conditions listed in the statute	Total permanent disability benefits paid based on impairments listed in statute or on incapacity from performing work
Delaware	X	X	
Indiana	X		
Nevada	X		X
New Mexico		X	
Tennessee			
Texas	X	X	
Washington	X		X
West Virginia	X		

For explanatory notes, see Chapter 6 of the report.
SOURCE: Barth and Niss (WCRI, 1999)

Thus, among the states where permanent partial disability compensation is based on the degree of impairment, and where the use of lump-sum settlements for indemnity benefits is limited by law or practice, only Washington and Nevada use criteria other than the degree of impairment to evaluate and award total permanent disability pensions. Even where a work-related injury causes a severe economic hardship, the law requires that only the degree of (medically determined) impairment be considered in the awarding of permanent partial disability

benefits. However, the impairment benefit may bear very little relationship to the actual degree of work disability. If it appears evident that the permanent partial disability benefit inadequately compensates for the work disability that the worker has experienced, the system has no flexibility to remedy this. The result of this combination of factors places the worker and the state fund or the self-insured employer in a position where the only possible source of additional compensation is the TPD pension.

The Characteristics of Pension Claims

This study undertook a detailed review of a random sample of over 900 workers' compensation claim files, drawn from both the state fund and self-insureds, and including both those that culminated in pensions and others that did not. Our aim was to gain a detailed understanding of the claims management and pensioning processes, and to observe any differences from before and after the upswing in pension awards. It enabled us to obtain data elements that were not available in the Department's data warehouse. It allowed us to achieve a qualitative understanding of trends and patterns as well as a consistent quantitative measurement of factors affecting pensioning.

We took two different years, 1997 and 2002, comparing the total permanent disability claims awarded in those years, as well as selecting a comparison population from time-loss claims in each of those time periods. This way it would be possible to compare characteristics of pensions awarded in the two time periods, and also compare pension claims to non-pension claims in the two years. In choosing 1997 we are close to the beginning of potential changes in claims and pension adjudication, but we are confident that the choice of 1997 still allows for some significant "before and after" comparisons between the two time periods.

Obtaining a suitable comparison group was difficult. Ideally we sought a group of claims that had a high probability of TPD by virtue of their characteristics, but had not received a TPD award by the time of our analysis. The selection of self-insured claims was conducted in a similar fashion, but the data on time-loss-only claims among the self-insured were very incomplete. We believe that we have a representative selection of self-insured claims for review, but we are not satisfied with the quality of the time-loss data among the self insured. Our analysis of self-insured claims is also limited by the small sample numbers. Because of these data limitations, our analysis of self-insured claims is also limited.

The claim file review allowed us to consider many different variables. Very succinctly, comparing state fund pension cases in 2002 with those awarded in 1997, we found the following to be significant differences between the two years. The 2002 pension claims show a slightly higher age at injury, and a lower proportion married; they also show a lower number of hospital admissions and surgical procedures than 1997 pensions. They are more likely to demonstrate opioid use, to have preexisting conditions, and to be from economically distressed counties. They are less likely to show any return to work than 1997 pension claims.

State fund comparison time-loss claims from 2002 are less likely than 1997 claims to involve back injury, have much lower hospital admission rates, and fewer surgical procedures. They are older at injury and are more likely to have at least a high school education. They show less opioid use, are much less likely to have used a pain clinic, and have significantly less psychological involvement. They are also less likely to have preexisting conditions, far less likely to be a reopened case, and are less likely to show a return-to-work attempt. They are more likely to have had their claim contested by their employer, but are far less likely to have been involved in an appeal to the BIIA.

Self-insured pension claims from 2002 are less likely than those from 1997 to involve back injuries and less likely to be female. Fewer of them had prior claims, but they are much more likely to have had a contested claim. Fewer of these 2002 pension claims show appeals. Comparison time-loss claims from 2002 are quite similar to those from 1997. They involve fewer back injuries, are slightly older, and less likely to show opioid use. There were no significant differences in the number with prior claims or return-to-work attempts. There was also no difference in the number whose claims were contested by the employer.

There were major differences between our two multivariate estimates that presumably indicate changes in Washington's workers' compensation system between 1997 ad 2002. The largest increases in estimated effects were found in psychological conditions, agricultural employment, and preexisting conditions. Other variables that showed rising influence on the likelihood of pensions in 2002 included opioid drug use, reopened claims, and claims from economically distressed areas. These all seem to be consistent with what we heard from knowledgeable observers in Washington. In addition, the effect of the number of VR activities and prior PPD award both became less negative from 1997 to 2002.

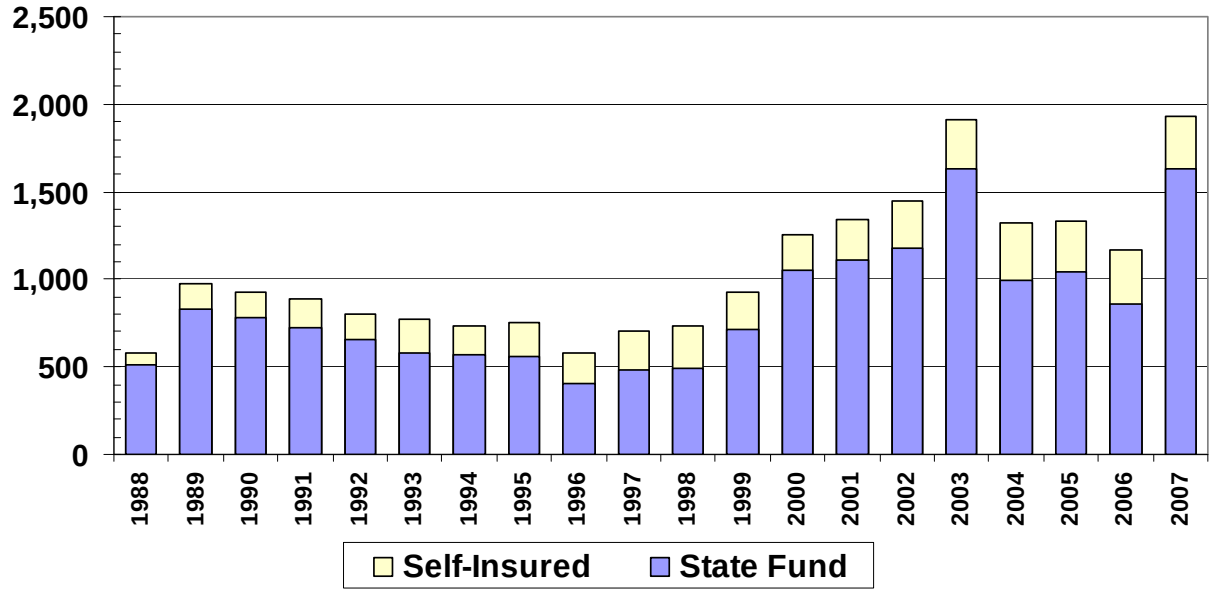
Among those variables that declined in influence between 1997 and 2002 were gender, marital status, age at injury, and less than high school education. Thus the demographic characteristics of the injured worker seemed to be less important in 2002. In addition, the influence of pre-injury earnings, use of pain clinics, and legal representation were all less positive than they had been in 1997. Small declines were recorded for employer contested claims, prior claims, and the number of medical procedures. No change was seen in the effect of employer accommodation, the number of independent medical examinations, or self-insured status of the employer.

HAS THERE BEEN SUBSTANTIAL GROWTH IN PENSIONS?

Figure 1 shows the number of TPD pensions awarded annually over the past two decades in Washington. It is evident that a sizeable upturn began in the mid 1990s and continued at least through 2003 along with a considerable jump in awards in 2007. Also, although pensions awarded in 2004 and 2005 fell from the previous peak in 2003, the number of pensions awarded in those years were higher than levels reached before 2000. The figure makes it clear that this upturn was more characteristic of state fund claims than of self-insured claims, although self-insured pensions rose substantially also. Perhaps the most remarkable thing about the growth in pension awards, at least among state fund employers, is that it occurred in the face of a steadily declining number of workers' compensation claims for time-loss benefits since reaching a peak in 1990–91.

We are persuaded that pension awards have been growing over time though the rate of increase may have been somewhat less dramatic than it initially appears to be. Consider that in the five years 1988–1992, there were an average of 682 pensions awarded per year; or that in 1989 to 1991 under a previous push to close claims at L&I, there were 735 pensions awarded per year. Then consider that in the years 1993–1998 there were only 499 pensions awarded per year. The 1989–91 spike was likely accounted for by the "Yes-We-Can" push, and that was followed by a decline in pensions from 1993 to 1998, with an inventory buildup that was then pared down over the next few years. This view would suggest that a portion of the jump in pensions after 1998 actually was a pipeline or inventory adjustment linked to the decline in the average number of pensions awarded in the 1993–98 years.

Figure 1 Number of TPD Pensions Awarded by Fiscal Year



SOURCE: L&I Research and Data Services

If we consider the years 1999 to 2006, the average number of awards is indeed higher than the 1989–91 baseline. That is hardly surprising in the light of time-loss claims that began to increase after 1982 and peaked in 1990. Claims from this peak period were the raw material for pensions in the late 1990s and going forward. From 1998 to 2001 the median length of time for pension awards made in those years was eight years from date of injury. That the number of pensions is correlated with the number of time-loss cases with a lag of six to 10 years is both intuitive and indisputable.

Based on the peak of time-loss claims in 1990, pensions would have been growing for that reason alone in the late 1990s and early 2000s, even aside from the working down of the excess inventory that built up from 1993–1998. There was indeed an upsurge in pensions around 1999, at least for the state fund. But the view of the size of the upswing must necessarily be shaped by the baseline used to measure it. There is little doubt that there has been a continuing increase in the ratio of active or open claims to all compensable claims from the mid 1990s to the present. As duration continues to increase, the raw material for future pensions does as well.

Aside from the issues of a claims inventory adjustment and of the lag from the peak years for time-loss claims to the awarding of pensions, one other factor adds to the puzzle. Beginning early in the 2000's the median time from claim origination to allowance fell from approximately eight years to about six years. That is equivalent to saying that claims that once would have

remained in open or active status for some additional years were now pensioned earlier, boosting the number of pensions that L&I awarded. Had this change in practice or policy not occurred, it is likely that the pension counts would have been lower in the mid 2000s, though very likely most of these would have become pensions a few years later.

We conclude that the growth of pensions was not due solely to the inventory adjustment resulting from claims management processes in the agency. The rate of pension awards relative to lagged time-loss claims has also grown. And there has been continuing growth in the proportion of time-loss claims that remain open or active, both for relatively short durations and for long ones, suggesting that the agency is encountering difficulty in closing claims as quickly as they have in the past.

WHAT FACTORS ARE ASSOCIATED WITH THE GROWTH IN PENSIONS?

Major Cause: Claims Management Practices

In our view one of the factors that led to the upsurge in pensions was the result of three conditions that occurred in combination. These conditions are:

- a build-up of open (or active) long-duration time-loss claims;
- a high probability that a long-duration time-loss claim will evolve into a pension case; and
- a concerted push to clear out the long duration time-loss claims.

In 1998 about one in seven open claims at L&I had been open for at least six years; many of them were a good deal older. This proportion began to decline slowly thereafter, yet one in every eight time-loss claims that were open had been open for six or more years in 2001. Each year from 1996 to 1999 there were close to 6,000 open time-loss claims that had been open for six or more years. This is compared to a range of 600 to 1,000 pension awards per year.

A large share of the pensions awarded in any year goes to claims where the work accident occurred 10 or more years previously. In 2000 a high water mark was reached as over 38 percent of the pensions awarded that year went to claims that had been open for 10 or more years. The number of these 10-year-old or older cases that were pensioned peaked in 2002 and 2003.

The data suggest that there is a continuing problem with long-duration claims in Washington. The percent of compensable claims from each calendar accident year that are active five years after the injury year began to rise in 1996, increasing nearly 60 percent by 2002. This

growth of long-duration time-loss claims provides the base for pension growth in the future. Additionally, the linkage between long-duration cases and the increasing probability that this results in pensions seems incontrovertible.

Steps to shorten average duration have been taken at various points for more than two decades at L&I. One such major push was made in 1998 when money was made available to fund 24 additional Claim Managers, with the proviso that time-loss duration be reduced by five percent by June 30, 2000 and an additional 2.5 percent by June 30, 2001. This added considerably to the workloads of the Pension Adjudicators, both because of the increased number of pension determinations that were needed to be made by them, and because the average experience level of the Claims Managers was less due to the presence of newly acquired staff.

We conclude that the concerted push to reduce time loss and close claims during the period from 1998 to 2001 contributed to a lumpiness in the year-to-year number of pensions awarded, thereby precipitating a portion of the increase in the number of pensions awarded.[1] This administrative action accounts for a significant share of the pension growth. However, the administrative push and the resulting upsurge of pensions were built upon a foundation of increasing durations. This push to resolve claims also led to some decisions by the agency that disappointed some claimants and fostered an increased number of appeals.

Major Cause: Poor Labor Market Conditions

Difficulty in the labor market is likely to increase the probability that an injured worker cannot return to employment and the earnings level that existed before the injury or illness. That difficulty may be the result of economic weakness in the injured worker's community or region, and/or it may result from personal characteristics that contribute to difficulty in finding and retaining employment, except perhaps when the labor market is very strong. We believe the evidence shows that labor market conditions have played a significant role in the pension upsurge in Washington.

Labor markets that provide substantial job opportunities reduce some of the barriers that injured workers face in seeking and retaining employment. Such labor markets also cause employers to have a greater need to reemploy their injured workers. Strong labor markets also tend to generate wages that encourage workers to return to and to remain in employment. Since

[1] Not only do such special efforts contribute to year-to-year volatility, there is considerable variation in the number of pensions awarded on a quarter-to-quarter basis. This seems particularly pronounced since 2000.

the early 1990s the labor market in Washington has been weak, though some geographic areas have been strong for most years. Not surprisingly, those with the least education or other disadvantages have been disproportionately at risk for having their work injuries evolve into pensions.

Other Possible Causes of the Increase in Pensions

There is no doubt that a worker's age is associated with receiving a pension. It is also true that Washington's population, and likely its labor force, have grown older in recent years. Did this contribute to the growth in pensions? Our analysis finds that the aging of the workforce is not a significant contributor to the year-to-year growth in pensions. Age undoubtedly has an impact on pension likelihood but not on short-term swings. The impact of age does manifest itself over longer periods of time and it has likely had some effect when viewed over the period of a decade or more. As the state's labor force continues to age, it will tend to raise the rate of pensioning.

Back injuries are often the focus of concern in workers' compensation studies because of their frequency, their cost, and the difficult diagnostic, etiological and treatment issues they present. From 1993 to 2004, accepted back or spinal injury claims fell by 29 percent in Washington and the number of denied claims over the same period fell by 48 percent. When we examined the proportion of back or spinal injury claims that were accepted as a proportion of all time-loss claims in each accident year, the rate fell over the 12 years, albeit slightly.

Could changing treatment for back injuries be responsible for the upsurge in pensions? It was suggested to us that increased use of lumbar fusion surgery in Washington State, especially with intervertebral cage devices, may have made a significant contribution to the increase in pension awards. The data on such procedures lead us to conclude that this type of surgery could not have been responsible for more than a small percent of the increased number and rate of pensions during calendar years 1996 to 2003.

By contrast, claims with psychological involvement have clearly increased and may have played a role in the increasing number of pensions. However, the rates of increase are not sufficient to account for a major share of the increase in pensions during the period under question. These medical conditions often develop after another disabling injury has occurred. They may be the result of disability as much as the cause. We identify this factor as one that warrants some further attention.

The use of opioids to treat the disabled has also grown considerably over the period we considered in this study. It is difficult to sort out the causal relationship between the use of these medications and long-term disability and pensions. Is their continuing use a function of the degree of pain and impairment for the worker? What is cause and what is effect? Even if this treatment is responsible for increasing the numbers of pensions, our analysis suggests that it could not be a major cause of these cases.

In seeking to explain the upsurge in pension awards beginning in the late 1990s, we also ruled out some sources that theoretically could be responsible. Among those factors that were investigated, but did not prove to be strongly related to the upsurge were the following: an increase in the number and/or the severity of occupational injuries and illnesses, changes in the legal environment in which workers' compensation cases are evaluated, including certain judicial decisions (e.g. Leeper 1994) operation of the Vocational Rehabilitation (VR) program, and appeals to the BIIA by injured workers. None of these factors appear to be causally involved in the increase in TPD pensions.

HOW CAN THE FUTURE COURSE OF PENSION CLAIMS BE PREDICTED?

We used information from the L&I data warehouse to estimate a model that would predict pension receipt among claims that had already received between three and 10 years of time-loss payments. Our model predicted the probability that these claims would be granted a pension in the following six years based upon their characteristics. The data included such factors as time-loss duration, age at injury, gender, county of injury, industry of employment, PPD receipt, Social Security offset status, number of appeals, vocational rehabilitation plan development, hospital admissions, surgical procedures, opioid prescriptions, neck and back conditions, psychological treatment, and prior claim status.

In our predictive model, the most important determining factor in the likelihood of pension is the length of time from the date of the injury. Each additional year of time loss since injury increases the odds of a pension by 30 percent. Age at injury was also a very significant factor. Each additional year beyond the mean is associated with a nine percent increase in the odds of pension, holding other factors constant. Translating this to predicted probabilities, a worker who is less than 30 years old and has between 3 and 10 years of time loss has a 15 percent predicted probability of pensioning, while a worker with the same characteristics, but between 60 and 65 years of age has a 78 percent predicted probability of TPD.

Claims from economically distressed areas had a 16 percent increased likelihood of TPD, holding all other factors constant. Claims with psychological treatment within the first three years of injury had a 40 percent increased chance of pension outcome. Accepted back and neck conditions (as defined by ICD-9 codes) were associated with a 30 percent increase in the odds of pension over other conditions. Claims with opioid use showed a 21 percent greater likelihood of pensioning.

A case with a vocational rehabilitation plan approved is 56 percent less likely to receive a pension than a case without such a plan, other things equal. This estimate does not mean that VR treatment will reduce the likelihood of pension by 56 percent, but it does indicate that claims selected for VR referral that proceed to VR plan approval are much less likely to end up as pension claims.

If a worker's benefits are offset due to Social Security payments, the worker is more than twice as likely to receive a pension. Receiving a permanent partial disability (PPD) award within the first three years of a claim lowers the probability of pension by 17 percent, holding all other factors constant. Appeals to the BIIA are associated with an increased likelihood of TPD by 10 percent.

Industry of employment can be an important factor. In this model we included agriculture and construction as two major industries tending to have seasonal employment and relatively high workers' compensation claim incidence. Our model estimates that an agricultural worker was 25 percent more likely to receive a TPD than other workers, but that construction workers were not statistically different from other workers with regard to TPD benefit receipt.

Our model correctly predicts pension outcomes approximately 70 percent of the time based upon the available variables. Our predicted pension probability is somewhat lower than the ultimate probability of pension predicted by L&I Actuarial Services for claims three or more years old. But it is important to note that our pension probability model misses many of those likely to be identified by the actuarial models, especially claims that get awarded pensions more than 10 years from date of injury. The actuarial models use a different method, employing projections of ultimate counts based on the number of active claims and past claim closure rates rather than individual claim characteristics, and their numbers are not directly comparable to ours.

In essence, actuarial methods use a “macro” or systems approach, while our model uses a “micro” or individual approach. In addition, our model only explains a portion of the overall variation in pension rates due to its restricted range and limited variable set. Our model is not meant to be a substitute for the methods or the estimates of the actuarial staff at L&I. The value to the Department of Labor and Industries of our model is that it could be used to identify cases with a high probability of pension so that a claim management intervention could be applied earlier in the claim to reduce the probability of pension award.

1 Overview of Report

INTRODUCTION

In the autumn of 2007, Washington State's Department of Labor and Industries (L&I) entered into a contract with the W.E. Upjohn Institute for Employment Research to undertake a study of the incidence of Total Permanent Disability (TPD) pensions in its workers' compensation programs. The contractor was asked to explore the trend of such claims for both the state fund and the self-insured populations, with a view towards identifying causes of the trend both within and outside the state's system. In addition, using the results of the inquiry, the contractor was asked to develop a model that would predict the future levels of TPD pensions. This report responds directly to the Department's request.

The Issue

The Department made clear the single most important factor that prompted the need for this study. During the late 1990s a sizeable upsurge in the number of TPD awards occurred, causing concern about the financial implications of such a development. These awards, on average, are very expensive and if the upward trend in pensions continued on that track, serious problems could result for the funding of the system. The Department did not ask the Upjohn Institute to prepare projections of these costs, nor did it request that policy recommendations be made to cope with the possible future developments. Instead, the Department simply wanted to learn what had caused the growth in such awards and what their future incidence might be.

The Research Team

In order to fulfill its agreement the Upjohn Institute organized a research team which included five senior members with considerable relevant experience:

Professor Peter Barth, Emeritus, The University of Connecticut;

Professor Heather Grob, St. Martin's University;

Professor Henry Harder, University of Northern British Columbia;

Dr. Allan Hunt, W.E. Upjohn Institute for Employment Research; and

Dr. Michael Silverstein, The University of Washington.

In addition, L&I provided two support staff for the team. Russ Redding was our data contact person providing us with analytical support from the L&I data warehouse. Sandra

Torstenson was our policy contact. Because of the requirement of a claim file review as part of this project, we also hired five retired L&I Claims Managers and Pension Adjudicators to abstract the data from the actual claim files. This strategy took advantage of the enormous depth of experience that such individuals accumulate. Because of this experience, we were able to push beyond the usual data collection and call for expert judgments on complex claim characteristics. A group from Saint Martin's University, under Dr. Grob's leadership, entered and edited the data from our claim reviewers. We also asked retired workers' compensation expert, Roger Thompson, to review our data collection plan and give us suggestions for improving it.

THE RESEARCH PLAN AND ITS IMPLEMENTATION

Our research plan consisted of four distinct modules, each of which was designed to provide an independent point of view from which to assess the surge in pensions. We briefly describe each one below.

1. A Program Assessment

The team carried out an assessment of the TPD pension program including elements from a broader operational context having a significant bearing on TPD pensions. Its purpose was to allow the team to understand the current system and to formulate some hypotheses regarding possible causes for the apparent sudden growth in pensions. The review of the program included developing an understanding of the legislative and regulatory design as well as its administration.

Further, we reviewed some operational aspects of the system to see how policies and practices changed over time to look for possible explanatory factors that could be evaluated in the quantitative analysis. Case law that had developed in the courts and significant decisions by the Board of Industrial Insurance Appeals (BIIA) were considered. Additionally, trends were assessed in a variety of areas including demographic changes, regional economic differences, injury and illness incidence and other factors that could shed some light on the core issue under examination. These efforts were supplemented by a review of the relevant literature as well as reports and materials made available by L&I.

In order to conduct the program assessment the research team undertook interviews with knowledgeable individuals both within and outside of L&I. Aside from meeting staff in many different units of the agency, interviews were conducted with the leadership of the BIIA, attorneys experienced in workers' compensation in Washington, health care and rehabilitation

service providers, self-insured and other employers as well as the organizations that represent them, officials from organized labor, and staff from the Attorney General's office.

A wide range of information from the L&I data warehouse was also made available to the team. Although some of these data were only of relatively recent vintage, this source proved to be very helpful and access to it was greatly simplified because of the assistance from L&I personnel.

2. A Comparative Analysis

The emphasis of this second module was to compare Washington's program with those of other jurisdictions. While the central focus was the recent upsurge in TPD awards in Washington it was necessary to consider the approach used by the state's program in evaluating and compensating all permanent disability cases. In certain specific respects Washington's concerns are not commonly found in the other state workers' compensation systems. For several reasons most states find that total and permanent disability awards are seldom encountered.

Indeed, while many states find that their permanent disability benefit programs are unsatisfactory from a number of perspectives; this customarily applies to compensation for permanent partial and not for total permanent disability. At least one state, West Virginia, has had a very similar concern that eventually forced the state to entirely recast its workers' compensation program in 2005. However, West Virginia's situation differs from Washington in several respects including the dimensions of its permanent disability problem, its long-term insurance pricing practices, and the state's very heavy reliance on an industry in long-term economic decline (coal mining).

Finding other jurisdictions against which we could compare Washington on the incidence of TPD awards was challenging. Washington is different from most of the other states in barring private insurance and in that its workers' compensation program does not allow for compromise and release (lump sum) settlements to decisively close claims. Though a few other states also severely limit the use of such agreements, compared to those states Washington's approach is complicated by its law which pays permanent partial disability benefits strictly on the basis of the degree of medical impairment. The number of states that limit such compromise and release agreements and that also compensate permanent (partial) disability exclusively on the basis of the degree of medically determined impairment is very small.

Possibly making Washington unique among this already very small set of jurisdictions is that total permanent disability is not evaluated on the basis of the degree of impairment. Instead, the worker's ability to return to work is considered in the total permanent disability pension eligibility decision. The result is that even where a work-related injury causes a severe economic hardship, the law requires that only the medical impairment be considered in the awarding of permanent partial disability benefits. Yet the impairment benefit may bear very little relationship to the degree of economic disability. This places the seriously disabled worker in a position where the only possible source of additional compensation is the TPD pension. Combining this with the limits on lump-sum settlements, we believe makes Washington's approach almost unique in the United States.

Ultimately, we used the neighboring jurisdiction of British Columbia, Canada as one that could be compared in some detail with Washington. In a number of respects that system approaches permanent disability compensation similarly to Washington. Interestingly, the province also experienced important concerns with the awarding of total permanent disability benefits and undertook a "core review" of its program and subsequently modified its scheme.

We also compared the experience of a number of U.S. jurisdictions to evaluate the comparative incidence of permanent disability awards. However, we recognize the inherent difficulty of comparing Washington's experience with that of states where compromise and release agreements are allowed. For those states, there are severe problems in evaluating how many total permanent disability benefits are paid because of their confusion with permanent partial benefits through the compromise and release process.

3. Claim File Review

The research team was obligated under the contract to undertake a review of claim files. The purpose of the review was to "determine the key claim characteristics that lead to a determination of a pension by the courts, appeals board, and department pension adjudicators." One of the reasons for the review was to obtain data that could be extracted from the files but did not exist in the data warehouse. For certain purposes we also merged data from the warehouse with those from the review.

Undertaking such a review necessitated speedy action by the team to be able both to gain Institutional Review Board (IRB) approval for such a study, and to locate and employ experienced personnel who could rapidly, knowledgably, and accurately review an adequate

sample of files. The research design that we followed called for us to select a number of pensioned cases awarded in 1997 and a roughly similar number awarded in 2002. Comparing the two groups would allow us to determine if the characteristics of those with a pension awarded at the outset of the upsurge were similar to those whose awards were made in 2002 at its peak.

We also drew two comparison groups of individuals with long-term disability who had not received pensions by 1997 or 2002, but who had some characteristics in common with those who had received pensions. This enabled us to check whether changes between the pension samples of 1997 and 2002 were unique to pensioned cases, or whether they were more general in application. There were many challenges in identifying appropriate cases to be included in the comparison groups. In order to ensure that the claim reviewers were able to extract information that could plausibly point to the causes of pensions being awarded or not awarded, we also retained a highly experienced insurance industry consultant to review actual claim files and our proposed review plans. Ultimately, the claim file reviews were useful both to identify the factors that differentiated pensions awarded in 1997 from those in 2002, as well as establishing the specific correlates of pension claims.

4. Predictive Model

As noted above, one of the primary goals of the study was to develop a predictive model of future TPD awards. We present such a model in chapter 5 of this report. It uses only variables from the L&I data warehouse, since those data are available for all claims. Of course such a model is tied to the assumption that most of the conditions that currently exist will continue into the future. Therefore, the predictive accuracy of the model cannot be evaluated simply on the basis of the numbers that we project.

What we have observed in Washington, and in other jurisdictions, is that workers' compensation systems are dynamic. Changing conditions not included in the model undoubtedly will affect the forecasts made here, and we expect both dramatic and subtle changes will be occurring in the future. One obvious change which we believe will have important impacts on the system is the new approach to vocational rehabilitation undertaken as a pilot program with an implementation date of January 1, 2008. The ever-changing economic landscape in the state of Washington and in its regions is also certain to impact the number of pensions that will be awarded.

Another cautionary note should be observed about the predictive model that is developed here. This is a quantitative model. As such it is dependent on using only those factors that are quantifiable, and depends upon data that are accurate and available. This creates several challenges. First, the number of years for which data are available is limited. If for example we have data that extend back only 10 years, this is a relatively short time to use for time series analysis.

Consider a situation where some seemingly significant change occurred in the workers' compensation program five years ago. Determining the impact of that change is made more difficult if other changes were made in that same year, possibly enhancing or weakening the impact of either one of these changes. Simply as an example, consider attempting to discern the impact of a change in the organization of claims management units, in a year when an important decision was made by the BIIA, following several years of poor economic performance in the state, and a large layoff by the state's largest private sector employer.

Further, such a set of changes may not begin to show effects immediately. An important decision by the Supreme Court may only impact the system with an "implementation lag," as L&I, BIIA, attorneys, claim managers, and others begin to understand the operational significance of the decision. Reorganizing internal L&I claim management practices may be disruptive initially and yet be productive as the new system becomes familiar to staff.

Secondly, we recognize that there are qualitative factors that affect the incidence of pension awards. Some of these factors can be quantified, albeit crudely at times, through proxies, while others cannot. Because a variable cannot be quantitatively measured and inserted into a model does not render it unimportant. It does require that it be noted and that the results of the model be appropriately qualified.

THE STRUCTURE OF THIS REPORT

Our report consists of five additional chapters. Chapter 2 contains the assessment of the program. Much of it is directed to the question, "could the upsurge of pensions in the late 1990s be accounted for by certain specific factors?" It also asks the question, "was there actually an upsurge in pensions, or simply lumpiness in the awarding of pensions?"

Chapter 3 focuses on the comparative analysis of permanent disability frequency in Washington. Though difficult to pin down, due to the unique Washington environment that

creates several comparability issues, it seems evident that the number of TPD pensions awarded in the state is considerably higher than in other states or in British Columbia.

Chapter 4 presents the findings of the claim file reviews. It does so using bivariate analysis (cross tabulations) to consider a large number of variables that might be causally tied to pensions. Then a multivariate linear probability regression analysis is presented which considers the impact of many of these variables simultaneously. This analysis is performed separately for 1997 and 2002 claims, and clarifies relationships among potentially causative variables and provides additional insight into the determinants of pensions in Washington. In part it also serves to "set the table" for the predictive model that is found in chapter 5.

Our predictive model estimates the probability that individual workers' compensation claims with three years of time loss will turn into total permanent disability pensions at some point in the following six years. This is a somewhat contrived simulation of the real-world situation and we do not offer our model as an alternative to current L&I actuarial procedures, but as a supplement that has the potential to assist in identifying those claims that are likely to turn into pensions and that might justify additional intervention to prevent that eventuality.

Chapter 6 contains a summary of the entire study. Our methods and findings are summarized there for the reader who cannot take the time to digest the entire presentation. We also provide an Executive Summary for those who just want to focus on our conclusions.

2 Program Assessment

INTRODUCTION

The primary focus of this study is to determine the reasons for the significant growth in the number of total permanent disability awards and to project what the Department of Labor and Industries can anticipate in the future.[2] In this chapter our direction is twofold. First, we consider the system that L&I uses to process claims, along with the appeals process, to see if any clues to the causes for the upsurge in pension awards can be found there. A brief description of the use of vocational rehabilitation in the Washington system is included also. Second, we consider a variety of other possible drivers of this growth, recognizing that there may be several factors that are responsible for it.

A Summary of the Claims Flow Process

In order to evaluate possible drivers of the growth of pensions, it is necessary to provide a brief summary of the claims flow process, from the origins of a claim to its resolution.

State fund claims

The process begins when a health care provider sends a Report of Industrial Injury or Occupational Disease (form ROA) to L&I.[3] The ROA is reviewed in the Claims Initiation unit by a data entry worker who decides whether the claim will be initiated as a medical only or time-loss claim and then enters the ROA information into LINIIS (the automated claims management) system.

The claim is routed electronically to Employer Services where an account manager determines whether there is an employer-employee relationship with an employer who is covered by the state fund. The employer's Uniform Business Identifier (UBI), account number and risk class are assigned to the claim and the employer is sent a claim arrival notification letter. If L&I does not have jurisdiction the claim is rejected.

LINIIS then assigns the claim to a claim unit and determines the level of the adjudicator who will manage the claim using an algorithm that takes claim complexity into account. The

[2] Terminology is also specific to jurisdiction. Most states (and the NCCI) refer to permanent total disability (PTD). But we will follow Washington's practice of referring to such claims as total permanent disability (TPD).

[3] Washington State's practice is unlike most states where claims are initially filed by employees or employers. However, in 2006 the legislature directed L&I to undertake a pilot project on employer reporting (RCW 51.28.015). This pilot project expires in July, 2009.

claim is electronically routed to the assigned Claim Manager (CM) for adjudication. The CM makes an initial decision to allow the claim, reject the claim, or place it in undetermined or provisional status. Allowance or rejection orders of the CM may be protested to L&I or appealed directly to the Board of Industrial Insurance Appeals (BIIA) (see below for details).

CMs continue to gather and assess information on undetermined or provisional claims. If disability is certified by a medical provider, provisional time-loss payments may be made pending determination of claim allowance. If the claim is rejected, the amount of provisional time-loss benefits paid is assessed against the worker as an overpayment.

Claims that have been allowed continue to be managed by the CM who monitors progress, authorizes treatment, and pays time-loss compensation as long as this is certified by the medical provider. The CM may call upon several internal resources for assistance, including nurse consultants, higher level adjudicators, vocational services specialists or the office of the medical director. All workers receiving time loss after two weeks are referred for an early return-to-work assessment (described elsewhere in this chapter). The CM may also utilize external resources such as an IME (Independent Medical Examiner) evaluation or vocational rehabilitation providers in the course of ongoing claim management.

Claims Consultants (CCs)

These Level 4 staff are considered within L&I to be the "last level" of the claim. They review claims where there is a protest to an "appealable only order," and they review appeals filed with the external appeals board, the Board of Industrial Insurance Appeals (BIIA). Frequently their review will cause them to reassume jurisdiction on an appeal and return the claim back to the CM if the CC finds that the appeal appears to be warranted or if evidence is inadequate to support L&I's decision. They may request that a CM seek to clarify facts or strengthen the evidence in the file before a further appealable order is issued.

Pension Adjudication

CMs decide if a claim needs assessment for a possible pension and refer these claims to their assigned Pension Adjudicator (PA) for review. A pension referral can require a substantial commitment of time by the CM in order to assure that all issues have been addressed and the claim is ready for referral to the PA. The PA decides whether a pension should be awarded or denied. If more information is needed before a decision can be made the PA may obtain the

information personally, or may return the claim to the CM with specific instructions and guidance.

In resolving claims, the PAs have the authority to enter into comprehensive settlements that may address a variety of issues including claim validity, accepted and/or denied conditions, payment for diagnostic tests or medical treatment, travel expense, time-loss compensation and PPD. Some settlements require coordination with or agreement by another section, such as modification or reversal of an administrative fraud order, waiver of an overpayment, or approval of an over-seven-year reopening with payment of accident fund benefits.

There are several other ways that claims may be referred to the pension unit. Pension eligibility may be the issue on protest or appeal. Upon review, a Claims Consultant may refer claims directly to the pension unit if they feel the worker is unable to work or to benefit from vocational services due, at least in part, to the accepted industrial injury or disease. In addition, any of the following parties may directly request the pension unit to review a claim for pension: the injured worker, the worker's legal/lay representative, the employer or the employer's representative, an attending physician, the Vocational Dispute Resolution Office (VDRO), an Assistant Attorney General or their paralegal, L&I management, or a worker's beneficiary.

Claim Closure

When the worker has reached maximum medical improvement and is no longer receiving curative medical treatment, the adjudicator will review the claim for possible closure. Claims can be closed by Claim Managers, Claim Consultants, and Pension Adjudicators. Claims are closed by a "determinative order" sent to all parties informing them when medical and/or time-loss compensation will cease and/or whether a permanent disability award (PPD or pension) has been granted. The closure may be protested to L&I or appealed to the BIIA. When a claim is closed, medical and time-loss compensation stops even if the closure is protested or appealed. However, if the claim is closed with a PPD schedule or pension award, these payments continue even if claim closure is appealed. Benefits would only be held up if the employer is the appealing party and the employer's request for a stay of benefits is granted by the BIIA.

Protests to claim closing orders are reconsidered by the CM, CC, or PA who issued the closing order. The CM, CC, or PA is encouraged by L&I management, but not required by law or rule, to complete the first cursory review within 15 days, making one of four decisions. First, they must review the protest to ensure that it was timely filed. Second, they may conclude the

closure was correct and affirm with a further determinative order. This further decision may also be protested to L&I or appealed to the BIIA. Third, they may conclude the closure was incorrect and reverse it with a further determinative order. This further decision may be either protested to L&I or appealed to the BIIA. Fourth, they may decide that more information is needed, in which case an abeyance order is issued while evaluation of the claim proceeds. The abeyance order also may be protested to L&I or appealed to the BIIA.

When a protested claim is in abeyance there is no statutory or regulatory deadline for issuing the further order. The speed at which the claim proceeds depends in part on the issues being examined by the adjudicator. These may include medical questions (impairment or allowance of conditions), vocational questions (ability to perform or to obtain gainful employment), and disability issues (PPD ratings, medical stability, pension referrals). When a further determinative order is issued it may again be protested to L&I or appealed to the BIIA. This cycle may continue indefinitely as long as new issues are raised for subsequent protests or appeals.

Appealed claim closures may be reassumed by L&I for further consideration within 30 days of receipt of the appeal and before the BIIA takes any substantive action. The process for reconsidering an appeal differs in two major ways from the way protests are addressed. First, reassumed appeals are handled by CCs rather than CMs. Second, there is a statutory 90-day deadline for issuing a further order (with a possible 90-day extension for good cause). Within this timeframe the CC must take one of three actions on the reassumed order; affirm, modify/change, or reverse.[4] The further order issued by the CC can be protested or re-appealed. If re-appealed by one or more of the parties the appeal will then either go directly to the BIIA, where mediation is typically the next step or L&I may reassume on the appeal, but only if the appellant has raised new issues.

Claims are eventually closed in a limited number of ways, either when no timely protest or appeal is filed and the closing order becomes final, or when all protests and appeals have been exhausted. The paths to closure include the following:

- determination of maximum medical improvement by the attending physician, a medical consultant or an IME;

[4] When reviewing an appeal on claim validity (either allowance or rejection) but not on claim closure, the CC has a fourth option—to place the claim into provisional status where it receives further consideration.

- return to work (with or without vocational rehabilitation; with or without permanent restrictions; with or without modified work);
- determination of employability following maximum medical improvement based upon the opinion of the attending physician, medical consultant, IME, vocational provider or forensic vocational assessment;
- finding that the continued inability to work was not related to the injury or illness for which the claim was allowed (e.g. pre-existing conditions that naturally progressed post injury or an unrelated post-injury condition);
- a PPD award, after a determination of maximum medical improvement;
- settlements resolving issues such as back time loss, medical bills, travel expenses or accepted conditions. Settlements may include PPD, but only insofar as this is adequately supported by documented medical opinion; and
- determination of total and permanent disability leading to pension.

There are numerous barriers to claim closure, sometimes delaying definitive action, and these can extend time loss for many years. (Later in this chapter we consider the implications of these long-term claims.) A partial list of these barriers would include the following.

- Actions taken by injured workers, employers, attorneys, medical or vocational providers.
    - Protests and appeals, sometimes repeated with new issues.
    - Slow response to requests for information, opinions or services.
    - Providing new information that requires assessment by L&I.
    - Move to different labor market or out of state.
    - Injured worker disappears or is incarcerated.
    - New conditions or treatments presented.
    - Recurrence of symptoms.
    - Slow, incomplete or minimal compliance with the claims process. For example, missed medical appointments, non-adherence to medical recommendations, delays in selecting retraining goals, spotty attendance in training programs.
- L&I issues
    - Consideration of complex medical or vocational issues that require gathering and evaluating voluminous and frequently inconsistent or inadequate records, reports and data.
    - Difficulty in scheduling examinations or other services and in receiving timely reports.
    - Technology changes that create disincentives to complete file review or timely and comprehensive claim management (e.g. change from fiche to imaging; change to ongoing, automatic 14-day time-loss payments).

- Personnel changes that delay adjudication (e.g. CM turnover).
- Unstable, changing caseloads that make it difficult to establish and carry out an action plan. Inexperienced CMs, CCs or Assistant Attorneys General (AAGs).
- Detailed attention to narrow, step-by-step administrative processes with subsequent loss of the ability to see the whole pattern of a claim.
- Uncertainty about how to resolve conflicting opinions and information (e.g. conflicting conclusions from vocational provider and IME physician).
- Decisions about psychiatric conditions, especially those raised at the end of the process or during an appeal.
- Decisions about occupational diseases, such as the identification of acceptable conditions, the chargeable employer(s), and the percentage of liability.
- Limited time available to review and prepare full file for pension referral.
- Problems with managing the vocational rehabilitation process (e.g. CM cannot refer for Ability to Work Assessment until there is a medical determination of permanent restrictions and doctors are increasingly reluctant to state that restrictions are permanent).
- Many factors that prolong the vocational rehabilitation process, including failed plans, VDRO decisions, aggravation of accepted conditions, contentions of new conditions.
- Changes in agency priorities and strategies that might lead to possibly disruptive administrative changes in procedures and responsibilities.
- Ineffective use of deadlines. While there are few statutory deadlines that could create incentives to move long-term claims forward, there seems to have been, at least periodically, an abundance of supervisory and administrative actions that create incentives to close some claims so quickly that shortcuts are taken–for example selecting relatively simple, short-term claims for closure while delaying or postponing resolution of the more complex, long-term claims.
- Claims in Washington State never close absolutely. As long as claims have been closed for seven or fewer years (or ten or fewer for loss of vision or function of the eyes) they may be reopened due to objective worsening in the accepted condition with recommendations for further curative treatment. Even when claims have been closed for more than seven (or ten) years they can be reopened for medical benefits by an adjudicator if there has been objective worsening or for time-loss compensation by the director if certain other criteria are met. These criteria include the worker having not voluntarily removed himself or herself from the work force and the worker being unable to work as a direct result of the workplace injury. But even when these criteria have not been met, “to serve the interest of equity and good conscience, the director may exercise his or her discretion in an individual case.”[5]

[5] Industrial Services Policy 16.40, effective 11/1/96.

- BIIA issues
    - CMs can close some claims while appeals are pending, e.g. when time loss eligibility for a specific period is being appealed. However, claim closure is not permitted when claim allowance or segregation (denial of a condition) is on appeal because the appeal outcome can change the need to keep the claim open. CMs are encouraged to discuss claims with a CC before closing a claim with a pending appeal.

Self-insured claims

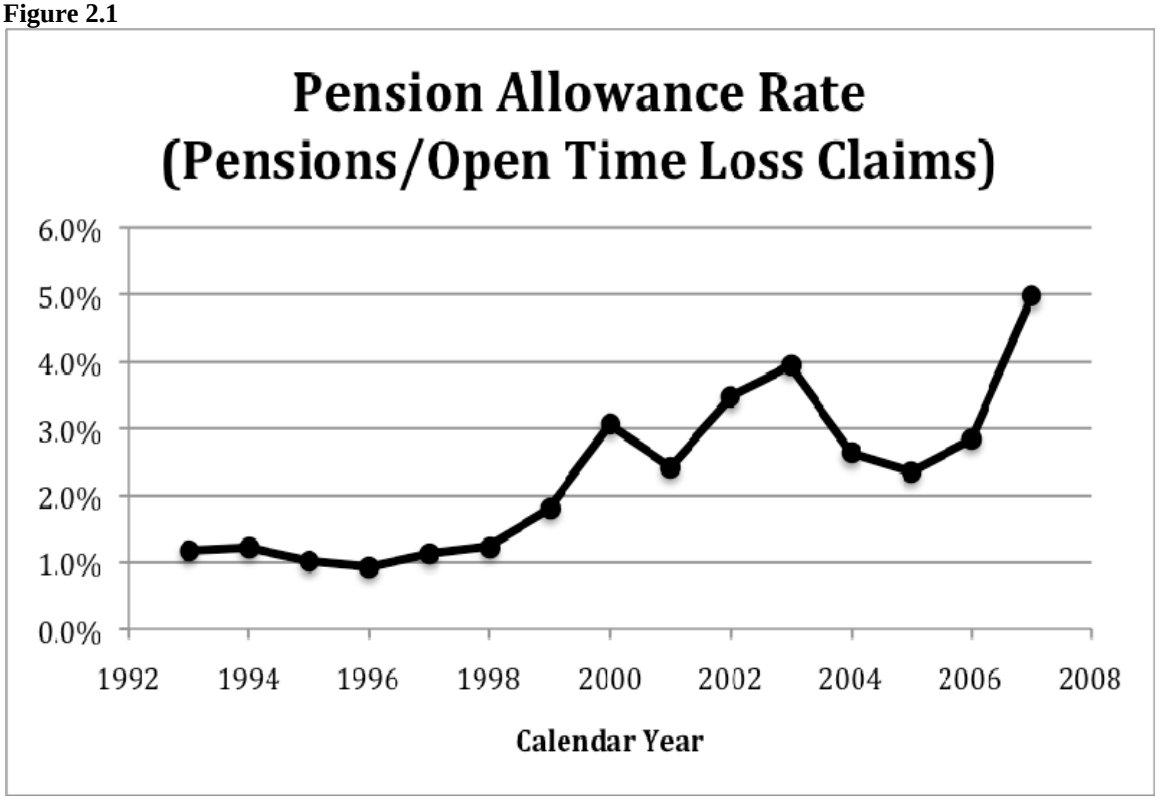
Self-insured employers manage their own worker compensation claims, either directly or through a third-party administrator. L&I exercises broad regulatory and oversight functions, becoming involved in specific claim adjudication only in limited circumstances. For example, L&I reviews and approves all claim rejections and most closures. (Medical only closures and employer closures, used in non-disputed claims, are not reviewed.) Only L&I staff may issue wage orders (which establish the worker's conjugal status, number of dependents and gross wage upon which the rate of time-loss benefits is calculated) for self-insured claims. Also if an employer protests an allowed claim or a worker protests a rejection the claim is reviewed by an L&I claims consultant. The L&I self-insurance staff also reviews and approves vocational plans that have been developed by self-insured employers and/or their third-party administrators.

Self-insured employers refer all potential pension claims to L&I where they are reviewed by a PA in L&I's self-insurance program. L&I makes all initial pension decisions and second-injury fund decisions for self-insured pension claims. L&I self-insured staff do not have funding to obtain additional medical or vocational workup or opinions. Their decisions are based upon the information provided by the self-insured employer/representative. Clarification of medical and/or vocational opinions may be requested through the self-insured employer/representative.

<u>Claim Managers and Pension Adjudicators Activity</u>

During the period 1993 to 2007 the number of time-loss claims open at the end of each year declined steadily, with more than 46,000 open at the end of 1993 and just over 31,000 open at the end of 2007, a reduction of more than 30 percent. During this same period the number of pensions allowed each year rose nearly threefold, with a sharp increase from 1997 to 2003 followed by two years of decline before rising to an all time high in calendar year 2007. The pension allowance rate (expressed as the ratio of pensions allowed to open time-loss claims) rose from 1.2 percent in 1993 to 5.0 percent in 2007 (Figure 2.1).

Figure 2.1

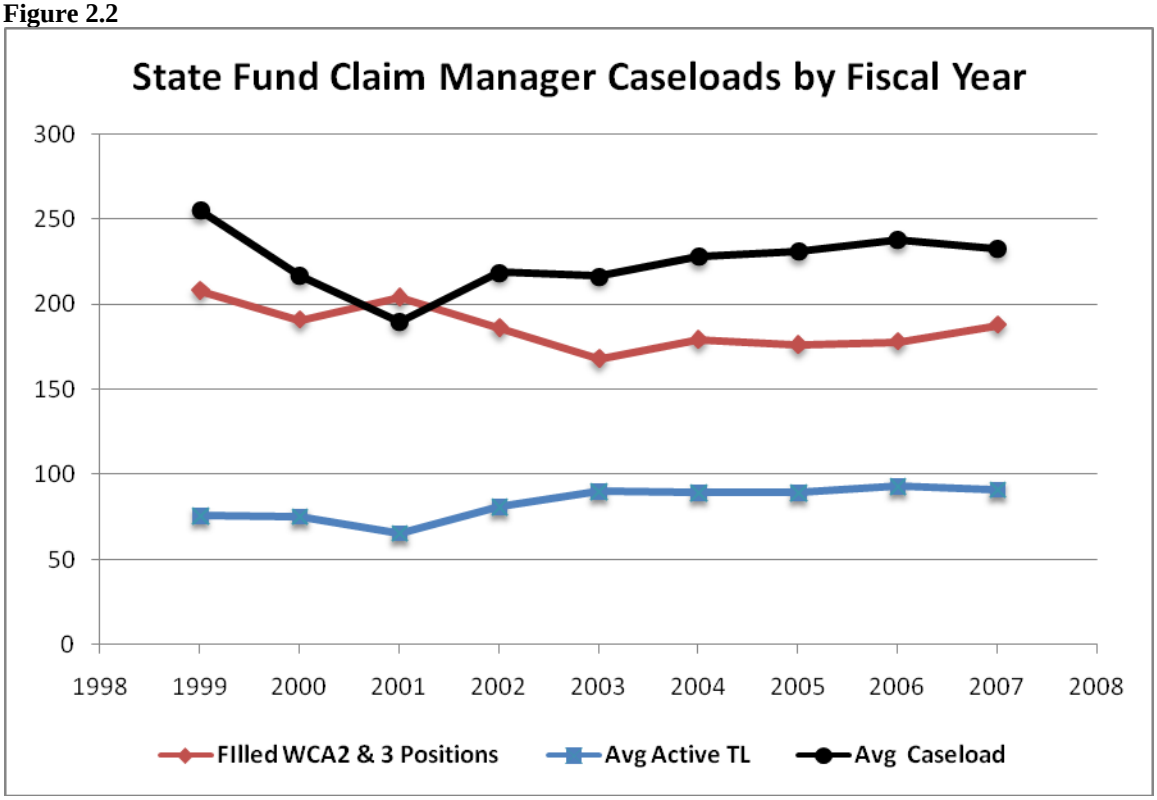


SOURCE: Data Warehouse, Department of Labor & Industries.

During this extended period of gradually dropping time-loss claims, the numbers of CMs and their claim loads remained fairly steady, with fluctuations from year to year but no significant short-term changes or longer trends. (Figure 2.2) [6]

[6] While the average numbers of Claim Managers and their case loads remained fairly steady, there was considerable turnover in people filling the CM positions, and there was substantial instability in the caseloads for individual CMs from month to month.

Figure 2.2



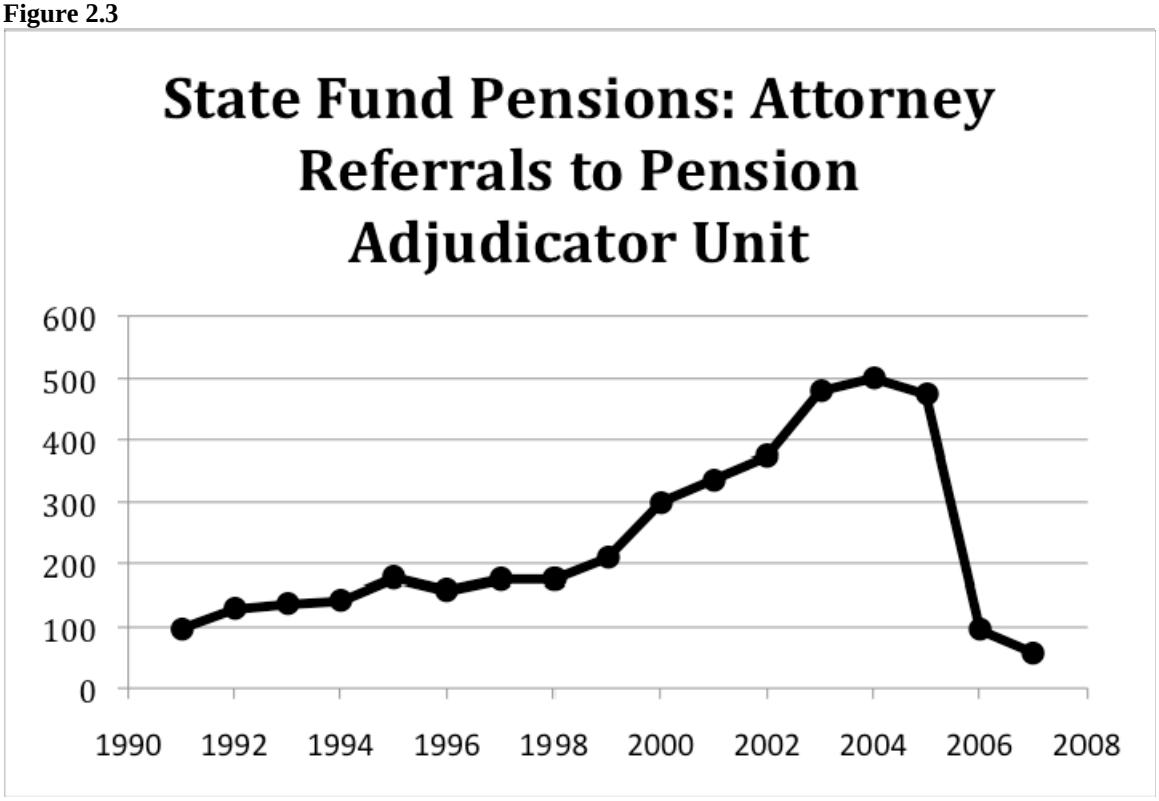
Note: Average caseload for Level 2 and Level 3 Claim Manager positions with caseloads as of the end of the fiscal year.
Active time-loss claims are defined as open claims with a recent time-loss payment for a period beginning or ending within 60 days of the end of the report month.
Count of positions excludes positions in specialized units such as the Out-of State Unit, the Hearing Loss Unit, and the Asbestosis/DRI unit staff, as well as those located in field offices (Units 5 and T). Positions and claims assigned to Supervisors, Claims Leads, Apprentices and Trainees are also excluded.
SOURCE: Data Warehouse, Department of Labor & Industries.

However, the number of pension referrals to the PA unit increased, especially from 1998 to 2003 (from 998 to 2,201). The number of Pension Adjudicator FTEs also increased in several years in the 1990s and particularly in 2000–2001 as did the percent of reviewed claims resulting in allowed pensions; for example, from 51 percent in 1993 to 74 percent in 2007. (These data are shown on an annual basis later in the chapter in Table 2.13.) Also, even without growth in FTEs, immediately after 2001 there were additional staff dedicated (temporarily) to processing pension referrals. It is not surprising, therefore, that the number of pensions allowed also rose during these same years.

Another feature of the workload in the pension unit is that claims can be referred directly by attorneys. From 1998 through 2004 the number of attorney referrals rose 2.5 times (Figure 2.3) and their percentage of all pension referrals increased steadily from 7 percent in 1991 to a high of almost 30 percent in 2004 and 2005 (Figure 2.4). In response to this increase L&I

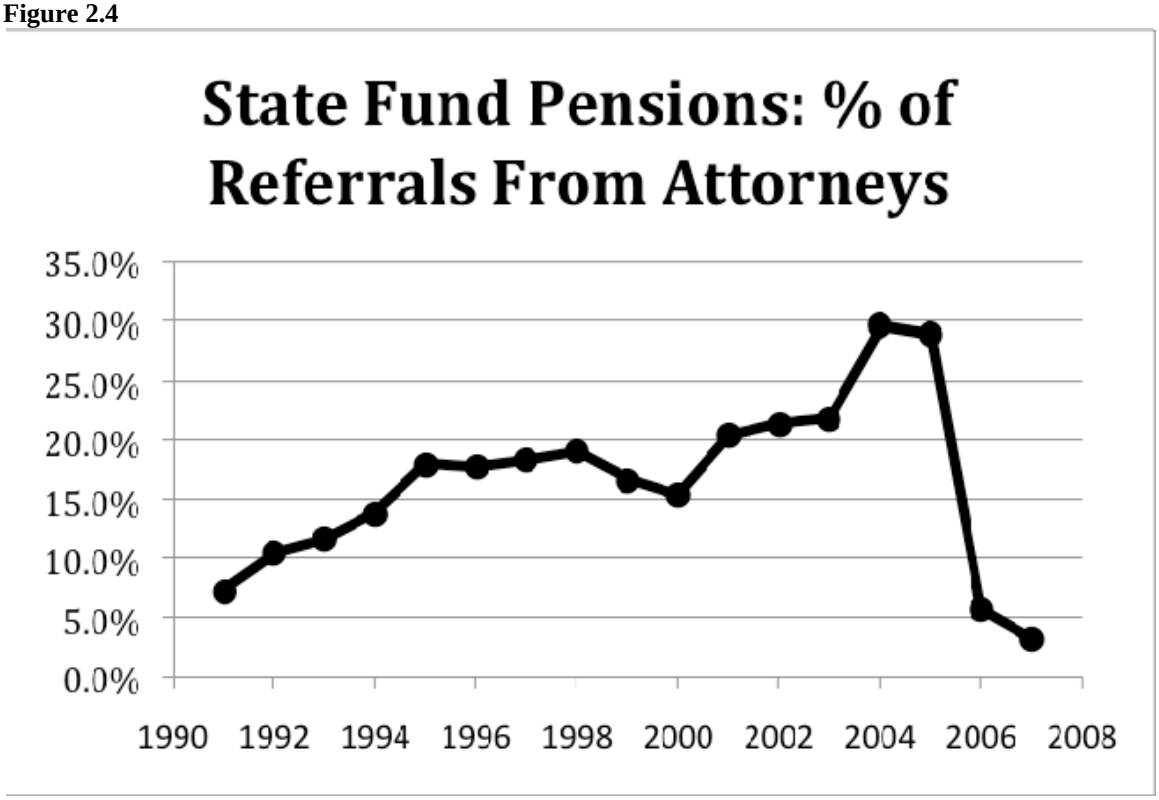
changed its practices regarding attorney referrals in December, 2005. Since that time most attorney requests for pension evaluation have been passed directly to a Claim Manager for initial review and have not been counted in the statistics from the pension unit.

Figure 2.3



SOURCE: Data Warehouse, Department of Labor & Industries.

Figure 2.4



SOURCE: Data Warehouse, Department of Labor & Industries.

Appeals of claims–The Board of Industrial Insurance Appeals and the Courts

The Board of Industrial Insurance Appeals (BIIA) is an independent state agency whose three full-time members are appointed by the Governor. The BIIA hears appeals of decisions made by the Department of Labor and Industries. A large majority of BIIA cases are appeals of workers' compensation decisions, most of which have been filed by injured workers. Before reviewing any appeals the BIIA gives L&I the opportunity to reconsider them, which L&I recently has done in about 30 to 35 percent of state fund appeals and 8 to 10 percent of self-insured appeals. The re-assumption rate has remained steady for state fund appeals since at least 1989[7], while the rate for self-insured appeals has been dropping since the mid 1990s from previous rates of 15 to 20 percent.

The BIIA reviews the appeals not reassumed by L&I plus those that come back to the Board when the appellant is not satisfied with L&I's further decision. Before any substantive review the BIIA determines whether it has jurisdiction. Of appeals not reassumed by L&I, the BIIA denies review in about 30 percent of state fund appeals and 15 percent of self-insured

[7] Since 1989 the re-assumption rate has ranged between 25 percent and 40 percent with the exception of two outlier years. Since 2002 the rate has been between 33 percent and 36 percent.

appeals for jurisdictional reasons, these percentages having increased gradually since 1989 from 9 percent and 5 percent, respectively.

With very few exceptions, appeals for which the BIIA has jurisdiction and which have not been reassumed by L&I are referred to mediation, an informal process with a mediation judge.[8] Mediation is encouraged regardless of the issue on appeal; however parties can request that the case be referred for hearing if they feel the issue cannot be resolved with mediation. As a result of mediation, appeals can be voluntarily dismissed by the appellant or the parties can agree to a settlement.

Cases failing to be resolved by mediation are scheduled for a formal hearing. This is a process before an administrative hearings judge in which the Rules of Evidence and Superior Court Civil Rules apply. The hearings judge makes a decision based on the evidence and testimony and issues a Proposed Decision and Order (PD&O). Any party disagreeing with the PD&O may petition for review by the three BIIA members. The full Board may deny the petition for review, or it may choose to consider the case and issue a final Board Decision and Order (D&O). With the exception of L&I, any party disagreeing with any part of the D&O may appeal to superior court. L&I may only appeal on points of law. Court decisions may be further appealed up to the Washington State Supreme Court.

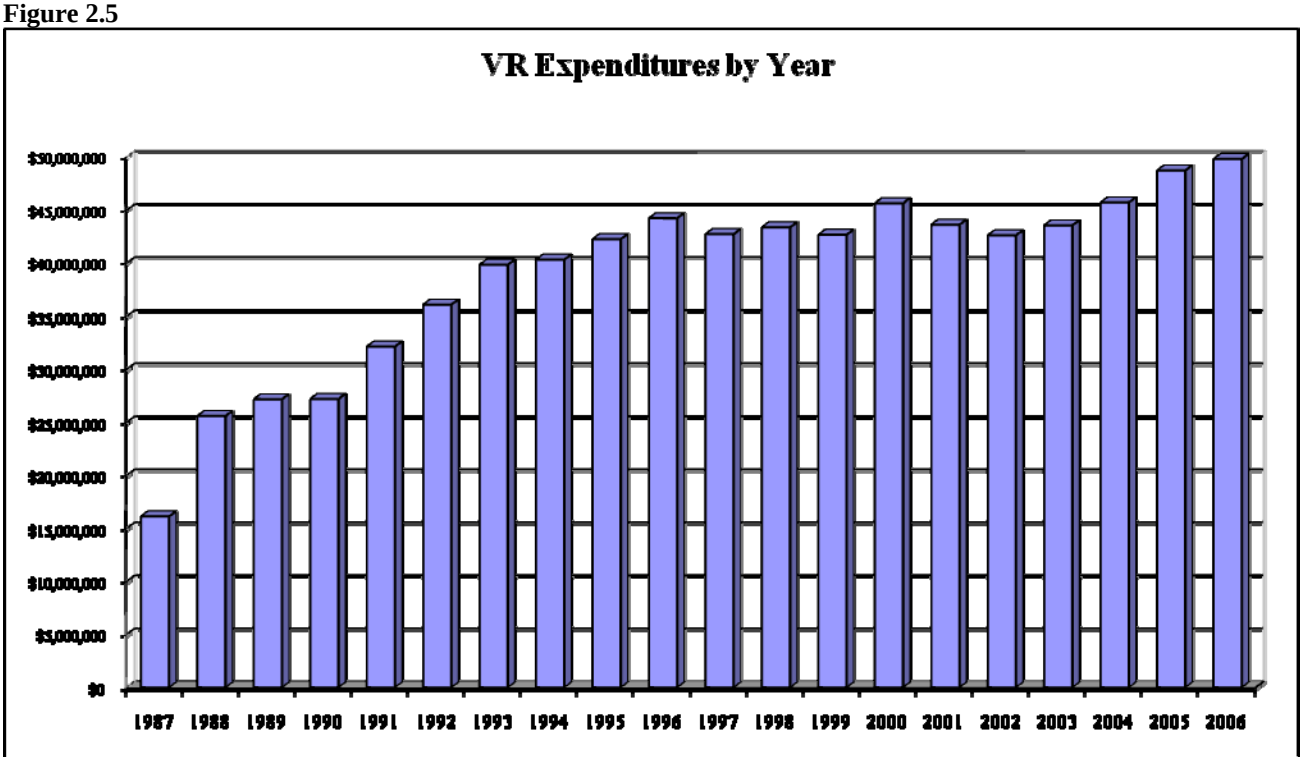
PROVIDING VOCATIONAL REHABILITATION SERVICES

Washington State Department of Labor and Industries provides vocational rehabilitation services in order to assist workers' return to work (RTW) after a compensable work injury or illness. If they have a permanent partial disability (PPD) due to the injury, the system attempts to assess their capabilities, and provide them with the ability to access employment within those capabilities. Failure in this endeavor likely will result in the awarding of a Total Permanent Disability (TPD) pension, which is designed to compensate workers for their economic loss.

Figures 2.5 and 2.6 illustrate the extent of the State Insurance Fund's commitment to providing Vocational Rehabilitation Services to the injured workers of Washington State. While there was rapid growth in expenditures in the late 80s and early 90s, a steady continued growth is evident with expenditures being just under $50 million in 2006 (Figure 2.5). (For a description of how these expenses were divided, see Appendix 2.1.)

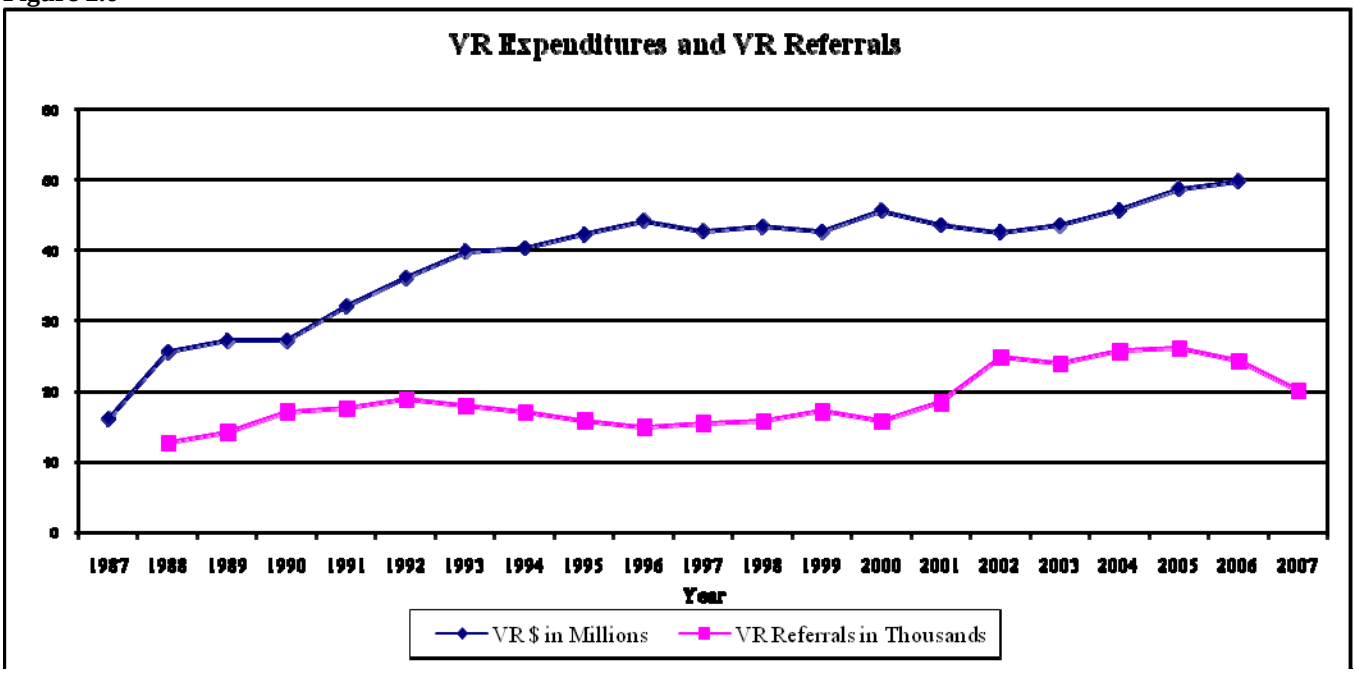
[8] In recent years the default action has been to refer cases for mediation; occasionally the BIIA exercises its discretion to bypass mediation, without specific criteria for this choice.

Figure 2.5



SOURCE: Department of Labor & Industries.

Figure 2.6



SOURCE: Department of Labor & Industries.

As can be seen from these figures, Washington State clearly places a great deal of importance on assisting injured workers who want to return to work and has remained dedicated to this endeavor over the years, though with changing strategies.

Table 2.1 provides a detailed breakdown of VR referrals by category since 1988. The waves of interest in VR are apparent as the total number of referrals peaked in 1992, 1999, and 2005. There were significant changes in VR during this last period, particularly with full implementation of the Early Intervention Program in 2001.

Table 2.1 Breakdown of VR Referrals

CY referral start	Injured workers referred (unique SSNs)	Claims referred (unique claim IDs)	*Voc intervention referrals	Early intervention referrals	Ability to work assessment referrals	Voc plan development referrals	Voc Plan implementa-tion referrals	Total referrals
1988	9,538	9,555	8,522	0	0	1,767	2,424	12,713
1989	11,835	11,874	11,227	3	3	1,059	1,945	14,237
1990	13,793	13,873	13,604	12	11	1,167	2,328	17,122
1991	14,435	14,515	14,118	11	9	1,126	2,307	17,571
1992	15,475	15,605	15,550	17	31	1,090	2,170	18,858
1993	14,756	14,884	14,734	64	91	1,062	1,965	17,916
1994	14,155	14,290	14,185	198	273	890	1,503	17,049
1995	13,235	13,398	13,096	151	298	882	1,411	15,838
1996	12,745	12,945	12,361	138	274	878	1,282	14,933
1997	13,130	13,338	13,089	146	256	803	1,214	15,508
1998	13,158	13,428	13,308	205	265	913	1,063	15,754
1999	13,818	14,134	13,970	148	440	1,264	1,334	17,156
2000	12,744	13,050	11,065	229	1,859	1,470	1,105	15,728
2001	12,925	13,188	1,567	4,966	7,960	2,847	1,107	18,447
2002	14,997	15,362	0	9,900	9,342	3,874	1,748	24,864
2003	15,262	15,673	0	6,230	11,599	4,255	1,952	24,036
2004	17,085	17,547	0	7,070	12,584	3,954	2,141	25,749
2005	17,300	17,797	0	6,713	13,645	3,934	1,854	26,146
2006	16,346	16,850	0	5,674	12,933	3,865	1,856	24,328
2007	14,299	14,697	0	4,782	10,708	3,187	1,446	20,123

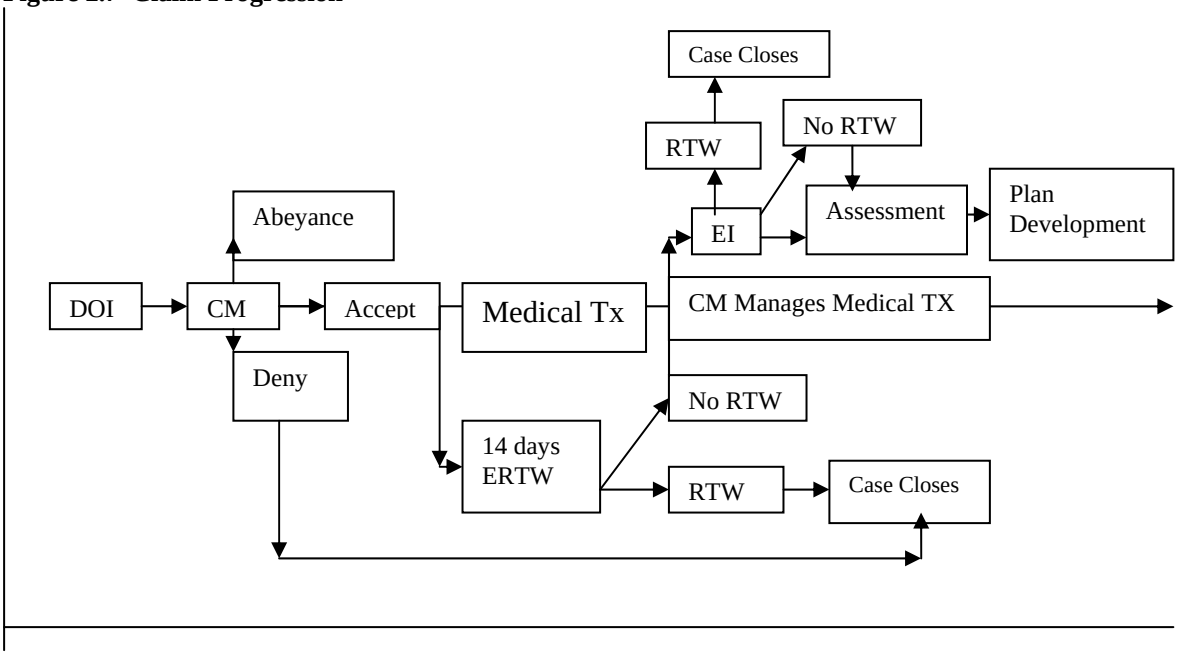
SOURCE: Department of Labor & Industries.

The Process of VR within the Agency

Figure 2.7 illustrates the progression of a claim from Date of Injury (DOI) to closure. The CM manages the claim throughout and makes the referrals for other services. In this case we see a referral at 14 days to the Early Return to Work program (ERTW). If these services are successful the injured worker returns to work and once curative medical treatment is concluded the case is closed. If not, a referral can be made to the Early Intervention program (EI) if the

injured worker is medically able. EI services are provided with a RTW as the goal. However, if there is no RTW, then further assessment and vocational planning is usually the outcome.

Figure 2.7 Claim Progression



SOURCE: Prepared by Prof. Henry Harder.

Many of the interviewees indicated that the two indicators, namely, "Is the injured worker eligible for retraining" and "Is the injured worker likely to benefit from retraining" have historically not been asked and answered consistently. If the answer to these questions is yes then VR services related to retraining can be provided. However, because these questions were not adequately answered many persons who "would not likely benefit" were referred for VR Plan Development. As a result the two parallel lines of CM and VR could run on virtually endlessly, frequently ending with a referral for pension assessment.

During our review no automatic mechanism has come to light that would cause a review of such a claim, and given the current policies it is quite possible for such a claim to last for many years. Several claim file reviews revealed exactly such circumstances where the claim bounced back from VR to CM in a cycle of referral and re-referral that lasted, in a few extreme cases, for over 20 years.

Mandatory to discretionary vocational rehabilitation

Prior to 1982 Vocational Rehabilitation (VR) services were provided on a discretionary basis. In 1982, Resolution 35 of the State Legislature enacted Mandatory VR. Another important change during this legislative session was specific to time-loss provisions. Prior to 1982 an

injured worker was not entitled to time-loss payments if the worker was medically stable. After 1982 time-loss payments could continue if the injured worker was receiving vocational rehabilitation assistance. It appears that as a result of these changes average time-loss duration increased from 3.5 months in calendar year 1979 to 7.1 months for calendar year 1984. The number of referrals to VR also increased from 2,767 or 7.3 percent of compensable claims in 1979, to 17,020, or 48.8 percent of compensable claims in 1985.

The Department had begun purchasing services from private VR companies in 1981. In 1981, L&I spent $1,108,400, or 1.3 percent of the Medical Aid Fund on private VR. After mandatory VR was introduced this quickly rose to $22,400,000, or 13.7 percent of the Medical Aid Fund by 1985. Based on these alarming increases mandatory VR was repealed in 1985 (Substitute House Bill #1984, C339L85). This change effectively established VR as it has been delivered from then until Dec. 31, 2007, with the new Vocational Initiative Pilot (VIP) operational as of Jan. 1, 2008.

In 1985–86 the Department moved to a new approach, Total Claim Management (TCM), where it became the Claim Managers' responsibility to decide both when to refer a worker for vocational rehabilitation services and to which provider the claimant would be referred. Prior to TCM these decisions had been left to the Vocational Rehabilitation Specialists (VRS) in the claims unit. In Washington, the VRSs are L&I employees and are employed to assist the Claim Manager and to monitor the work of the external vocational rehabilitation providers. These external VR providers offer a variety of services but focus mainly on initial assessment and vocational planning. L&I provides extensive guidelines on acceptable and appropriate vocational rehabilitation under Medical Aid Rules Chapter 296-19A.

Under TCM, the VRSs were assigned to each claim unit and acted as advisors to the CM. Initially, one VR specialist was assigned to each claim unit. However, this ratio began to erode as it appears the role of the VRS in the claims unit was seen as less important. By 1997 the number of VRSs was cut in half and the ratio became approximately one VRS for three claim units. Eventually this was seen as inadequate, and has been modified over time until the ratio settled in at about 1 VRS to 2.5 claim units. There are approximately 10 CMs in each claim unit. This means that each VRS provides support to about 25 CMs.

Even though the VRS does not provide any direct vocational services to any injured workers this is still a very high case load. Interviewees at L&I told us that they find it just barely

manageable as long as no crises arise. A metaphor shared with us was that it is like walking around with a completely full glass of water. If one more drop is added or if an obstacle is encountered, the water will be spilled. British Columbia experimented with a similar system in the mid to late 1990s, but eventually abandoned it. In B.C. today, vocational rehabilitation services are provided internally and only specialized needs, such as vocational assessments, are contracted with external providers.

Based on interviews with both external and internal vocational rehabilitation professionals it is clear that they practice the traditional stages of VR namely: 1) RTW with the accident employer—no modifications required; 2) RTW with the accident employer with job modifications; 3) RTW in the same job but different employer; 4) RTW at new job with new employer; and 5) Formal retraining for new employment opportunities. Ideally, VR focuses on the first two steps in order to avoid long-term claims. In reality it seems that the external VR community is focused on getting the person into retraining as an outcome. This appears to be driven by L&I's focus which concentrates on meeting performance indicators. These performance indicators appear to reward moving a claim into plan development as opposed to facilitating a direct return to work.

Almost all external vocational rehabilitation providers interviewed indicated that focusing on RTW was not worth their time, as the performance indicators did not adequately reward such efforts. In fact, we were told by several sources that the provider with the best return-to-work rate in the state was placed on the conditional referral list, a list that restricts or halts referrals to that provider. The explanation for this anomaly was that arranging a RTW requires negotiating between the injured worker, the employer, and the medical provider; and this takes time which the department does not allow nor pay for.

Internal interviews confirmed this allegation, indicating that the performance-based referral system has caused a great deal of difficulty over the years and that one of the unintended consequences of the system was this move to the plan development end of the VR services spectrum. This has had the indirect effect of increasing costs and not necessarily helping workers exit the system.

It is not unusual to see multiple VR referrals on a single case; especially on claims that have been in the system a long time. Perhaps an example is helpful. The date of injury on this case is December 1991. In January 2008 this worker is still receiving wage-loss payments. Until

very recently there had been no referral for a consideration of a pension award. The injury itself was a back strain. The first referral to VR happened in September 1996. An Ability to Work Assessment (AWA) identified problems in that the Attending Physician would not clear the injured worker for a return to work of any kind, and therefore recommended a referral for VR Planning.

Instead, the worker was sent to a pain clinic and no attempt at VR intervention was made again until December 1999 when retraining was recommended. The worker engaged in the training and did very well, but upon successful completion could not work because of pain. The worker was sent to another pain clinic and for a psychiatric Independent Medical Examination (IME) in 2000. Again nothing happened until March 2001 when an Ability to Work Assessment was completed and the conclusion was that the worker was able to work given the new skills acquired in the training. However, the worker refused to try, and nothing happened.

In May 2002 another AWA was performed, and this time it was found that the worker was medically unstable and not likely to benefit from VR. Depression was also identified, and the worker was sent for another psychiatric assessment where no organic anomalies were found. Then there followed a four-year gap in any VR activity and the worker continued on wage loss until April 2006 when, based on the most recent medical information, it was determined that the worker had reached maximum medical improvement but was unable to return to work. However, rather then send the case for a pension review it was sent out to VR for another AWA which concluded that the worker was unable to work on a VR plan. This worker continues on wage loss as of this writing, more than 16 years after the original date of injury.

A 2005 report found that the median time from the date of disability to the first referral for a development plan was 743 days with another 132 days required for the plan referral.[9] An implemented VR plan resulted 46 percent of the time that there was a referral for plan development, and of those 57 percent resulted in either a return to work or an assessment that there was an ability to return to work.

In order to get a better idea of how frequently VR was used in time-loss claims of extended duration and to learn what the results were of such referrals we examined time-loss claims that were open five years after the accident year. We asked, “How often is the claim referred either to plan development or to plan implementation five or more years after the

[9] Government Management, Accountability and Performance Audit, Presentation June 28, 2005.

accident year?" We also asked, "For time-loss claims that are open at least five years after the accident year, do outcomes vary if vocational rehabilitation plan development or plan implementation occurs after that five-year period?" In this case, we considered only the five years following the five years post-accident period. As an example, for a worker who was injured in accident year 1988 and whose time-loss claim remained open in 1993, what outcome occurred if there was either a plan development or a plan implementation referral in the window from 1993 to 1998?[10]

In Table 2.2 we see that for workers injured in accident year 1988, of the 2,658 time-loss cases that remained open in 1993, 21.4 percent had one or more vocational rehabilitation referrals made in the five years following 1993. In the five years following 1993, 3.2 percent of those with a VR referral were granted a pension. In the window between years 5 and 10 post-accident , 46.8 percent of the claims were closed (excluding those that were pensioned or where the worker had died) and 48.8 percent were still open, compared with 12.6 percent that remained open where there had been no referral in the period 1994 to 1998. The same tendency exists for each of the subsequent accident years, namely, a VR referral in the 5- to10-year window is much more likely to be associated with a claim that remains open 10 years after the accident year.

For most accident years, when a claim that is open for five years is referred to VR in the following year, there is a likelihood of about 30 to 50 percent that it will be open 10 years or more after the accident date. Table 2.2 also reveals that in the five years following the accident years 1989 to 1995 the probability of an open claim being referred to VR for a plan increased from a very narrow range (19 to 20 percent) to over 27 percent of open claims from the 1997 accident year.[11]

We separate referrals to VR into Plan Development referrals (Table 2.3) and Plan Implementation referrals (Table 2.4). Plan Development referrals were employed in 11 to 13 percent of claims that were open for five years from accident years 1988 to 1991. Thereafter the proportion of open claims that were referred for Plan Development began to increase, reaching a peak of almost 25 percent in the five years following accident year 1997. The rate of this type of

[10] We limited this period under review to be able to capture comparable data for a larger number of years. By limiting the analysis to the outcomes that occurred only in the period up to five years beyond the initial five years, we are covering a 10-year span. Thus, the latest accident year we can consider is 1997, with claims that were still open in 2002 and the post VR referrals outcomes until 2007. We also do not consider here an Ability to Work appraisal since some of these can precede a recommendation on the need for a pension.

[11] The rates of time-loss claims open five years where a VR referral was made in the subsequent five-year window remained relatively high in 1998, 1999, and 2000 (26.4, 25.5, and 23.1 percent, respectively).

referral declined slowly thereafter (not shown in the table) but remained at 20 percent or above through accident year 2000, and ultimately will be higher.

For claims referred for Plan Development in the period following the accident year, claims remained open between 45 and 61 percent of the time for accident year 1988 to 1993 claims. Thereafter, there was a substantial decline in the rate that remained open during the 6- to 10-year window following the accident year. These trends are consistent with an increased effort to close older time-loss claims.

Table 2.2 Time-Loss Claim Outcomes 5 to 10 Years after Date of Injury–Plan Development or Implementation Referrals 5-Plus Years After Accident

Accident year (CY)	Vocrfrls 5+ years	Time-loss claims open 5+ years	% of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
1988	Yes	568	21.4%	18	3.2%	7	1.2%	266	46.8%	277	48.8%	4	0.7%
	No	2,090	78.6%	47	2.2%	19	0.9%	1,761	84.3%	263	12.6%	15	0.7%
	Total	2,658	100.0%	65	2.4%	26	1.0%	2,027	76.3%	540	20.3%	19	0.7%
1989	Yes	528	19.8%	9	1.7%	6	1.1%	257	48.7%	256	48.5%	3	0.6%
	No	2,134	80.2%	43	2.0%	17	0.8%	1,804	84.5%	270	12.7%	10	0.5%
	Total	2,662	100.0%	52	2.0%	23	0.9%	2,061	77.4%	526	19.8%	13	0.5%
1990	Yes	523	19.5%	11	2.1%	6	1.1%	285	54.5%	221	42.3%	2	0.4%
	No	2,160	80.5%	33	1.5%	18	0.8%	1,825	84.5%	284	13.1%	10	0.5%
	Total	2,683	100.0%	44	1.6%	24	0.9%	2,110	78.6%	505	18.8%	12	0.4%
1991	Yes	530	20.0%	14	2.6%	6	1.1%	308	58.1%	202	38.1%	10	1.9%
	No	2,124	80.0%	41	1.9%	16	0.8%	1,795	84.5%	272	12.8%	10	0.5%
	Total	2,654	100.0%	55	2.1%	22	0.8%	2,103	79.2%	474	17.9%	20	0.8%
1992	Yes	486	20.1%	14	2.9%	2	0.4%	275	56.6%	195	40.1%	4	0.8%
	No	1,931	79.9%	40	2.1%	22	1.1%	1,641	85.0%	228	11.8%	10	0.5%
	Total	2,417	100.0%	54	2.2%	24	1.0%	1,916	79.3%	423	17.5%	14	0.6%
1993	Yes	455	19.6%	11	2.4%	2	0.4%	269	59.1%	173	38.0%	3	0.7%
	No	1,871	80.4%	31	1.7%	13	0.7%	1,648	88.1%	179	9.6%	13	0.7%
	Total	2,326	100.0%	42	1.8%	15	0.6%	1,917	82.4%	352	15.1%	16	0.7%
1994	Yes	427	19.9%	7	1.6%	4	0.9%	281	65.8%	135	31.6%	2	0.5%
	No	1,721	80.1%	27	1.6%	23	1.3%	1,501	87.2%	170	9.9%	12	0.7%
	Total	2,148	100.0%	34	1.6%	27	1.3%	1,782	83.0%	305	14.2%	14	0.7%
1995	Yes	382	19.1%	5	1.3%	4	1.0%	235	61.5%	138	36.1%	2	0.5%
	No	1,613	80.9%	35	2.2%	13	0.8%	1,412	87.5%	153	9.5%	6	0.4%
	Total	1,995	100.0%	40	2.0%	17	0.9%	1,647	82.6%	291	14.6%	8	0.4%
1996	Yes	422	23.6%	9	2.1%	5	1.2%	272	64.5%	136	32.2%	2	0.5%

Accident year (CY)	Voc rfrls 5+ years	Time-loss claims open 5+ years	% of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
	No	1,368	76.4%	27	2.0%	14	1.0%	1,157	84.6%	170	12.4%	8	0.6%
	Total	1,790	100.0%	36	2.0%	19	1.1%	1,429	79.8%	306	17.1%	10	0.6%
1997	Yes	499	27.1%	5	1.0%	3	0.6%	375	75.2%	116	23.2%	7	1.4%
	No	1,345	72.9%	14	1.0%	13	1.0%	1,188	88.3%	130	9.7%	10	0.7%
	Total	1,844	100.0%	19	1.0%	16	0.9%	1,563	84.8%	246	13.3%	17	0.9%

SOURCE: Data Warehouse, Department of Labor and Industries.

Table 2.3 Time-Loss Claim Outcomes 5 to 10 Years after Date of Injury–Plan Development Referrals 5-Plus Years after Accident

Accident year (CY)	Voc rfrls 5+ years	Time-loss claims open 5+ years	% of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
1988	Yes	332	12.5%	16	4.8%	6	1.8%	121	36.4%	189	56.9%	4	1.2%
	No	2,326	87.5%	49	2.1%	20	0.9%	1,906	81.9%	351	15.1%	15	0.6%
	Total	2,658	100.0%	65	2.4%	26	1.0%	2,027	76.3%	540	20.3%	19	0.7%
1989	Yes	296	11.1%	7	2.4%	6	2.0%	102	34.5%	181	61.1%	2	0.7%
	No	2,366	88.9%	45	1.9%	17	0.7%	1,959	82.8%	345	14.6%	11	0.5%
	Total	2,662	100.0%	52	2.0%	23	0.9%	2,061	77.4%	526	19.8%	13	0.5%
1989	Yes	320	11.9%	9	2.8%	5	1.6%	136	42.5%	170	53.1%	2	0.6%
	No	2,363	88.1%	35	1.5%	19	0.8%	1,974	83.5%	335	14.2%	10	0.4%
	Total	2,683	100.0%	44	1.6%	24	0.9%	2,110	78.6%	505	18.8%	12	0.4%
1991	Yes	334	12.6%	14	4.2%	5	1.5%	156	46.7%	159	47.6%	8	2.4%
	No	2,320	87.4%	41	1.8%	17	0.7%	1,947	83.9%	315	13.6%	12	0.5%
	Total	2,654	100.0%	55	2.1%	22	0.8%	2,103	79.2%	474	17.9%	20	0.8%
1992	Yes	347	14.4%	13	3.7%	1	0.3%	162	46.7%	171	49.3%	4	1.2%
	No	2,070	85.6%	41	2.0%	23	1.1%	1,754	84.7%	252	12.2%	10	0.5%
	Total	2,417	100.0%	54	2.2%	24	1.0%	1,916	79.3%	423	17.5%	14	0.6%
1993	Yes	347	14.9%	11	3.2%	1	0.3%	173	49.9%	162	46.7%	3	0.9%
	No	1,979	85.1%	31	1.6%	14	0.7%	1,744	88.1%	190	9.6%	13	0.7%
	Total	2,326	100.0%	42	1.8%	15	0.6%	1,917	82.4%	352	15.1%	16	0.7%
1994	Yes	317	14.8%	5	1.6%	3	0.9%	187	59.0%	122	38.5%	2	0.6%
	No	1,831	85.2%	29	1.6%	24	1.3%	1,595	87.1%	183	10.0%	12	0.7%
	Total	2,148	100.0%	34	1.6%	27	1.3%	1,782	83.0%	305	14.2%	14	0.7%
1995	Yes	337	16.9%	5	1.5%	4	1.2%	194	57.6%	134	39.8%	2	0.6%
	No	1,658	83.1%	35	2.1%	13	0.8%	1,453	87.6%	157	9.5%	6	0.4%
	Total	1,995	100%	40	2.0%	17	0.9%	1,647	82.6%	291	14.6%	8	0.4%

Accident year (CY)	Voc rfrls 5+ years	Time-loss claims open 5+ years	% of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
1996	Yes	385	21.5%	9	2.3%	4	1.0%	237	61.6%	135	35.1%	2	0.5%
	No	1,405	78.5%	27	1.9%	15	1.1%	1,192	84.8%	171	12.2%	8	0.6%
	Total	1,790	100%	36	2.0%	19	1.1%	1,429	79.8%	306	17.1%	10	0.6%
1997	Yes	453	24.6%	5	1.1%	3	0.7%	331	73.1%	114	25.2%	7	1.5%
	No	1,391	75.4%	14	1.0%	13	0.9%	1,232	88.6%	132	9.5%	10	0.7%
	Total	1,844	100%	19	1.0%	16	0.9%	1,563	84.8%	246	13.3%	17	0.9%

Table 2.4 Time-Loss Claim Outcomes 5 to 10 Years after Date of Injury–Plan Implementation Referrals 5 Plus Years after Accident

Accident year (CY)	Voc rfrls 5+ Years	Time-loss claims open 5+ years	%of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
1988	Yes	261	9.8%	2	0.8%	1	0.4%	153	58.6%	105	40.2%	0	0.0%
	No	2,397	90.2%	63	2.6%	25	1.0%	1,874	78.2%	435	18.1%	19	0.8%
	Total	2,658	100%	65	2.4%	26	1.0%	2,027	76.3%	540	20.3%	19	0.7%
1989	Yes	261	9.8%	2	0.8%	0	0.0%	159	60.9%	100	38.3%	1	0.4%
	No	2,401	90.2%	50	2.1%	23	1.0%	1,902	79.2%	426	17.7%	12	0.5%
	Total	2,662	100%	52	2.0%	23	0.9%	2,061	77.4%	526	19.8%	13	0.5%
1989	Yes	260	9.7%	2	0.8%	1	0.4%	159	61.2%	98	37.7%	0	0.0%
	No	2,423	90.3%	42	1.7%	23	0.9%	1,951	80.5%	407	16.8%	12	0.5%
	Total	2,683	100%	44	1.6%	24	0.9%	2,110	78.6%	505	18.8%	12	0.4%
1991	Yes	241	9.1%	0	0.0%	1	0.4%	160	66.4%	80	33.2%	2	0.8%
	No	2,413	90.9%	55	2.3%	21	0.9%	1,943	80.5%	394	16.3%	18	0.7%
	Total	2,654	100%	55	2.1%	22	0.8%	2,103	79.2%	474	17.9%	20	0.8%
1992	Yes	210	8.7%	1	0.5%	1	0.5%	124	59.0%	84	40.0%	0	0.0%
	No	2,207	91.3%	53	2.4%	23	1.0%	1,792	81.2%	339	15.4%	14	0.6%
	Total	2,417	100%	54	2.2%	24	1.0%	1,916	79.3%	423	17.5%	14	0.6%
1993	Yes	187	8.0%	0	0.0%	1	0.5%	118	63.1%	68	36.4%	0	0.0%
	No	2,139	92.0%	42	2.0%	14	0.7%	1,799	84.1%	284	13.3%	16	0.7%
	Total	2,326	100%	42	1.8%	15	0.6%	1,917	82.4%	352	15.1%	16	0.7%
1994	Yes	204	9.5%	2	1.0%	1	0.5%	129	63.2%	72	35.3%	0	0.0%
	No	1,944	90.5%	32	1.6%	26	1.3%	1,653	85.0%	233	12.0%	14	0.7%
	Total	2,148	100%	34	1.6%	27	1.3%	1,782	83.0%	305	14.2%	14	0.7%
1995	Yes	182	9.1%	0	0.0%	3	1.6%	105	57.7%	74	40.7%	0	0.0%
	No	1,813	90.9%	40	2.2%	14	0.8%	1,542	85.1%	217	12.0%	8	0.4%
	Total	1,995	100%	40	2.0%	17	0.9%	1,647	82.6%	291	14.6%	8	0.4%

Accident year (CY)	Voc rfrls 5+ Years	Time-loss claims open 5+ years	%of Time-loss claims open 5+ years	TPD pensions 5–10 years	% Pensioned 5–10 years	Deaths 5–10 years	% of Workers dead 5–10 years	Claims closed	% of Claims closed	Claims open	% of Claims open	TPD deaths 5–10 years	% TPD deaths 5–10 years
1996	Yes	206	11.5%	0	0.0%	2	1.0%	144	69.9%	60	29.1%	0	0.0%
	No	1,584	88.5%	36	2.3%	17	1.1%	1,285	81.1%	246	15.5%	10	0.6%
	Total	1,790	100%	36	2.0%	19	1.1%	1,429	79.8%	306	17.1%	10	0.6%
1997	Yes	285	15.5%	1	0.4%	1	0.4%	224	78.6%	59	20.7%	2	0.7%
	No	1,559	84.5%	18	1.2%	15	1.0%	1,339	85.9%	187	12.0%	15	1.0%
	Total	1,844	100%	19	1.0%	16	0.9%	1,563	84.8%	246	13.3%	17	0.9%

SOURCE: Data Warehouse, Department of Labor and Industries.

Table 2.4 shows the claims that were referred for Plan Implementation for accident years 1988 to 1997. For five or more years after accident years 1988 to 1995, about 9 to 10 percent of open claims were referred to plan implementation. Thereafter, the rate increased hitting a maximum rate of 15 percent for those injured in accident year 1997. (The rates in 1998 and 1999, not shown in the table, were more than 13 percent.) For those workers whose cases were referred for Plan Implementation, a substantial proportion remained open by the end of 10 years following the accident year. For accident years 1988, 1992 and 1995, 40 percent or more of those referred to Plan Implementation remained open for 10 years since the accident year.

The role of private vs. public counselors

There has been something of an uneasy truce between the external VR community and L&I over the years. The state outsourced VR services in 1981 by developing contracts with VR firms. These firms in turn hired vocational rehabilitation professionals to perform the services. This system brought with it a certain amount of quality control in that the VR firms wanted to maintain their contract, so consequently had an incentive to insure that their staff was performing well.

This arrangement remained in place until 2001 when WAC 296-20 and WAC 296-19A were introduced which eliminated the contract arrangements and allowed more counselors to set up business independently. According to those interviewed, both external and internal, this sometimes led to the practice of hiring unqualified or under qualified person or interns to do the work contracted to the VR Counselor.

The existing larger VR firms had been large enough enterprises to have their own internal quality control provisions and L&I had only to interact with a limited number of these contract holders. Now a vastly larger number of VR counselors could all hold contracts, making it nearly impossible for L&I to insure an appropriate level of quality service provision.

Apparently these VR counselors could take on almost any number of referrals at their existing billing rate and then subcontract out the service provision to another provider at a lesser rate. We have been told by several sources that these are sometimes interns who do not have the same level of knowledge or experience as the VR Counselor. Nothing in the system prevented this practice and it is alleged that some VR counselors profited greatly by accepting vast numbers of referrals.

As long as the referral was accepted, the CMs believed that their job had been done; and aside from speedy service indicators nothing in the system checked on the quality of the services being provided, or their eventual outcome. We are told that this frequently led to substandard work being performed. The private counselors see this differently. They point to unrealistic expectations on the part of the referral CMs and that they do the best they can given the tight timelines outlined in the performance indicators[12] and the rather limited resources provided by statute.[13] L&I officials expect that most or all of these problems will be solved by the new VIP which took effect on January 1, 2008.

Total claims management (TCM)

TCM began in 1985 and was fully rolled out by the end of 1986. There was a second phase of TCM in 1998–99 which created some new roles including more levels of Claim Manager, based on claim complexity. TCM had the impact of removing the decision-making ability vis-à-vis vocational rehabilitation services from the VRSs who were assigned to the claims units and giving it to the CMs where it has remained until recently. This was very demoralizing for the VRSs but also had the effect of placing a very important decision that could dramatically impact on the outcome of a claim with someone who was neither trained nor experienced in this professional field and had no reference point from which to make a decision beyond experience with other, similar claims.

L&I did provide training for the CMs but this apparently was not sufficient to compensate for the extensive training and experience that the VRSs had brought to the system. As well, huge caseloads prevented the CMs from consulting with the VRSs assigned to each unit, and further administrative changes reduced the number of VRSs available for such consultation. The result of these changes appears to have been some degradation in the quality of case management decisions, resulting in lengthening time loss which created virtually irresolvable claims. In order to avoid sending these claims to the pension unit they were often re-referred to VR, and it appears that many went on for years stuck in a loop of referral and re-referral.[14]

[12] See for e.g.: http://www.lni.wa.gov/ClaimsIns/Files/Providers/ProvBulletins/PbFiles/PB0312.pdf
[13] See discussion on CACO.
[14] This conclusion is based on a combination of case file reviews data and interview data

The role played by complexity–adjusted cost outcome (CACO)

As a result of the failure to monitor the provision of external vocational rehabilitation services identified by the Joint Legislative Audit Review Committee in 1998, the Department hired William Mercer Inc. who developed a vocational purchasing protocol referred to as STAR.[15] STAR used a mathematical formula based on certain specific criteria to develop a STAR score. This score was then used by the Department to determine which VR firms were qualified to receive further referrals. This system was severely criticized, and in 1999 a lawsuit was launched by a group of VR providers, (Thurston County Cause # 99-00320-6) alleging that its use was arbitrary and capricious.

This lawsuit was settled by agreement that would see the rectifying of the provider's concerns and the creation of a new system. The result of these revisions was the Complexity-Adjusted Cost Outcome scale, commonly referred to as CACO, which was implemented in 2000. This new system was also considered by some to be flawed and it is interesting that the application of CACO was stayed by Judge Richard D. Hicks in the Superior Court on July 11, 2006 (Superior Court # 05-2-01673-3).

As outlined in Judge Hicks' findings CACO created a great deal of damage to both the reputations and the profits of VR service providers. In fact the 2002 JLARC Implementation report, which was a follow-up on the 1998 recommendations, was quite negative on CACO as well[16]. However, the 2005 audit follow-up indicated that the auditors were satisfied that the Department was moving in the right direction on VR policies and procedures.[17]

The basic issue with CACO was that it focused on time and cost of outcomes and not on the quality of outcomes. A vocational rehabilitation provider who closed cases quickly, even without a successful outcome, was rewarded with a good CACO score. It is alleged that someone who had great RTW outcomes, but did not meet the timelines, would receive a poor CACO score and their referrals would be reduced or curtailed. This had the effect of rewarding those who "played" the system and punishing those who went for the real desired outcome of RTW. Many of the former claims likely eventually ended up in the pension queue.

CACO was clearly an area of friction between VR providers and L&I. In addition, every external provider interviewed mentioned CACO as a cause of increased pension awards. The

[15] The meaning of the acronym seems to have been lost.
[16] See: http://www1.leg.wa.gov/Reports/03-10.pdf
[17] See: http://leg.wa.gov/reports/05-1.pdf

logic of this assertion can be summarized as follows: CACO rewards the wrong thing; speed over quality. As a result VR providers focus on speedy service at the cost of quality. This has the consequence of people not going back to work (as this is not a rewarded outcome). Instead they are placed in VR planning or retraining which they can complete quickly and successfully. However, if these services do not lead to an actual job, the injured workers eventually end up as pension referrals.

The department is currently working on new guidelines that will replace CACO. Based on interviews with key personnel it appears that they have listened to previous criticisms and are working hard to design a fair and equitable system. By insuring that VR providers are appropriately measured on their performance L&I will also insure that the needs of workers and employers in the State are met in a timely and cost-efficient manner. However, the VR providers are very anxious over what is coming and hopefully communication strategies will be employed to deal with this anxiety as well as restore some good faith between the agency and its service providers.

Disability Management at L&I

Disability Management (DM) is a relatively new discipline that places the emphasis on maintaining the employee/employer relationship post injury or illness. It argues that all possible avenues of RTW with the existing employer must be exhaustively explored before attention turns to other solutions. DM also maintains that rapid, resourceful, and appropriate intervention is paramount if one is to successfully facilitate the RTW of the injured worker. Philosophically DM argues that work is central to all of our lives and an absence of work, or a lengthy delay in returning to work causes undesired consequences. In the recent book "Comprehensive Disability Management"[18] the authors make this point when they state:

> Work is the center of the model as the premise of the model is based on the knowledge that work is central to life. Work is in fact a complete facet of all community life. Societies are made possible and function through the division of labor and the integration of various forms of work. Everyone is interdependent on the productivity of others. Kielhoner (1992), p 53 states "Participation in occupation has an impact on the individual's biological and psychological health. Occupation is essential to the well-being of the individual." It is widely documented that individuals have a psychological need for occupation (Pearlin & Liberman, 1979; Jones, 1991; Feather & Bond, 1983). The occupation motive emerges from the biologically and culturally based desires to engage in activity to discover and create and to realize a degree of mastery (Heider, 1958; Kelley, 1967; Pearlin & Liberman, 1979). Through work people are able to discover new information and potentials for action, experience control, develop confidence and reaffirm their self worth. Occupation is recognized as having a role in creating, affirming and experiencing meaning

[18] Harder, and Scott, 2005, p. 28.

> in life (Dooley & Catalano, 1988; Winegarder, Simonetti & Nykodym, 1971). Many examples can be found where the absence of work has led to a downward spiral of functioning as a contributing member of society and has resulted in difficult psychological effects to the individual.

It is this downward spiral that L&I, and VR in particular, seeks to prevent.

Early intervention program

Early Intervention is a service paid for by L&I and performed by external VR providers. Early Intervention (EI) is not a single program; it is a referral to external VR Providers that occurs if the Early Return to Work Program (ERTW) has not been successful. "Early" is a relative term. A recent report found that the median number of days from the date of injury to the claim manager referral to Early Intervention was 125 days, and another 62 days (median) for the Early Intervention referrals to result in any action.[19] The report continued that it took 357 days from the date of disability to the date the claim manager made a referral for an ability to work assessment with another 93 days for the ability to work assessment to be completed.

Early Intervention is focused on the injury employer and the VR must provide a Job Analysis[20] of the pre-injury job. Based on this Job Analysis the VR, in conjunction with the employer, can provide interventions such as a Graduated RTW (GRTW) (increasing the number of hours as appropriate until the worker returns to the work pattern at the time of injury), Transitional RTW (a temporary job where the worker is expected to be able to go back to the job of injury during early intervention), Light-duty work (a job with less physical demands than the at injury job). This may be a permanent, temporary, or transitional job and temporary work in a different job. The VR can also request a period of Work Hardening to help prepare the injured worker for the RTW process.

There are 21 possible Early Intervention outcomes.[21] In a recent Government Management Accountability and Performance report, 17.5 percent of users of the early intervention had outcomes that indicated that they had returned to employment, while another 21.9 percent were considered able to be employed though they had not done so.[22] Another 23.6 percent were considered to be medically unstable and the balance, 22.4 percent, was coded into other categories, e.g. injured worker declines VR services.

---

[19] Government Management, Accountability and Performance Audit, Presentation June 28, 2005.
[20] See: http://www.lni.wa.gov/ClaimsIns/Providers/Vocational/Tools/JobAnalysis/default.asp
[21] See: http://www.lni.wa.gov/ClaimsIns/Providers/Vocational/Referrals/EarlyInt/default.asp
[22] Government Management, Accountability and Performance Audit, Presentation June 28, 2005.

Early return-to-work program (ERTW)

The ERTW[23] program was launched in 2004 in an effort by the Department to intervene early and identify claims that could be resolved quickly and efficiently with a return to work. The ERTW program is the closest that L&I comes to approximating a Disability Management intervention. ERTW is designed to intervene early to accomplish the goal of returning the worker to the at-injury job. Upon the accrual of over 14 days of time loss, and if the injured worker has not already RTW, a telephone contact is made with the injured worker, the treating physician, and the employer to determine if a RTW is imminent of if other options, such as light duty, exist. The ERTW staff consists of Vocational Services Consultant, Therapist Consultants, and Nurse Consultants. These professionals can provide expert advice to both the employer and the injured worker as they attempt to accomplish return to work as quickly and appropriately as possible.

Other resources such as a safety consultant or a risk management specialist are also available as well. It may be possible to access some funds in order to modify an existing job so that the injured worker can return to that job. While this early phone call likely has a bearing on employer/worker behavior, an important factor in this program is the availability of the professional consultants who can often allay concerns of the employer or worker and thereby create greater willingness to engage in a RTW process that may otherwise have been blocked by these concerns. Most CMs do not have the expertise to answer such questions.

Both internal and external interviewees spoke very highly of the ERTW program. Phrases such as “this is where our energy should be going” were common. From the pension perspective, every injured worker helped back to work at this stage will likely not have to be considered for a pension. The ERTW is one of the few programs offered by L&I that actually supports the injured worker in RTW.

Preferred Worker Program [24]

L&I provides financial incentives to employers to hire workers who, because of a workplace injury or occupational disease, cannot return to their previous employment. It is stressed that while these workers may have some form of permanent disability they are able to work. Once in this program an injured worker can even change employers within a 36-month period and stay in the program. For self-insured and state fund employers incentives consist of

[23] See: http://www.lni.wa.gov/ClaimsIns/Insurance/Reduce/Manage/Ertw/Default.asp
[24] Please see the brochure at http://www.lni.wa.gov/IPUB/280-021-000.pdf

relief of costs should the worker be injured. For state fund employers only, there is also accident fund and medical aid fund premium relief from the date of hire through the worker's remaining preferred worker certification period. This period lasts for 36 months. However, our interviewees universally told us that while the idea is a good one it breaks down in implementation. VR providers told us that the financial incentives are not great enough to be a motivating factor for employers to hire such workers. However, the most problematic issue with this program is that no placement services are offered and the workers are left alone to find their own opportunities.

THE INCIDENCE OF PENSIONS FOR PERMANENT TOTAL DISABILITY

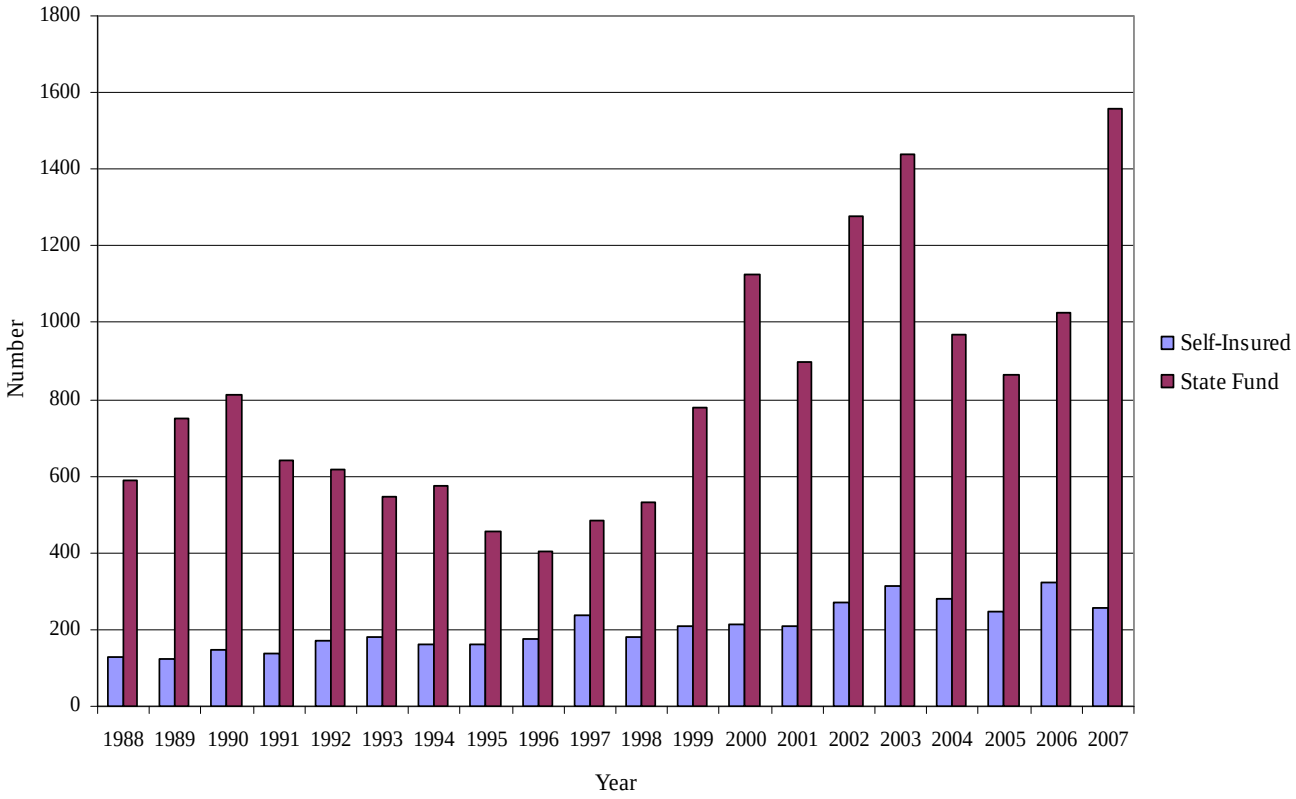
Table 2.5 lists the number of pensions awarded by the year that the awards were made. Figure 2.8 shows the same data graphically. The data are reported both for the state fund and for self-insured employers. The rates of growth for both are high though comparisons are tricky since the choice of the initial year and the terminal year substantially affect the rate of growth. For example, from 1988 to 2007 the growth for the self-insured market was 102 percent compared to 165 percent growth for the state fund. But from 1988 to 2005 the state fund grew by only 47 percent while the self-insured awards increased by 94 percent.

Table 2.5 Total and Permanent Disability Awards by Year

Calendar Year	Self-Insured	State Fund	Total
1988	127	588	715
1989	122	751	873
1990	147	814	961
1991	137	640	777
1992	169	616	785
1993	179	545	724
1994	162	574	736
1995	162	455	617
1996	174	403	577
1997	237	484	721
1998	181	534	715
1999	208	779	987
2000	213	1,126	1,339
2001	211	897	1108
2002	270	1,278	1,548
2003	315	1,439	1,754
2004	281	968	1249
2005	246	866	1112
2006	322	1,025	1,347
2007	257	1,559	1,816

SOURCE: Washington Department of Labor and Industries.

Figure 2.8 Pensions Awarded–State Fund and Self-Insured, 1988–2007



SOURCE: Data Warehouse, Department of Labor and Industries.

The awards made in specific years depended in part upon the claim flow process and delays that led to some lumpiness in the timing of awards. In any case there can be no doubt that both classes of insurance experienced a substantial increase over the last 18 years. It is notable that the state fund awards actually declined for two years after 1994 and had not surpassed the level of awards for that year until 1999. A significant upsurge in awards for the state fund occurred in 1999 and, though the following years showed some choppiness in awards, the overall level for all years after 1999 were high when measured against historic levels. We can mark the upturn in the self-insurance market with the year-to-year jump of 36 percent from 1996 to 1997. For the combined awards from self insurance and the state fund, we can mark the upturn in 1997 or shortly thereafter.

How Much of an Increase Has There Been?

Thus far in this chapter we have described the system for processing workers' compensation claims along with the appeals process and the vocational rehabilitation scheme

used. Before we consider the variety of possible drivers of this growth, we ask how substantial this increase was. Although we believe that a significant increase in pensions has occurred, it may have been somewhat less dramatic than a first look at the data suggests. We need to be absolutely clear on our perspective. While some may disagree over the extent of any upsurge, there can be little room for disagreement on the evidence that both the level of pensions awarded and the rate at which they occur is considerably above those of earlier years. The year-to-year shifts in their incidence serve to make this observation only slightly less evident.

A sharp increase in the number of pensions can be appropriately dated at around 1999 (if we exclude the self-insured sector where the data suggest that it began in 1997). Instead of treating the years beginning around 1999 as unusual, possibly we should acknowledge that our view of the increase is a product of the baseline period that we employ. Consider that in the five years 1988–1992, there were an average of 682 pensions awarded per year, or that from 1989 to 1991 there were 735 pensions per year. Then consider that in the years 1993–1998 there were only 499 pensions awarded per year. Perhaps the anomalous period is the years 1993–98. It is also possible to argue that the period from 1988 or 1989 to 1991or 1992 were unusual and constituted an upsurge in awards. At the close of 1988, a major push was made by the department to reduce duration and to close some longer term, open cases. The "Yes We Can" Initiative sought to do this as did creation of Communication Care Action Resolution Effort (CARE) teams to focus on the most difficult open cases.(See Appendix 2.3) The elevated number of pensions awarded that followed these initiatives were likely a result, at least in part, of these special efforts.

If the average number of pensions awarded in 1989–91 had been maintained in the 1993–1998 years, 1,416 additional awards would have been made. Now assume that the "normal" period for L&I was 1989–91 (with 735 pensions per year). Then add the awards that might have been paid from 1993–98 but were not paid for one reason or other, and pay those over the 4 years 1999–2002. In such a hypothetical world the "expected" average number of pensions per year would have been 735 + (1,416 / 4 =) 354= 1089. Contrast that with the average pensions awarded from 1999 to 2002 of 1,020 pensions awarded. Notice that there is even a higher "expected" number of pensions than were actually paid in the 1999–2002. This approach would suggest that the substantial increase in pensions awarded actually could have been an inventory

adjustment from an unusual decline in the average number of pensions awarded in the 1993–98 years.

If we consider the years 1999 to 2006, the average number of awards is indeed higher than the 1989–91 baseline and any possible inventory adjustment would suggest, though not by very much. Yet consider the data found in Table 2.6. The peak years in the number of claims open six or more years were 1997–99. The average number of claims of this vintage or older during each of the three years was about 6,000. By year 2000, the number of these old claims open fell to 5,000; by 2003 to 4,000; and down to 3,600 in 2006. This is consistent with an inventory adjustment from the underpayment of "expected awards" in years 1993–98, a catch up in awards beginning in about 1999 and a continued and substantial paring down of pension awards through 2006 and 2007.[25].

In addition to an inventory adjustment, there is another factor that needs to be added to the sizeable growth in pensions in the most recent years. Simply put there may have been an upturn in pensions due to the previous spike in time-loss claims. Time-loss claims trended upward from 1971 until the end of 1979. There then followed a downtrend until 1982, followed by increases again peaking in 1990. Claims from the peak period were the raw material for the "expected" pensions in the late 1990s and of those that were pensioned in 1999 going forward. That the number of pensions is correlated with the number of time-loss cases with a lag of six or more years is hardly disputable. Based on the peak of time-loss claims in 1990, give or take a few years around this point, pensions should have been growing for that reason alone in the late 1990s and early 2000s; even aside from the working down of the excess inventory that piled up from 1993–1998.

One way to evaluate this is to consider the number of compensated claims arising each year relative to the number of pensions. However, since the time lag between a new claim for compensation and the awarding of a pension is considerable, we need to factor that into our appraisal. Table 2.6 does this by calculating the rate of pensions awarded in a calendar year as a fraction of the number of new compensation claims (most of these are time-loss claims) initially paid six years earlier. As an example, the number of pensions awarded in 1980 was 1.6 percent

[25] We are not suggesting that the sole reason for the decline in the inventory was an equal number of pensions. Cases were closed in a number of ways, shifting them to pensions being one of them.

of the number of newly compensated cases in 1974.[26] The average rate over the period 1980 to 2007 was 2.0 percent. Strikingly, the average rate from 1980 to 1998 was 1.5 percent, while the rate from 1999 to 2007 was 3.1 percent; or more than twice the rate for the earlier 19-year period. Calendar year 1999 appears to be an important point for the upward movement in rates. Clearly, the rate of pensions awarded in the most recent years was considerably above that of previous years. Also, note that rates from 1988 to 1991 had climbed above those of previous years, and the rates in some of the following years were below the long-term average, reflecting the inventory flow issues described earlier.

Table 2.6 TPD Awards as a Percentage of New Claims, Six Years Earlier* State Fund Only

Year of TPD award	TPD rate (%)
1980	1.6
1981	1.4
1982	1.7
1983	1.6
1984	1.2
1985	1.3
1986	1.4
1987	1.2
1988	1.9
1989	2.3
1990	2.4
1991	1.9
1992	1.7
1993	1.5
1994	1.4
1995	1.1
1996	0.9
1997	1.1
1998	1.3
1999	2.0
2000	3.0
2001	2.5
2002	3.6
2003	4.0
2004	2.7
2005	2.5
2006	3.0
2007	5.0

*TPD awards in a calendar year as a proportion of newly compensated cases six years earlier.
SOURCE: Office of the Actuary and the Data Warehouse.

There was indeed a substantial upturn in the number of pensions and in the rate of pensions awarded relative to time-loss claims six years earlier, at least for the state fund. One's

[26] We were not confident in using the data from before 1980 on the number of pensions awarded. The new awards for compensation, primarily new time-loss cases, are from 1974, six years before 1980.

view of the extent of the increase in numbers of pensions awarded must necessarily be shaped by the baseline used. And as the following chapter will demonstrate, the number of Washington's pension awards in recent years is very high relative to other jurisdictions in North America.

What Were the Primary Factors Responsible for the Increasing Numbers of Pensions?

The processing of claims–long-duration cases

Most persons familiar with workers' compensation issues recognize the central role that claim management plays in determining the outcome of a claim. Claim management practices are considered the centerpiece by many insurers as they seek to return injured workers back to work. One area that all insurers focus upon is the cost of a claim, which includes among other things the indemnity payments for temporary and permanent disability, health care costs, rehabilitation expenses and administration and legal costs. The costs for any of these elements of a claim will vary depending upon many factors including the severity of the injury and the worker's pre-injury wage rate. Yet another critical factor is the length of time for which periodic indemnity benefits are paid, which in most instances is the same as the period from the date of injury to the date when the worker is able to return to employment. If an insurer can shorten the duration of the claim, then the costs are likely to be lower.

Duration

The duration for which the claim remains open also can have a very significant impact on costs in other, less direct ways. In some jurisdictions the longer the injured worker is on time-loss benefits, the higher the permanent partial disability benefit is likely to be. Though not true for jurisdictions such as Washington that evaluate the extent of disability exclusively on the degree of (medical) impairment, the size of the permanent partial disability benefit may reflect the perceived severity of the disability, that is, the economic effects resulting from a permanent impairment. And the length of time that a disabled worker receives temporary disability benefits can influence the decision maker who assesses the degree of disability. In theory at least, this should not affect the permanent partial disability evaluation in Washington. However, the duration of the period for which a claim has been open, or for which time-loss (temporary disability) benefits have been paid, can influence whether a claim will result in a pension award. If the work injury occurred many years ago and if there has been only very sporadic or no return to work since the accident date, it is less challenging for a worker to successfully claim that he or she is permanently and totally disabled.

It is not simply the agency that expects that the very long-term disability claims eventually become pension cases. There have been instances when a dispute over some matter has resulted in its being taken to the BIIA or beyond and where the Board or the court has found that the case should be pensioned. If a pension is granted by the BIIA or a court order, L&I has no choice but to issue an order of compliance. L&I can appeal the decision, limited to points of law, but it must act on the BIIA or court order except in the rare case where a motion for stay is granted. The BIIA or the court entertains the worker's eligibility for pension in response to the issue being raised on appeal. The longer the duration of the claim, the stronger the worker's position is in contending for a pension. According to the interviews we have conducted, claims of rather long duration are viewed, both in the agency and at the Board of Industrial Insurance Appeals and in the courts as ones that are likely to become pension cases.

What is the likelihood of a long-duration case resulting in a pension award? Estimates based on past experience can reveal this and are shown in Table 2.6. It shows the probability that a time-loss claim active at the end of a calendar year will become a pension at some time in the future. As an example, for a claim with an accident year of 1990, if it was active at the end of a single calendar year, there was a four percent likelihood that it would become a pension case. However, if a claim from accident year 1990 was active at the end of the second year, there is a 16 percent chance that it would result in a pension.

Table 2.7 demonstrates the importance of long-duration claims in the Washington system. A time-loss claim from accident year 1990 that was active after 5 years had a 54 percent probability of resulting in a pension, while a claim from that same accident year that was active after 7 years had a 75 percent probability of this outcome. Clearly, the longer a time-loss claim is open in Washington, the greater the odds that a pension will result. Any attempt to explain the frequency of pensions in Washington needs to begin with a consideration of the incidence of long-term duration. To state this in a parallel manner, for a reduction in the frequency of pension awards to occur, an important and very direct step would be to reduce the number of time-loss claims that extend for long periods of time.[27]

[27] We are not suggesting that a reduction in the frequency of awarding pensions is our goal, but we recognize that it is for many with an interest in the State's program.

Table 2.7 Duration and Accident Year—The Probability of Receiving a Pension

Ultimate pension estimates as of 12/31/2007

	Accident Year											
Age	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1	4%	5%	5%	5%	5%	6%	6%	7%	7%	8%	10%	11%
2	16%	18%	18%	17%	17%	21%	23%	23%	25%	29%	30%	29%
3	27%	31%	30%	30%	31%	37%	39%	41%	44%	47%	46%	45%
4	40%	45%	44%	45%	47%	54%	56%	59%	63%	60%	57%	58%
5	54%	60%	60%	59%	62%	72%	76%	73%	72%	71%	68%	73%
6	65%	73%	73%	71%	71%	86%	92%	80%	77%	76%	77%	82%
7	75%	77%	83%	76%	85%	93%	88%	84%	85%	85%	83%	86%
8	84%	88%	89%	94%	92%	94%	86%	85%	90%	88%	90%	
9	88%	97%	91%	94%	95%	94%	86%	88%	88%	89%		
10	95%	112%	102%	89%	91%	91%	92%	89%	92%			
11	105%	114%	101%	86%	95%	92%	97%	96%				
12	105%	108%	100%	90%	96%	99%	98%					

This reserve methodology is based on the assumption that active claims over 13 years old have a 100% probability of becoming pensions.
Probabilities over 100% indicate that inactive claims are expected to reopen and become pensions.
In this exhibit, the values over 100% also indicate that the number of active claims has increased at around age 10.
SOURCE: Actuarial Services, Department of Labor & Industries.

Two things need to be noted about Table 2.7. Prepared by actuaries, these probabilities reflect both claims that have resulted in pensions being granted a break, and a forecast of additional claims that can be expected to be awarded. For the older accident year claims, most of the pensions have actually been awarded and there are only a few that are expected to still develop. For the more recent years, more of the estimated probabilities would be based on forecasts and not on actual awards made. To avoid having to depend primarily on forecasts of pensions rather than actual pensions granted, we have limited the accident year data to the period 1990–2001. We also need to note that some of the probabilities may exceed 100 percent. Some pensions can develop from claims that were not open at the beginning of a year but were then re-opened and became pensions.

At some point, if the Claim Manager needs to decide what to do with a claim where the worker has not returned to employment, has been exposed to one or more vocational rehabilitation options, and where additional medical expenses are not likely to be incurred for the condition that resulted from the work injury, the remaining options are either to "sit on the claim" or to move it to pension. The Claim Manager's available alternative actions are somewhat limited. What creates the need to resolve the claim rather than let it continue to sit, and in most cases for the worker to continue to collect time-loss benefits? At least two factors may push the claim manager to move the claim in this direction. First, if there is a request by the worker or the

worker's attorney to obtain a pension award, the Claim Manager will have to take some type of action, or simply have the decision taken away from them by the worker's representative. Alternatively, there may be a "push" by decision-makers in the agency to reduce the number of open and longer standing claims. Several instances of this have occurred over the past two decades, motivated in some cases by pressures from the legislature or the governor's office.

In our view one source, though certainly not the only one, of a rapid increase in pension claims is likely to result when there are three conditions acting in combination.[28] If these circumstances actually arose then it is likely that they can explain the rapid increase in pension awards beginning after 1996 and can serve as a guide to the future. These conditions are:

- a build-up of very long duration time-loss claims;
- a high probability that a long duration time-loss claims will evolve into a pension case; and
- a concerted push to clear out the long duration time-loss claims.

The Frequency of Long-Duration Claims

The data in Table 2.8 show the number of claims active in the years from 1993 to 2007, by the number of years since the claims were opened.[29] As an example in the last 90 days of 2007, there were 27,379 time-loss claims in active status, 1,301 of which had been open for 10 years or more. Table 2.8 shows that the number of active claims declined slightly from 1993 and 1994 and then has hovered at around the 26,000 level.

The majority of active time-loss claims in any year are less than one year old and the large bulk of active time-loss claims are those with durations of less than two years. From 1993 to 2006 the number of accepted time-loss claims at year's end declined steadily and was 22 percent lower than it had been 14 years earlier. (We recognize that the count of time-loss claims attributable to the later years will grow over time.) As such the decline in the number of active claims with less than a full year of maturity is not surprising as it simply tracks the decline in the overall time-loss claims being experienced by L&I. However, the decline in the number of new time-loss claims is not consistent with the rather steady level of active claims over this period.

[28] This is not meant to argue that there are no other sources of a sizable increase in pensions. Instead, it is to suggest the confluence of these three factors can be one source of such an increase in their number.

[29] Some analysts believe that open, rather than active claims should be used to demonstrate the material in this section. We accept that either metric has value and in Appendix 2.4 we replicate Tables 2.8 and 2.9 using open rather than active claims.

Table 2.8 The Number of Ultimate Claims Actively Receiving Time-Loss Benefits (within last 90 days) at Year End

Payment Year	Maturity (years) >1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	>=10 years	Total
1993	14,469	4,095	2,544	1,631	1,106	804	563	428	372	334	1,262	27,608
1994	14,817	4,112	2,434	1,671	1,132	804	639	484	360	309	1,315	28,077
1995	13,342	4,059	2,308	1,577	1,157	849	664	520	433	274	1,387	26,570
1996	13,381	3,631	2,249	1,484	1,083	920	688	559	454	329	1,401	26,179
1997	14,078	3,747	2,052	1,448	1,064	861	796	562	484	375	1,523	26,990
1998	13,583	4,026	2,175	1,381	1,021	832	702	638	493	423	1,647	26,921
1999	13,442	4,055	2,242	1,441	967	821	708	571	522	400	1,737	26,906
2000	12,693	3,879	2,229	1,449	962	711	576	477	462	376	1,546	25,360
2001	11,978	4,143	2,305	1,443	1,055	694	559	451	402	339	1,457	24,826
2002	12,107	4,468	2,656	1,704	1,138	826	613	464	370	322	1,451	26,119
2003	12,610	4,472	2,702	1,912	1,247	891	618	472	351	284	1,325	26,884
2004	12,075	4,139	2,685	1,896	1,404	1,019	697	515	401	299	1,280	26,410
2005	12,288	4,292	2,592	1,864	1,374	1,087	808	572	425	323	1,309	26,934
2006	12,448	4,396	2,613	1,857	1,397	1,102	900	687	509	371	1,385	27,665
2007	12,498	4,514	2,602	1,760	1,274	1,021	838	651	530	390	1,301	27,379

SOURCE: Department of Labor and Industries, Actuarial Service.

The data shown in Table 2.9 simply show the percentages derived from Table 2.8, such that we calculate the proportion of active cases of different vintage for each year. As an example, in 2007, 3.4 percent of the active time-loss claims had been open for 10 or more years. Notice that in the critical time period 1997 to 1999, the proportion of active cases that were 10 years old or older were at their highest rates, from 4.2 percent to 4.5 percent. Thus, despite the drop-off in new time-loss claims, the Department was not experiencing a decline in the numbers of active claims. In fact, both the number and percentage of claims 10 or more years of age peaked in 1999.

Table 2.9 Percentage of Ultimate Claims Actively Receiving Time-Loss Benefits (within last 90 days) at Year End

Payment Year	Claim Maturity <1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	>=10 years
1993	39.0%	10.4%	6.2%	3.7%	2.6%	2.0%	1.5%	1.2%	1.1%	1.0%	3.6%
1994	40.3%	11.1%	6.2%	4.0%	2.5%	1.9%	1.6%	1.3%	1.0%	0.9%	3.8%
1995	38.7%	11.0%	6.2%	4.0%	2.8%	1.9%	1.6%	1.3%	1.2%	0.8%	3.9%
1996	39.1%	10.5%	6.1%	4.0%	2.7%	2.2%	1.5%	1.3%	1.2%	0.9%	3.9%
1997	40.6%	10.9%	6.0%	3.9%	2.9%	2.2%	1.9%	1.3%	1.1%	1.0%	4.2%
1998	39.5%	11.6%	6.3%	4.0%	2.8%	2.2%	1.8%	1.5%	1.1%	1.0%	4.4%
1999	39.3%	11.8%	6.5%	4.2%	2.8%	2.2%	1.9%	1.4%	1.3%	0.9%	4.5%
2000	38.6%	11.3%	6.5%	4.2%	2.8%	2.1%	1.6%	1.3%	1.2%	0.9%	3.9%
2001	39.1%	12.6%	6.7%	4.2%	3.0%	2.0%	1.6%	1.2%	1.1%	0.9%	3.6%
2002	41.6%	14.6%	8.1%	5.0%	3.3%	2.4%	1.8%	1.3%	1.0%	0.9%	3.5%
2003	43.4%	15.4%	8.8%	5.8%	3.6%	2.6%	1.8%	1.4%	1.0%	0.8%	3.2%
2004	41.4%	14.3%	9.2%	6.2%	4.3%	3.0%	2.0%	1.5%	1.2%	0.9%	3.2%
2005	41.4%	14.7%	8.9%	6.4%	4.5%	3.3%	2.4%	1.7%	1.2%	0.9%	3.3%
2006	40.5%	14.8%	9.0%	6.4%	4.8%	3.6%	2.7%	2.0%	1.5%	1.1%	3.6%
2007	41.2%	14.7%	8.8%	6.0%	4.4%	3.5%	2.7%	2.0%	1.5%	1.1%	3.4%
2007 increase over the 1993 to 1999 average		33%	41%	52%	60%	67%	61%	47%	36%	24%	

SOURCE: Department of Labor and Industries, Actuarial Service.

Table 2.10 is key to understanding this process. We asked what the number of active time-loss claims was at the end of each year that had maturities of six or more years. The probability is high that many, if not most of these, would result eventually in a pension as shown earlier. Table 2.10 shows that at its peak in 1999, there were 3,938 (10.0 percent) active state fund claims that had been open for at least six years, and many of these were a good deal older. This number and proportion began to decline thereafter, until 2004 when the number and rate of active cases six years old or older, began to increase once again. In 2006, one in every nine recipients of time-loss benefits in the last quarter of the calendar year was drawing on a claim that had arisen six years or more before. The drop-off until 20003 in the number of active time-loss claims with six or more years of maturity represented a promising opportunity to reduce the number of pension awards in the future. However, both the number and the rate of such “old”

claims are rising again and strongly suggest that there will be an increasing number of pensions in the future.[30]

Table 2.10 The Number of State Fund Active Time-Loss Claims at the End of Each Year that had been Open for Six or More Years

Year	Number open 6 or more years	Percentage of active claims open 6 or more years
1993	2,959	8.4
1994	3,107	8.6
1995	3,278	8.7
1996	3,431	8.8
1997	3,740	9.5
1998	3,903	9.8
1999	3,938	10.0
2000	3,437	8.9
2001	3,208	8.4
2002	3,220	8.5
2003	3,050	8.2
2004	3,192	8.8
2005	3,437	9.5
2006	3,852	10.9
2007	3,710	10.7

SOURCE: Data Warehouse, Department of Labor & Industries.

In Tables 2.11 and 2.12 we see the distribution of pensions awarded by the age of the claim. The fundamental point here remains the significance of older time-loss claims in accounting for pensions and the growth of pensions from the late 1990s. The tables show that a large share of the pensions awarded in any year goes to claims where the work accident occurred 10 or more years previously. In 2000 a high water mark was reached as over 38 percent of the pensions awarded that year went to claims that had been open for 10 or more years (Table 2.12). The number of these 10 year old or older cases that were pensioned peaked in 2002 (Table 2.11).

After 2001 the proportion of claims pensioned that were this old fell sharply and by 2007, the rate of pensions awarded to this group had fallen to below 21 percent. However, the number of pensions granted to those with accident dates 10 years old or older did not fall immediately after 2001. Instead, the declining proportion reflected the growth in pensions for claims with shorter duration than existed before 2002. And the percentage of pensions granted to those with

[30] If one focuses on long-duration open claims rather than older active claims, the period 1997 to 1999 also shows an increase over prior years. In those years the numbers of open claims that were six years old or older were 6,005 (13.9%), 6,087 (14.0%) and 5,923 (13.7%) respectively. However, unlike the active claims six years or older that began to increase sharply after 2003 the number of open claims fell steadily after 1999.

injury dates of six or more years before, which accounted for over 70 percent of awards made in 1999, has been falling and in 2006 was 51 percent.

Table 2.11 The Number of State Fund Claims Pensioned (TPD) in a Year that had been Open for <1 to 10+ Years

Years	<1	1	2	3	4	5	6	7	8	9	>= 10	Total
1988	2	8	30	77	63	82	48	48	46	37	147	588
1989	1	18	61	90	89	65	59	55	59	44	210	751
1990	4	24	55	55	73	79	82	83	51	45	263	814
1991	4	20	36	55	59	52	53	51	50	50	210	640
1992	0	9	34	53	48	63	65	47	53	53	191	616
1993	0	5	39	47	50	57	44	43	48	29	183	545
1994	2	8	36	62	60	43	43	43	35	38	204	574
1995	1	8	13	39	49	44	39	41	31	26	164	455
1996	2	1	21	31	32	32	34	35	34	24	157	403
1997	1	3	20	36	39	47	51	46	44	27	170	484
1998	2	6	12	45	47	50	51	52	36	42	191	534
1999	1	10	41	64	50	67	77	70	62	62	275	779
2000	3	19	57	81	93	107	88	100	77	73	428	1,126
2001	4	20	60	76	89	71	57	55	62	63	340	897
2002	0	33	72	107	115	135	112	77	103	82	442	1,278
2003	2	51	139	145	145	140	123	121	69	79	426	1,440
2004	2	35	92	137	119	83	76	63	47	55	259	968
2005	3	28	88	120	98	100	91	59	50	38	191	866
2006	2	38	86	115	132	127	110	85	60	40	230	1,025

SOURCE: Data Warehouse, Department of Labor & Industries.

One of the very significant aspects shown in Table 2.11 is the growth in the number of pensions awarded to persons with open time-loss claims of substantially shorter durations. This is also demonstrated in Table 2.13 which lists the median number of years that a claim was open before a pension was awarded. From 1996 to 2001, the median number of years that a claim was open until the pension was granted was eight years or higher. By 2004 to 2007, the median had fallen to about six years. Obviously, something significant changed in the administration and adjudication of claims around 2002 such that relatively shorter (but not short) duration claims suddenly became an important source of the sizeable increase in pensions. Between 1996 and 2003 pension awards for claims that were 2 to 3 years old jumped from 21 to 139 and those that were 3 to 4 years old increased from 31 awards to 145. We reiterate the central argument, that as the duration of open or active time-loss claims grow, pensions will follow.

Table 2.12 The Percentage of State Fund Claims Pensioned (TPD) in a Year that had been Open for <1 to 10+ Years

Years	<1	1	2	3	4	5	6	7	8	9	>= 10
1994	0.35%	1.39%	6.27%	10.80%	10.45%	7.49%	7.49%	7.49%	6.10%	6.62%	35.54%
1995	0.22%	1.76%	2.86%	8.57%	10.77%	9.67%	8.57%	9.01%	6.81%	5.71%	36.04%
1996	0.50%	0.25%	5.21%	7.69%	7.94%	7.94%	8.44%	8.68%	8.44%	5.96%	38.96%
1997	0.21%	0.62%	4.13%	7.44%	8.06%	9.71%	10.54%	9.50%	9.09%	5.58%	35.12%
1998	0.37%	1.12%	2.25%	8.43%	8.80%	9.36%	9.55%	9.74%	6.74%	7.87%	35.77%
1999	0.13%	1.28%	5.26%	8.22%	6.42%	8.60%	9.88%	8.99%	7.96%	7.96%	35.30%
2000	0.27%	1.69%	5.06%	7.19%	8.26%	9.50%	7.82%	8.88%	6.84%	6.48%	38.01%
2001	0.45%	2.23%	6.69%	8.47%	9.92%	7.92%	6.35%	6.13%	6.91%	7.02%	37.90%
2002	0.00%	2.58%	5.63%	8.37%	9.00%	10.56%	8.76%	6.03%	8.06%	6.42%	34.59%
2003	0.14%	3.54%	9.65%	10.07%	10.07%	9.72%	8.54%	8.40%	4.79%	5.49%	29.58%
2004	0.21%	3.62%	9.50%	14.15%	12.29%	8.57%	7.85%	6.51%	4.86%	5.68%	26.76%
2005	0.35%	3.23%	10.16%	13.86%	11.32%	11.55%	10.51%	6.81%	5.77%	4.39%	22.06%
2006	0.20%	3.71%	8.39%	11.22%	12.88%	12.39%	10.73%	8.29%	5.85%	3.90%	22.44%
2007	0.00%	3.08%	8.72%	13.60%	13.47%	10.78%	9.30%	8.85%	6.22%	5.26%	20.72%

SOURCE: Data Warehouse, Department of Labor & Industries.

Table 2.13 Median Years from Claim to Pension Allowance–State Fund

Year	Pensions	Median Years
1989	751	6.8
1990	815	7.5
1991	639	7.8
1992	616	7.8
1993	545	7.7
1994	574	7.8
1995	455	7.9
1996	403	8.5
1997	484	8.0
1998	534	8.1
1999	779	8.1
2000	1,127	8.2
2001	897	8.3
2002	1,279	7.8
2003	1,448	6.8
2004	969	6.2
2005	869	5.9
2006	1028	6.1
2007	1,597	6.1

SOURCE: Data Warehouse, Department of Labor & Industries.

That aside, a phenomenon that began later than the start of the rapid growth in the awarding of pensions, sometime around 2002, was the growth in pensions among shorter

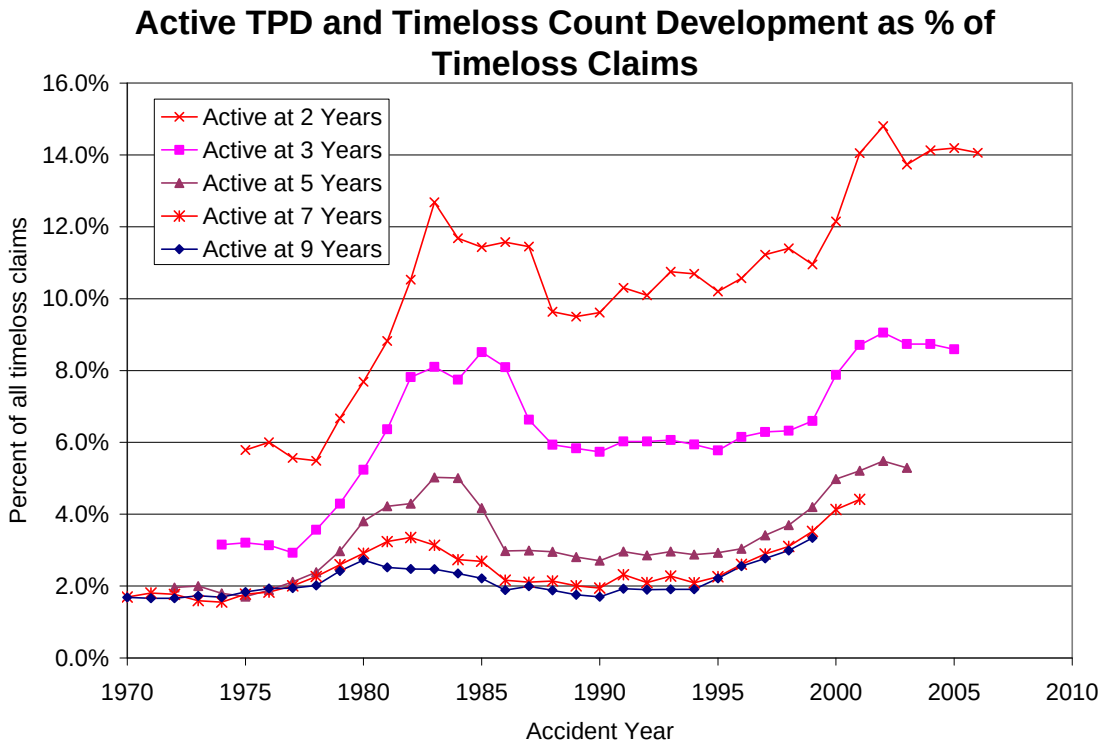
duration open time-loss claims. This seems to represent a change in practice and may reflect a change in policy. If the pensions awarded to workers with claims open for two to four years had been granted in a number consistent with agency practice of previous years, there would have been several hundred fewer pensions awarded annually. Those searching for an explanation of the growth of pensions since around 2000 must look to this very significant change in L&I's practices.

A Note on Claims of Shorter Duration

Because of the very strong tendency for longer duration cases to evolve into pensions, we believe they warrant considerable attention. Yet the simple fact is that long-duration cases evolve from those with a somewhat shorter duration and so we ask if there appears to be some reduction in the extent of those cases. The data provided by Actuarial Services suggest that this is not happening. Consider only those claims where any time-loss payments have been made in the last quarter of the year (active claims). For each single accident year 1993 through 1999, the rates of such claims as a proportion of time-loss claims from the same accident year were consistently lower than in the years since 2003 (Table 2.9). As an example, an average of 6.4 percent of those with claims of 3 years' maturity were continuing to receive time loss in the years 2003 to 2007. By contrast, the comparable average from 1993 to 1999 was 4.3 percent.

This tendency for duration to grow since around 2001 was repeated for all claim maturities, and much of that can be seen in Figure 2.9. As an example of how to understand the figure, the very top line in the figure indicates the proportion of claims that were still active two years since the date of injury. In the years shown, prior to 1980 less than six percent were active at two years since the date of injury. By contrast, over the latest five years, the proportion of time-loss cases active at two years from the date of injury was in the range of 14 percent.

Figure 2.9



SOURCE: Office of the Actuaries and the Data Warehouse, Department of Labor & Industries.

Large and/or growing numbers of long-duration claims are dramatic as they certainly can be expected to have an impact on the number of pensions that will follow. Increasing rates for the shorter durations, even six months or one or two years, are not dramatic and therefore are likely to receive less attention. Yet to disregard increasing rates of claims that have not closed at these shorter durations can only serve as a red flag for what lies ahead. The linkages are clear. Higher rates of active claims of shorter durations, relative to new time-loss claims lead to higher rates of longer duration cases; and the latter are strongly associated with higher rates of pensions. As we shall see, the timing of when these awards are actually made are a product of the Department's policies regarding closing claims but the raw material for these awards is the long-duration cases.

Efforts to Reduce Time-Loss Duration

Steps to shorten average duration have been taken at various points for more than two decades and it seems fair to say that the problem has not been successfully or fully resolved. In Appendix 2.3 we show a time line of significant events that includes some of the efforts that

have been made by L&I to reduce the duration of time-loss claims. In the years before the pension upsurge began, the number of claims of six or more years' duration were growing and the number of open time-loss claims from accident years 10 years or older was also very high. On the heels of various projects to reduce the average duration of time-loss claims, including pilot projects in Everett and Yakima begun in 1994, a total of 59 staff positions within L&I were reallocated to claims management in 1997. In 1998 money was made available by the legislature to fund 24 additional Claim Managers, with the proviso that time-loss duration be reduced by 5 percent by June 30, 2000, and an additional 2.5 percent by June 30, 2001. The caseload for level 2 Claim Managers was also expected to drop to approximately 190 by June 30, 2000. However, if substantial progress in attaining these goals was not achieved by June 30, 2000, the newly established positions and the funding for them would be discontinued.

Following the earlier efforts and with the threat of the loss of some funding and positions if average duration was not reduced, yet another serious push was undertaken to remove long-term time-loss claims from the roles. As has been noted above, one method of achieving this was to push the cases forward with the recommendation for a pension. Then it was up to the Pension Adjudicators to resolve the claim with a pension determination. Needless to say, this added considerably to the workloads of the Pension Adjudicators, both because of the increased number of pension determinations to be made by them, and because the average experience level of the Claim Managers was less due to the presence of newly acquired staff.

The latter meant that Pension Adjudicators faced three choices. They could put in more work than customary to ready a claim for acceptance or rejection as a pension, though that would reduce the number of determinations that they could make. A second possibility was to send the file forward with less preparation than they were accustomed to doing. This option could result in more decisions made by Pension Adjudicators being overruled at the BIIA and/or in the courts. The third possibility was to send the file back to the Claim Managers and ask for more effort at that level in order to prepare the file better for the pension decision. However, this choice would lead to resistance from the Claim Managers and their supervisors, who were anxious to move claims out and not to have them bounced back from the Pension Adjudicator. Moreover, claims resolution by the Pension Adjudicators was encouraged in support of the time-loss duration reduction efforts.

When efforts built up periodically to reduce backlogs the Department took several measures to resolve cases that were with the Pension Adjudicators. (Some of these specific measures are noted with their applicable dates in Appendix 2.3, the Timeline of Pension Relevant Events). In some instances overtime for the PAs was approved. At times, temporary assistance was provided by others in the Department who were tasked with preparing a file for review by the Pension Adjudicator. Also, Labor & Industries regularly turned to former Pension Adjudicators to return to work for portions of a year, as the budget allowed, to reduce the buildup of cases in that office.

At various times the pressures to reduce the backlog of long-duration open claims created difficulties for the Pension Adjudicators. One of the results of that is the difficulty in evaluating when an upsurge was occurring in claims for pensions versus the awarding of pensions. Nothing may make this more evident than the data from 2007 in Table 2.14. The very large number of pensions awarded that year, 2,390, was actually 619 claims more than the number of pension referrals received by the Pension Adjudicators that year. In 2007, a very serious effort was made to reduce the PA's backlog of pension referrals and the backlog dropped in that year by 599. The large jump in pensions awarded that year reflects a shortfall of awards in 2006 due to a buildup in cases to be resolved. Additionally, one should observe the very high rate of pensions granted as a percent of cases reviewed in 2007. It may be that in an attempt to clear out the backlog, some of the reviews were completed with less than the same degree of scrutiny than occurred in earlier years. It is notable that the ratio of pensions granted to pensions reviewed jumped from 1998 to 2000 as the upsurge in awards occurred, and this rate has remained relatively high since then.

Table 2.14 Pension Adjudicator Pension Activity 1990–2007

Year	Pension referrals	Referrals reviewed	Pensions granted	% of Reviewed cases granted	Backlog change	PA FTEs	Pension referrals/ PA FTEs	Referrals reviewed/ PA FTEs	Pensions granted / PA FTEs
1990	637	1,349	799	59%	-712	36	17.7	37.5	22.2
1991	1,340	1,209	684	57%	131	36	37.2	33.6	19
1992	1,236	1,264	659	52%	-28	37	33.4	34.2	17.8
1993	1,186	1,104	562	51%	82	36	32.9	30.7	15.6
1994	1,044	1,101	605	55%	-57	48	21.8	22.9	12.6
1995	995	886	502	57%	109	54	18.4	16.4	9.3
1996	896	842	447	53%	54	60	14.9	14	7.5
1997	972	947	541	57%	25	63	15.4	15	8.3
1998	933	993	597	60%	-60	88	10.6	11.3	6.8
1999	1,273	1,390	862	62%	-117	81	15.7	17.2	10.6
2000	1,956	1,949	1,349	69%	7	98	20	19.9	13.8
2001	1,654	1,463	987	67%	191	143	11.6	10.2	6.9
2002	1,757	1,904	1,381	73%	-147	101	17.4	18.9	9.8
2003	2,201	2,158	1,573	73%	43	119	18.5	18.1	13.2
2004	1,689	1,613	1,090	68%	76	100	16.9	16.1	10.9
2005	1,639	1,377	938	68%	262	103	15.9	13.4	9.1
2006	1,696	1,575	1,131	72%	121	107	15.9	14.7	10.6
2007	1,791	2,390	1,772	74%	-599	99	18.1	24.1	17.9

Notes:

1. Data from monthly pension adjudicator unit reports.
2. Attorney referrals forwarded directly to claim managers for review in December 2005.
3. Backlog change: Referrals minus Reviewed.

SOURCE: Data Warehouse, Department of Labor & Industries.

Conclusion

It seems likely that all of the strategies mentioned above were used during the period as the growth in pensions accelerated. Combined with the large number of very long-duration claims, with the established tendency for such claims to evolve into pensions, and various concerted efforts to remove these claims from the roles, the increase in pension awards was the natural consequence. It must be emphasized that we are not suggesting that policy and practice changes at L&I were the direct cause for open claims to become pensions. Instead, the concerted push to close claims is likely to have contributed to a lumpiness in the number of pensions that were awarded in certain time periods, thereby precipitating the rapid growth in the number of pensions actually awarded between 1996 and 2003. The increase in the number of pensions awarded to shorter term time-loss claims, say of three to four years vintage, has also contributed both to the lumpiness and to the growth in the number of pensions. We have not been able to

establish the reason for L&I's movement to reducing the period of time before pensions are awarded.

DEVELOPMENTS IN THE LABOR MARKET CONTRIBUTED TO THE GROWTH IN PENSIONS

Conditions in the labor market are of special importance to activity in the workers' compensation system. For many reasons, labor shortages or surpluses along with other variations, impact on the frequency of claims, their duration, the types of disabilities for which claims are made and their costs. We briefly describe this relationship and then focus on Washington and its experience in recent years.

Strong or Weak Labor Market Conditions

Labor market conditions that we characterize as "strong" exist when the demand for labor is high relative to the supply. In such conditions employers encounter challenges in recruiting and holding on to their work force. "Weak" labor markets exist when the supply of available labor exceeds the demand, and workers have difficulty finding and retaining employment. Of course, some labor markets will be relatively stronger or weaker than others but it is convenient here to simply think in dichotomous terms. Strength or weakness in the labor market directly impacts both the likelihood of experiencing work injuries or illnesses and the utilization of the workers' compensation program, as well as the likelihood of a successful return to work after injury.

Where labor markets are very strong the impact on workplace injuries or illnesses will be affected by the following:

- hours of work;
- experience;
- training; and
- maintenance.

Longer hours of work are correlated with strength in the labor market. As such, periods of relatively strong demand are associated with the likelihood that fatigue, haste, and lack of concentration by workers and supervisors can lead to accidents that result in injuries and fatalities.

During periods of very strong demand for labor, employers are forced to be less selective as they recruit or employ workers. Digging deeper into the barrel, employers are forced to use

workers that they would otherwise not use in certain positions. During strong labor markets, employee quit rates increase as workers seek employment opportunities that provide better wages, benefits and/or potential future advantage. This churning in the labor market also results in less experienced employees at work in specific jobs. Recent labor market entrants are better able to find work and to take positions for which they would not normally be eligible. Workers with less experience in employment or in specific positions are more likely to suffer accidents at work.

During periods of high demand for labor and high levels of production, employers tend to devote less time to training workers, both in the work that they perform and in assuring that safe practices are understood and utilized. Employers recognize that periods of very strong labor market demand will be followed by periods with more "downtime," and sometimes will delay training until this can be provided with less loss of production. As with the case of employee training, maintenance of plant and equipment is frequently postponed until periods when less production is needed. And as in the case of training, less maintenance is associated with increasing rates of work accidents.

While periods of very strong demand for labor are likely to contribute to accident frequency, they also impact workers' compensation programs. In strong labor markets employers are more likely to re-employ workers that have been temporarily disabled as the need for them is great and alternative (experienced) labor is difficult to recruit. Employers will use a variety of inducements and workplace modifications to retain their workers when the need for workers is great and replacements are not readily available. Even if the work injury makes it difficult for a person to resume their pre-injury employment, modified or alternative opportunities may allow the injured worker to promptly find other employment. As such, the duration of time spent on time-loss is likely to be less when the labor market is strong.

In a weak labor market, a worker may be reluctant to report a work accident out of a concern that it will result in the loss of income and possible job loss. As a result, weak labor markets will lead to some underreporting by workers of accidents and injuries. Moreover, if they are injured they may minimize the degree of injury fearing that this will lead to job loss and unemployment in an environment of job scarcity. Conversely, it is well known that employee layoffs often lead to a flurry of claims for workers' compensation. Workers who have sustained

workplace injuries and illnesses can report them and seek compensation without fear of this causing job loss when employers have laid them off already for economic reasons.

The above comments pertain to workers' compensation systems throughout the U.S. and elsewhere and are not unique to Washington. However, we believe that Washington State's workers' compensation system may be more sensitive to some of these effects than most other states. In particular many workers' compensation systems in the U.S,. and in other countries as well, provide permanent disability compensation strictly on the basis of the degree of medically-rated impairment. In those jurisdictions the conditions in the labor market are unlikely to directly affect the permanent disability benefit to which a worker is entitled. Hence, no matter how strong or weak the labor market is in such states, the disability rating will not reflect this.

Other states in the U.S. that do not rate disability strictly on the basis of the degree of impairment typically pay on the basis of the loss of wage earning capacity. This benefit customarily is strongly linked to the degree of impairment and on the judgment regarding how this is likely to affect the future earnings of the worker. Given the difficulty inherent in making such subjective forecasts, insurers and workers will typically use lump-sum settlement agreements to close the claim. Neither of these options exists in Washington.

Our point is not to endorse or to reject this method of resolving claims. Instead, it is simply to point out that the incidence of total permanent disability in Washington is heavily dependent upon the job opportunities that exist in the period after a worker has sustained an injury that results in a permanent disability. Should a worker sustain a permanent impairment through a work injury or illness, the odds that this will result in a pensionable claim depends very heavily on the availability of job opportunities that are appropriate for this individual. In weak labor markets, relatively few such opportunities may exist for individuals with an impairment, and are especially problematic for individuals whose age, education, language limitations or experience make them of limited attractiveness to employers.

Employment Growth and Unemployment

One of the indicators of the strength of labor markets is the extent of growth in employment experienced over some time period. By that measure, Washington State has had an excellent record looking back as far as 1990. From 1990 through 2006 (non-farm) employment increased by a substantial 33.2 percent, far outpacing the national rate of employment growth of 21.5 percent. (Table 2.15) Breaking that down into shorter periods, we find that Washington's

employment grew from 1990 to 1995, from 1995 to 2000 and from 2001 to 2006 at rates of 9.5 percent, 15.4 percent, and 5.7 percent, respectively. For the same periods the growth of employment in the U.S. was only 5.1 percent, 9.6 percent, and 5.4 percent.

It needs to be noted however, that the period of especially active employment creation in Washington occurred in the 1990s but that a serious contraction followed. The employment level actually fell from 2000 to 2001, and it fell again between 2001 and 2002. From 2002 to 2003, the number of persons employed was unchanged. Although some employment growth resumed in 2004, employment for the year was still below the level that had been reached in 2000. Clearly, after years of very substantial employment creation Washington's labor market had run out of steam by 2001.

Table 2.15 Washington and U.S. Employment 1990–2006, in millions

Year	All non-farm employees Washington	U.S. employment
1990	2.15	118.8
1991	2.17	117.7
1992	2.22	118.5
1993	2.26	120.3
1994	2.30	123.1
1995	2.36	124.9
1996	2.41	126.7
1997	2.52	129.6
1998	2.60	131.5
1999	2.64	133.5
2000	2.72	136.9
2001	2.71	136.9
2002	2.65	136.5
2003	2.65	137.7
2004	2.70	139.3
2005	2.77	141.7
2006	2.86	144.4

SOURCE: US Bureau of Labor Statistics.

Yet another conventional indicator of the strength of the labor market is the unemployment rate. In Table 2.16 we show this rate for Washington and the U.S. as a whole for the 1990–2006 period. Notice that although Table 2.15 indicated more substantial growth in employment in Washington than in the nation as a whole for the entire period and for sub-periods, a very different picture emerges with Table 2.16. Washington experienced a rate of

unemployment that was lower than the national rate only in1990 to 1992. Thereafter, the unemployment rate in Washington has exceeded the national rate in every year through 2006.

For many workers who sustained occupational injuries or illnesses in the early 1990s, they were challenged by a very weak labor market with an average unemployment rate for the state over the four years of almost 6.8 percent. Many of those who became pensioners in 1997 or thereafter began their time-loss benefits during the difficult economic times that began in the early 1990s. Clearly, job opportunities for those who lost their jobs for any reason could be scarce. After 1992, Washington experienced an unemployment rate that was consistently higher than the national average, and substantially higher in many of those years. Specifically, from 2000 to 2003, the state's unemployment rate exceeded the national rate by fully 1 to 1.5 percentage points and a relatively wide gap has continued until recently.

Table 2.16 Washington and U.S. Unemployment Rates 1990–2006

Year	U.S.%	Washington%
1990	5.6	5.1
1991	6.8	6.3
1992	7.5	7.2
1993	6.9	7.1
1994	6.1	6.5
1995	5.8	6.3
1996	5.4	5.9
1997	4.8	4.9
1998	4.5	4.8
1999	4.2	4.8
2000	4.0	5.0
2001	4.7	6.2
2002	5.8	7.3
2003	6.0	7.4
2004	5.5	6.3
2005	5.1	5.5
2006	4.6	5.0

SOURCE: US Bureau of Labor Statistics.

We briefly consider Washington's labor market experience over the period of the pension upsurge, although the period before that played some role in the likelihood of injured workers finding employment.[31] In 1997, overall employment growth in the state was relatively strong but almost 80 percent of this was centered in the Puget Sound region, and a much lower rate of employment growth occurred in the balance of the state. While 1998 began as a strong year there

[31] Most of the data on which this section is based are taken from the annual Washington State Labor Market and Economic Reports.

were sizeable layoffs at Boeing in the second half of the year. The Puget Sound region continued to lead the state in employment growth. Computer software and the high tech sector were significant contributors to strong growth while the timber and natural resource rich parts of the state continued to experience high rates of unemployment.

Although 1999 was the third year in a row that the state's unemployment rate was below five percent, employment growth was selective. White collar employment in computer software, social services, finance, health care, and public and private education was strong. Weakness in the timber and agricultural areas and much of eastern Washington continued. The same conditions continued into 2000 as the unemployment rate drifted up to 5.0 for the state, and was between 7 and 8 percent in the timber and natural resource dependent areas of the state. Aircraft and parts continued its slide with 87,000 fewer jobs in the state in 2000 than less than two decades earlier.

The year 2001 was a poor one for the labor market and total employment fell from the level of 2000. In 2001 and 2002 the entire nation experienced a recession but Washington's unemployment rate in both years was 1.5 percentage points above the U.S. average. With continuing job losses in manufacturing, along with most other sectors, even King County experienced serious job losses in this period. Some weakness continued into 2003 so that from mid-1998 to September 2003 manufacturing employment fell by 26 percent.

By 2004 the state's employment level was still below the level achieved in 2000. While employment in the Seattle region bounced up in 2004, employment was still below that of 2000. And from mid-1998 to mid-2004 the aerospace sector had lost a total of 52,000 jobs. Years 2005 through 2007 have been stronger years for employment in the state although job gains were strongest in professional and business service sectors.

How well has Washington done compared to other states and the nation as a whole? The U.S. Bureau of Labor Statistics has begun publishing a ranking of states based on the annual unemployment rates. Table 2.17 shows the comparative ranking achieved by Washington from 2000 to 2006. In 2000 Washington's unemployment rate ranked 44th out of 51 jurisdictions (50 states and the District of Columbia), that is, only 7 states had a higher average unemployment rate for the year. From 2001 through 2003, Washington ranked 48th, 50th, and 49th respectively among the states in its unemployment rate. Clearly, by this measure Washington's comparative

performance must be viewed as highly problematic and one of the worst in the nation, for this period.

Table 2.17 States Ranked by Unemployment Rates

Year	Washington's Ranking*
2000	44
2001	48
2002	50
2003	49
2004	43
2005	40
2006	37

Note: * The higher the number, the worse the comparative position of the state.
SOURCE: US Bureau of Labor Statistics.

How does one reconcile the relatively (and in some cases absolutely) high rates of unemployment that Washington has experienced since 1993 to the middle of this decade and the impressive rate of job creation that has occurred over much of the same time period? Clearly, an increase in the labor force participation rate could account at most for only a small portion of this seeming disparity. What can explain this are the relatively high rates of in-migration to the state, particularly by persons seeking employment in some of the higher paid and more skilled positions in certain industries. Washington has been a high growth state, population-wise, for the period under concern here. From 1990 to 2000 Washington's population grew by 21.1 percent compared with the nation's growth of 13.1 percent. This made Washington the 10th fastest growing state population-wise in the country for that decade. And Washington's population continued to grow faster than the nation's in the period 2000 to 2006, with a rate of 8.5 percent compared with 6.4 percent for the entire nation.

While this movement of workers into the state was occurring, some regions in the state and some workers with lower skill levels were experiencing job loss and prolonged unemployment. A number of commentators have mentioned the issue of "the two Washingtons" with some areas of the state experiencing strong economic performance while others have done very poorly. Table 2.18 lists the reported unemployment rates for Washington's 11 metro

statistical areas. The variations in experience are very large and do conform to a "two Washingtons" argument.[32]

Table 2.18 Unemployment Rates (%) Washington, Washington MSAs

Year	Washington State	Bellingham	Bremerton Silverdale	Kennewick Richland Pasco	Longview	M. Vernon Anacortes	Olympia	Seattle Bellevue Everett	Spokane	Tacoma	Wenatchee	Yakima
1990	5.1	5.1	4.0	7.0	6.7	6.7	4.8	4.0	5.4	4.6	8.1	10.7
1991	6.3	6.5	4.9	8.0	8.0	8.3	5.8	5.0	6.1	6.1	9.6	12.4
1992	7.2	7.4	5.8	8.1	10.2	9.9	6.4	5.9	6.6	7.2	10.1	13.1
1993	7.1	7.3	6.4	7.6	10.3	10.6	6.6	6.0	5.7	7.1	9.3	13.6
1994	6.5	7.6	6.2	6.2	8.5	9.4	6.4	5.6	5.1	6.7	8.2	12.0
1995	6.3	7.0	6.4	7.7	7.3	8.5	6.0	5.5	5.2	6.0	8.8	12.2
1996	5.9	6.5	5.8	8.1	7.4	8.3	5.7	5.0	5.0	5.4	8.5	11.7
1997	4.9	5.5	5.1	6.7	6.5	6.6	4.7	4.1	4.2	4.2	6.8	9.2
1998	4.8	5.0	4.5	6.5	6.7	6.2	4.2	4.1	4.2	3.9	7.0	9.1
1999	4.8	4.8	4.6	6.1	6.6	5.9	4.3	4.0	4.9	4.3	7.5	9.4
2000	5.0	5.1	5.0	5.4	6.3	5.8	4.6	4.2	5.2	5.0	6.3	7.6
2001	6.2	6.5	6.0	6.2	9.4	7.1	5.7	5.1	6.6	6.5	7.8	9.4
2002	7.3	6.9	6.7	6.8	10.7	8.3	6.5	6.3	7.7	8.0	8.3	9.6
2003	7.4	6.8	6.7	7.3	10.0	8.2	6.5	6.4	7.6	8.2	8.2	9.6
2004	6.3	5.8	5.8	6.3	8.4	6.9	5.8	5.3	6.5	7.0	6.7	8.5
2005	5.5	5.0	5.1	6.1	7.3	5.9	5.1	4.8	5.7	5.9	5.8	7.4
2006	5.0	4.6	4.8	6.1	6.6	5.2	4.6	4.3	5.0	5.2	5.1	6.9

SOURCE: US Bureau of Labor Statistics.

Consider the Yakima area which had double digit unemployment rates from 1990 until 1996 and then experienced rates of nine percent or higher in six of the seven years following 1996. Observe that the Yakima area had an unemployment rate of 13.6 percent in 1993. The Longview area had unemployment rates that averaged over 10 percent from 2001 to 2003. The Mount Vernon-Anacortes area had high rates of unemployment over much of this time as did Wenatchee. Spokane's performance was relatively good through 1998 but since 1999, it has had consistently higher rates of unemployment than the balance of the state.

By contrast with these areas the Olympia region has consistently had unemployment rates below the rest of the state, at or below five percent in most years after 1995. The Seattle-Bellevue-Everett area has witnessed relatively and absolutely low rates of unemployment, although it was impacted by the national slowdown after 2001. It is an area that is highly dependent on the economic activity of some very large employers. Even if one of these

[32] The "two Washingtons" is used to refer to large differences in the economies of separate parts of the state. It has been used to describe the difference between eastern and western portions of the state, or rural versus urban or metro versus non-metro portions.

businesses is forced to lay off workers temporarily, the region can remain strong if other large businesses retain their labor force. Over much of this period, down periods for some of these firms were counterbalanced by strength in others. However, the skills required to build aerospace products are not necessarily applicable to writing lines of software for other employers.

Disadvantaged Workers and Work Injuries and Illnesses

Some individuals have significant disadvantages in the labor market. In particular, categories of individuals including those with lower levels of education, limited English language skills, minorities, and the elderly are generally found to have higher rates of unemployment and/or face longer durations without finding work after leaving a job. That aside, individuals with a work injury or illness and resulting job loss—and possibly some degree of permanent impairment—also are known to face disadvantage in the job market. Strong evidence points to an unfortunate synergy for those who are otherwise disadvantaged in the labor market and also sustain a work injury. Given the approach used by Washington to compensate workers with permanent impairments or longer-term time-loss claims, it is very likely that a worker with a preexisting disadvantage in the labor market will become a candidate for a pension.

The Workers Compensation Research Institute has undertaken a number of studies that follow up workers with workers' compensation claims involving more than seven days of lost time. Among other issues relating to return to work, the interviewees in a nine-state study were asked the following question:[33]

> Have you ever been able to work 1 full month at a time before having to leave work again because of your injury?

If a respondent answered "No," the study classified them as not having had a "substantial return to work." (A subset of this group indicated that they never had any return to work at all since their injury.) The workers interviewed had been injured from 2.5 to 3.5 years before the interview, so that a substantial amount of time had passed since the disabling injury or illness. Strikingly, the study reported that not having a substantial return to work was not correlated with the severity of the injury, according to the individual's self-reported assessment. But there appeared to be a consistently strong association between never having a substantial return to work in the 2.5 to 3.5 years since the injury and with pre-injury attributes that are associated with disadvantage in the labor market.

[33] Belton, Victor, Liu, and Fox, 2007.

Table 2.19 reports on several of these attributes. A much higher proportion of respondents never had a substantial return to work if their educational attainment level was low. For example, in California 38 percent of those with a grade school education or less never had a substantial return to work following their compensable work injury compared to 17 percent for those who had at least some college. While the ethnicity of the respondents was not asked, some individuals indicated that they preferred to be interviewed in Spanish rather than English. Although the numbers preferring to be interviewed in Spanish were too small to be meaningful in five of the states, in the other four states the "never returned to substantial employment rate" was considerably higher for those who responded in Spanish. In Texas, for example, 55 percent of those interviewed in Spanish never had a substantial return to work, compared with 26 percent who were interviewed in English.

Table 2.19 Substantial Returns to Work among Workers with Pre-injury Attributes Associated with Disadvantage in the Labor Market

	Percentage with no substantial return to work								
	CA	CT	FL	MA	NC	PA	TN	TX	WI
Highest school grade completed									
College grad or higher	17	12	17	12	15	9	18	18	6
Some college	17	10	20	12	20	11	20	25	14
High school	22	20	24	18	15	14	21	24	14
Some high school	20	14	34	34	28	27	29	37	23
Grade school or less	38	32	25	*	40	*	34	73	*
Language of interview									
English	19	15	22	17	19	14	22	26	14
Spanish	37	42	39	*	*	*	*	55	*
Age in years at injury									
18-34	15	14	11	10	19	10	14	22	8
35-54	19	15	23	17	18	15	22	31	12
55 and older	33	18	30	35	23	18	32	41	23

Note: * Cell size too small to yield reliable numbers.
SOURCE: Belton, Victor, Liu, and Fox, 2007, Tables 4.4 and 4.9.

Similarly, older workers, especially those aged 55 and above, reported far higher rates of never having had a substantial return to work than for younger individuals. The report also noted that in each of the nine states those who never had a substantial return to work had a pre-injury

wage that was lower than that of persons who did have a substantial return to work. The results from the nine-state study are likely to be consistent with the situation in Washington. In the 2003 review of 100 claims conducted by the Pension Adjudicators, 46 percent of those who had recently been classified as permanently and totally disabled had less than a high school education. Additionally, the study found that 18 percent of the sample had a "language barrier."

If the strength or weakness in the local labor market affects the probability of a worker receiving a pension, then we would expect that the distressed areas of the state would account for a disproportionately large share of the pensions granted. One large-scale study of over 28,000 injured workers in Washington State during the years 1987 to 1989 found claims were likely to be of longer duration for workers from counties with high unemployment rates.[34]The Department of Employment Security in conjunction with the U.S. Bureau of Labor Statistics periodically identifies economically distressed counties based on unemployment rates. Using the counties that were so identified for the three-year period of 1997–1999, we calculated the proportion of pensions awarded to time-loss claims for the entire 1995–2000 period for both the economically distressed counties and for all other counties in the state.[35] The county in which the work accident occurred is the one of record here. Table 2.20 shows the results and they indicate that the distressed areas did account for a substantially higher proportion of the pensions to time-loss ratio. For the self-insured enterprises, the pension to time-loss rate was fully 50 percent higher in the distressed counties than in the rest of the state. For state fund claims, the rate of pensions was 76 percent greater in the distressed counties than in the balance of the state.

[34] Cheadle, Franklin, Wolfhagen, et al., 1994.

[35] 1997–99 was selected as the three-year period to identify the distressed counties as this was the beginning of the upsurge period. Had we selected another three-year window many of the distressed counties would have been the same. The choice of the five-year period to consider the number and rates of pensions awarded was thought to be long enough to capture any affects of weak labor markets on pension rates.

Table 2.20 Pensions Awarded Relative to Time-Loss Claims, Economically Distressed and Other Counties, 1995–2000

	*Economically Distressed Counties			All Other Counties		
Liability	TL claims with DOI 1995-2000	Pensions with DOI 1995-2000	TPD pension percentage	TL claims with DOI 1995-2000	Pensions with DOI 1995-2000	TPD pension percentage
Self-insured	17,847	89	0.50%	84,551	312	0.37%
State fund	47,218	1,386	2.94%	142,827	2,379	1.67%

DOI = Date of Injury
*Economically distressed counties: Adams, Benton, Chelan, Clallam, Columbia, Cowlitz, Douglas, Ferry, Franklin, Grant, Grays Harbor, Jefferson, Kittitas, Klickitat, Lewis, Mason, Okanogan, Pacific, Pend Oreille, Skagit, Skamania, Stevens, Wahkiakum, Walla Walla, Yakima.
SOURCE: Washington Department of Employment Security.

As noted above another source of difficulty in the labor market can be if the injured worker is also a member of an economically disadvantaged minority. With the same approach used in considering the economically distressed counties, we examined the rate of pensions awarded as a proportion of time-loss claims in those counties with a large minority group population and compared those with the experience of counties in the rest of the state. The results are shown in Table 2.21. The rates of pensions to time-loss claims for the period 1995–2000 are higher by 47 percent for state fund cases in the high minority population counties than in the other counties in the state. For the self-insured, the rates in high minority population counties are about 40 percent above those in the other counties in the state. Clearly, the data for economically distressed and high minority counties are consistent with the notion that workers with labor market challenges are less likely to be able to resume gainful employment after a work injury or illness than those without such pre-existing disadvantages. These personal characteristics may also interact with the types of employment that are found in the worker's region.

Table 2.21 Pensions Awarded Relative to Time-Loss Claims, High Minority Group Population and Other Counties, 1995–2000

	Counties with a High Minority Group Population*			All Other Counties		
Liability	TL claims with DOI 1995-2000	Pensions with DOI 1995-2000	TPD pension percentage	TL claims with DOI 1995-2000	Pensions with DOI 1995-2000	TPD pension percentage
Self-insured	9,610	51	0.53%	92,788	350	0.38%
State fund	23,984	662	2.76%	166,061	3,103	1.87%

DOI = Date of Injury
*Counties with a High Minority Group Population: Adams, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Grant, Okanogan, Walla Walla, Yakima.
SOURCE: Census of Population and Housing, 1990, MARS files of Washington State, U.S. Bureau of the Census, 1991.

Conclusion

To summarize, conditions in the labor market can have an impact on injury rates, on the level of workers' compensation utilization, and on the success of return-to-work efforts by injured workers. Difficulty in the labor market for an individual is likely to increase the probability that an injured worker cannot return to employment and the earnings level that existed before the injury or illness. That difficulty may be the result of economic weakness in the injured worker's community or region, and/or it may result from personal characteristics that contribute to difficulty in finding and retaining employment except when the labor market is very strong. Unlike that of most jurisdictions Washington's approach to pensions in its workers' compensation program likely is being used to provide income support for some of these individuals when they are injured and disabled. Thus, we conclude that labor market conditions have played an important part in the pension rise in Washington.

THE SECOND-INJURY FUND WAS IMPORTANT IN THE GROWTH OF PENSIONS FOR THE SELF-INSURED

At one time most states had one type or another of second-injury funds to encourage employers to employ or re-employ persons with some form of impairment. Many of these programs date from the aftermath of World War II, and in recent years some have fallen into disfavor in some jurisdictions and many are being or have been shut down.[36] Although the second-injury funds all appear to support the same goal, their characteristics vary considerably.

[36] "Workers' Comp Second Injury Funds: Going, Going, Gone," *Insurance Journal*, Feb. 9, 2004. The article notes that almost 20 such funds had been closed in recent years.

Washington's system provides that the fund is to come into play:

> Whenever a worker has a previous bodily disability from any previous injury or disease, whether known or unknown to the employer, and shall suffer a further disability from injury or occupational disease in employment covered by this title and become (sic) totally and permanently disabled from the combined effects thereof…"[37]

If the second injury or illness itself would have caused a permanent and total disability, second-injury fund relief would not be granted:

> To qualify for second injury fund relief an employer must establish that the disability resulting from the injury would not have been total but for the pre-existing condition.[38]

When these conditions are met the fund will be used to reduce the employer's insurance costs in one of two ways, depending upon whether the employer is insured with the State Fund or if it self insures. In either case the employer bears financial responsibility for the disability resulting from the work injury that gave rise to the claim for compensation. However, for an employer insured through the state fund, the enterprise's experience record is only affected by the extent to which the new injury has caused disability. Whatever portion of the cost of disability is attributed to the effects of the pre-existing disability is not charged to the employer's experience record. When the claim of a worker with a work injury or occupational disease has been found to qualify for payments from the second-injury fund subsequent to the regular time for the computation of the employer's experience record, the Department is authorized by law to make appropriate adjustments including cash refunds or credits to the employer.

In the case of self-insured enterprises that participate in the second-injury fund, they too are liable for the cost of compensation attributable to the new work injury only.[39] Where the worker's permanent and total disability results from the combined effects of the new occupational injury or illness and the pre-existing condition, then some portion of the cost is apportioned to the second-injury fund. If the worker would not have had a permanent and totally disabling condition but for the preexisting condition, then the self-insured employer is relieved of the financial liability of the pension. In either the state fund insured or the self-insured enterprise

[37] RCW 51.16.120

[38] *Jussila v. Department of Labor & Industries* 370 P.2d 582 (1962).

[39] Some public entities that self insure in Washington choose not to participate in the second-injury fund. In that case they do not make payments to the fund nor are they eligible to draw from it.

the determination of the degree to which the pre-existing condition contributed to the worker's disability and to the resulting total permanent disability is made by "medical experts."

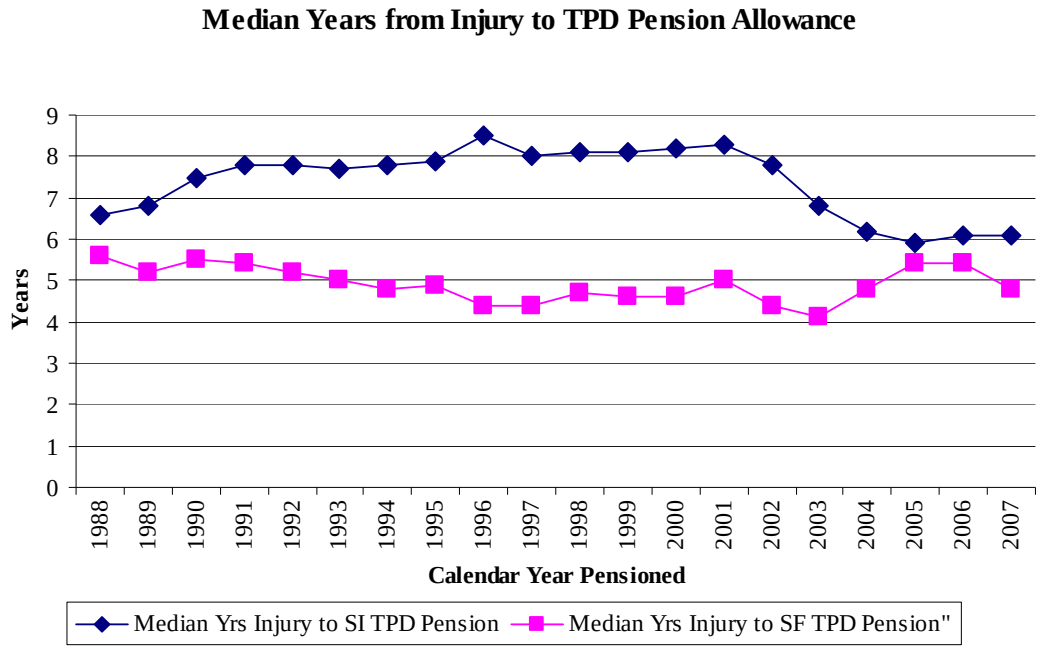
In the typical claim resulting in second-injury fund involvement, a worker is paid time-loss benefits until the pension effective date. The pension effective date is typically one to two months after the worker is thought to have entered total permanent disability to allow for the processing of paperwork, e.g., option selection, which is necessary to establish the worker's pension. For the worker, the precise date when he/she is found to have become permanently and totally disabled may matter not at all. However, for the employer, the date at which the worker is considered to have become permanently and totally disabled means that the responsibility for compensation shifts to the second-injury fund.[40]

Payments made for time-loss benefits by the self-insured employer that are judged to have been after the date that total permanent disability occurred will be refunded. Any medical costs that are incurred for the work caused condition after the effective pension date remain with the self-insured employer as the second-injury fund is not funded to provide medical benefits [41] Thus, an employer can save on its compensation costs both by having a worker found to be permanently and totally disabled which was the result at least in part of the workers' pre-existing condition, and by identifying the earliest date at which this status occurred.

Is there evidence that self-insured employers actually act on their incentive to have the total permanent disability status established as quickly as possible? Figure 2.10 is strongly suggestive of that as it shows that in many of the years covered by the figure, the time to pension allowance was far less than the median time for State Fund pensions.

[40] See the BIIA decision, IN RE Harold McCormack 90 3178 (1992).
[41] BIIA decision, IN RE Crella Boudon 98 17459 (2000).

Figure 2.10



SOURCE: Office of the Actuaries, Department of Labor & Industries.

In instances when self-insured employers have overpaid benefits, the Department is to reimburse the employer. In such cases L&I, not the employer, is to seek recovery from the worker.[42] Decisions by the Department that were not favorable to the self-insured have been appealed, and there have been reversals of the agency by the BIIA that have saved additional compensation costs to employers.

We have been told that both self-insured employers and some state fund insureds have become much more aware in recent years of their potential to save money by seeking relief from the second-injury fund. The data on the usage of the second-injury fund in pension cases appears in Table 2.22. Unfortunately, reliable data from the state fund's cases are available only since 2004. However, for these last four years where data are available, it is striking that the resort to the second-injury fund is so much higher for the self-insured than for the state fund claims. The number of pensions awarded in state fund cases is actually three times higher than in self-insured claims, but the utilization of the second-injury fund is higher for the self-insured employers than

[42] BIIA decision, IN RE Frederick Cuendet 99 21825 (2001).

for the State Fund in three of the last four years. We presume that this reflects the greater financial incentive for self-insured enterprises to seek second-injury fund relief.

Table 2.22 Second-Injury Fund Relief for Pensions, 1987–2007

Calendar year	SF pensions allowed	SF pensions with 2nd injury fund relief	Percent of SF pensions with 2nd injury fund relief	SI pensions allowed	SI pensions with 2nd injury fund relief	Percent of SI pensions with 2nd injury fund relief
1987				85	51	60.0%
1988				127	82	64.6%
1989				122	90	73.8%
1990				147	113	76.9%
1991				137	93	67.9%
1992				169	128	75.7%
1993				179	141	78.8%
1994				162	140	86.4%
1995				162	133	82.1%
1996				174	155	89.1%
1997				237	213	89.9%
1998				181	164	90.6%
1999				208	184	88.5%
2000				213	185	86.9%
2001				211	179	84.8%
2002				270	236	87.4%
2003				315	288	91.4%
2004	968	186	19.2%	281	241	85.8%
2005	866	162	18.7%	246	217	88.2%
2006	1,026	163	15.9%	322	282	87.6%
2007	1,584	224	14.1%	264	220	83.3%

SOURCE: Data Warehouse, Department of Labor & Industries.

Time series data for the self-insured market go back more than two decades. They reveal that reliance by self-insured enterprises on the second-injury fund has increased from a rate of 60 percent in the late 1980s to a peak rate of 90.6 percent in 1998, and then declined, though only slightly, since then. It appears that as the number of pensions awarded to workers from self-insured enterprises increased, the rate of second-injury fund application increased as well. This would be consistent with a circumstance where increased usage brought a growing awareness of the significance of pension awards and their costs leading firms to learn of the financial relief that the second-injury fund could bring them.

With about 9 pension claims out of 10 from the self-insured sector using second-injury fund relief, there are a number of hypotheses, not mutually exclusive, that might account for this very large proportion. One possibility is that the self-insured have been very successful in avoiding the granting of pensions in claims where second-injury fund relief is not likely to be granted. It is well understood that larger establishments are more likely to re-employ their workers who have sustained work-related injuries and illnesses. They have greater opportunities than do smaller enterprises (less likely to be self-insured) to provide workplace modifications and multiple occupational opportunities.

Larger employers are more likely to require that new workers receive pre-employment physical examinations and other screening. This makes it easier to demonstrate that a health condition or impairment existed at the time the worker was initially hired, thereby making second-injury fund involvement more likely. Self-insured enterprises also have a strong financial incentive to direct the longer-term disability claims toward pensions, thereby being able to avail themselves of the second-injury fund relief. And, as noted above, once a claim becomes eligible for second-injury fund support, it is in the self-insured's best interest to have the worker found to be permanently and totally disabled at the earliest possible date.

Note that not all self-insured enterprises are eligible to use the second-injury fund if they choose not to contribute financially to it. As such any pension claims emanating from these enterprises will show up in Table 2.22 as pensions allowed but they would not show up as claims receiving second-injury fund relief. Thus, the actual proportion of claims with second-injury fund support for eligible enterprises is likely to be even higher than the percentages shown in Table 2.22.

Conclusion

While the utilization of the second-injury fund in Washington increased dramatically among self-insured employers in the years immediately before the substantial growth in pensions, it seems unlikely that this could have been a cause of their overall growth. First, while data for state fund insured employers are not available for this period, more recent data that are available seem to indicate that this cost-shifting behavior is much less prevalent among state fund employers. Second, since almost 90 percent of self-insured pensions were already being transferred to the second-injury fund by 1996, it is hard to see where the growth would have come from. The presence of the second-injury fund plays a very important role in the number of

pensions given in cases of self-insured employers. That is almost surely going to change with the application of experience rating to self-insured assessments because of their workers receiving pensions from the fund.

OTHER SUGGESTED CAUSES OF THE INCREASE IN PENSIONS

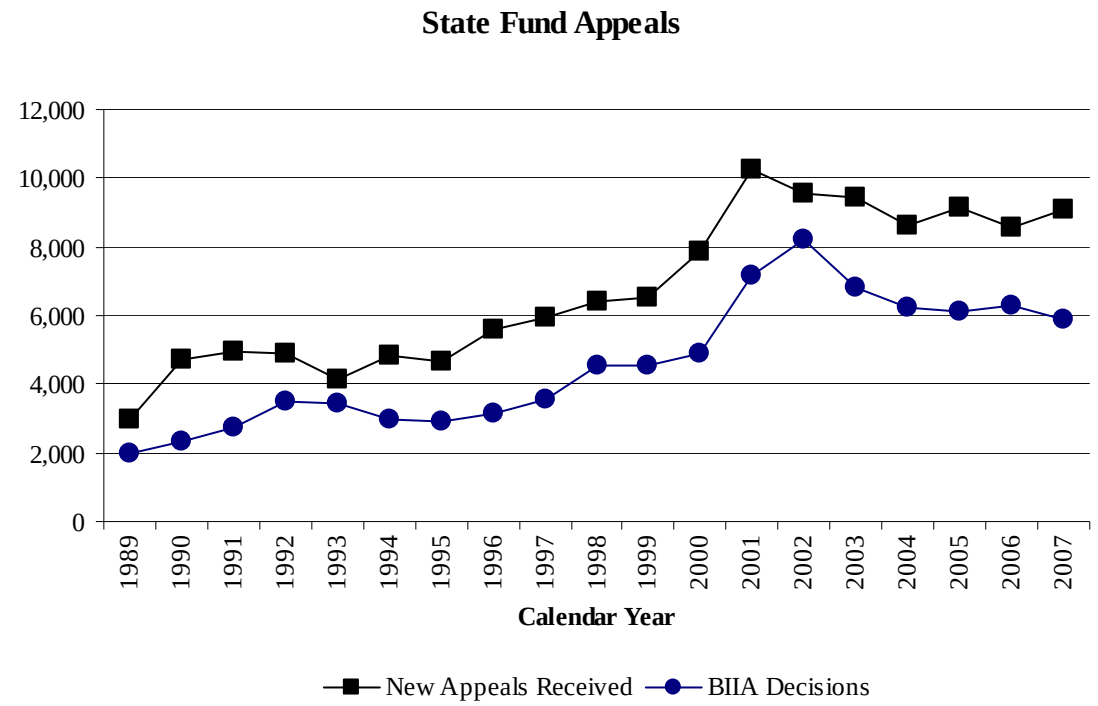
In the sections that follow we consider other sources of the growth in pension awards**.** We recognize that various factors could account for this and we consider each of them. We are not able to rule out some influence for many possible causes but find the evidence for several of them to be weak and not persuasive. The factors that we shall consider are:

- appeals to the BIIA;
- the overall level of occupational injuries and illnesses during this time period;
- the severity of injuries sustained from accidents;
- changing demographics in Washington including the age and gender of the workforce;
- the composition of impairments with a focus on back injuries and psychiatric involvement and possible causes due to changing treatments; and
- the impact of legislative and regulatory changes as well as notable judicial decisions.

The Role of Appeals in the Growth of Pensions

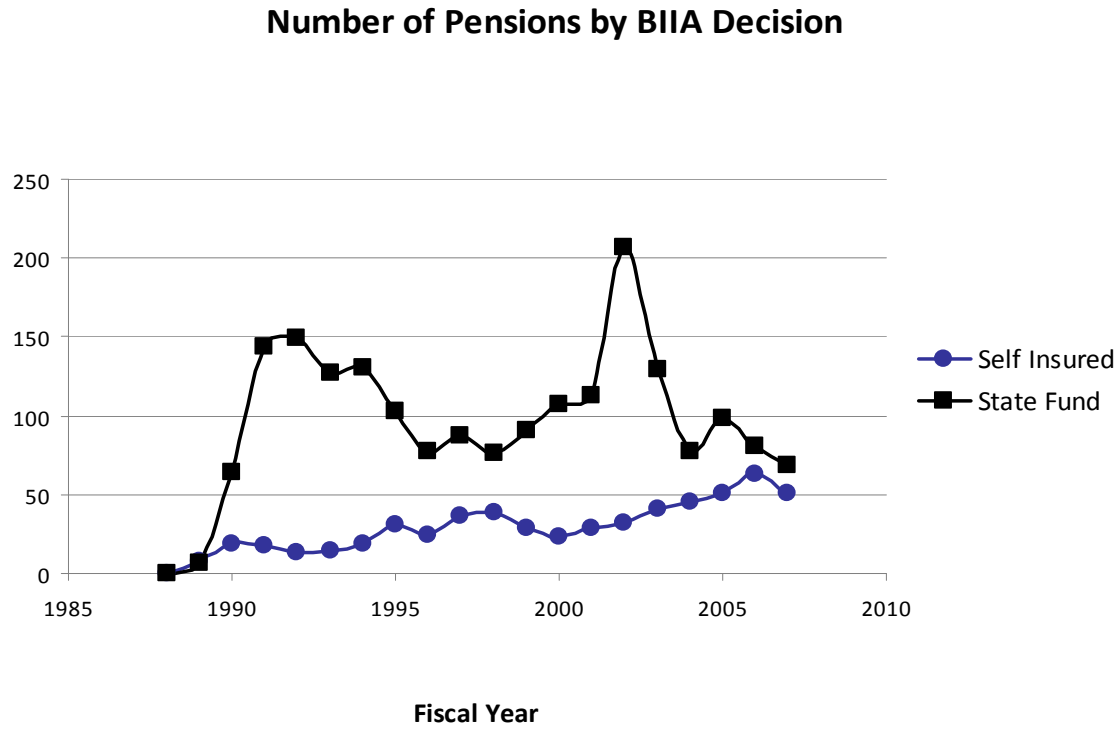
The BIIA currently receives about 9,000 state fund appeals per year and issues decisions on about 6,000 to 7,000. (Figure 2.11) These numbers rose slowly from 1988 to 1999, then jumped significantly in 2000 and 2001 and have remained relatively flat since then. It is not possible to determine from existing BIIA or L&I records how frequently pension issues were either the main or secondary reason for appeals. Moreover, the BIIA's reporting system does not separate out pension decisions. However, the L&I data warehouse provides a count of pensions awarded by the BIIA (Figure 2.12). The numbers rose sharply from FY 1988 to a peak of 149 in 1992, then dropped back to 75 to 90 from 1996 through 1999, before rising sharply again to 207 in 2002. Since that high point the numbers have fallen back to the 70 to 90 range.

Figure 2.11



SOURCE: Data Warehouse, Department of Labor & Industries.

Figure 2.12

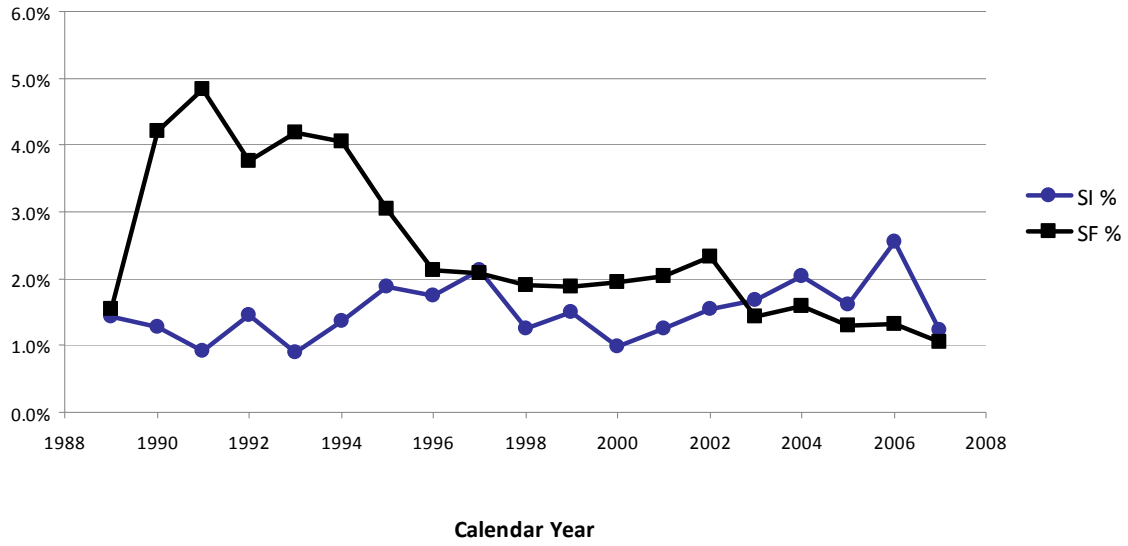


SOURCE: Data Warehouse, Department of Labor & Industries.

When considered as a percent of all BIIA decisions, the frequency of state fund pension decisions has dropped from a high of 4.8 percent in calendar year 1991 to 1.0 to 1.5 percent in recent years, with only a slight turn upward to 2.3 percent in 2002 (Figure 2.13). Also, state fund pensions awarded by the BIIA as a percent of all state fund pensions consistently dropped from a high of 24 percent in FY 1994 to recent levels of 8 to 10 percent, with the exception of a one-year jump to 19 percent in 2002 (Figure 2.14).

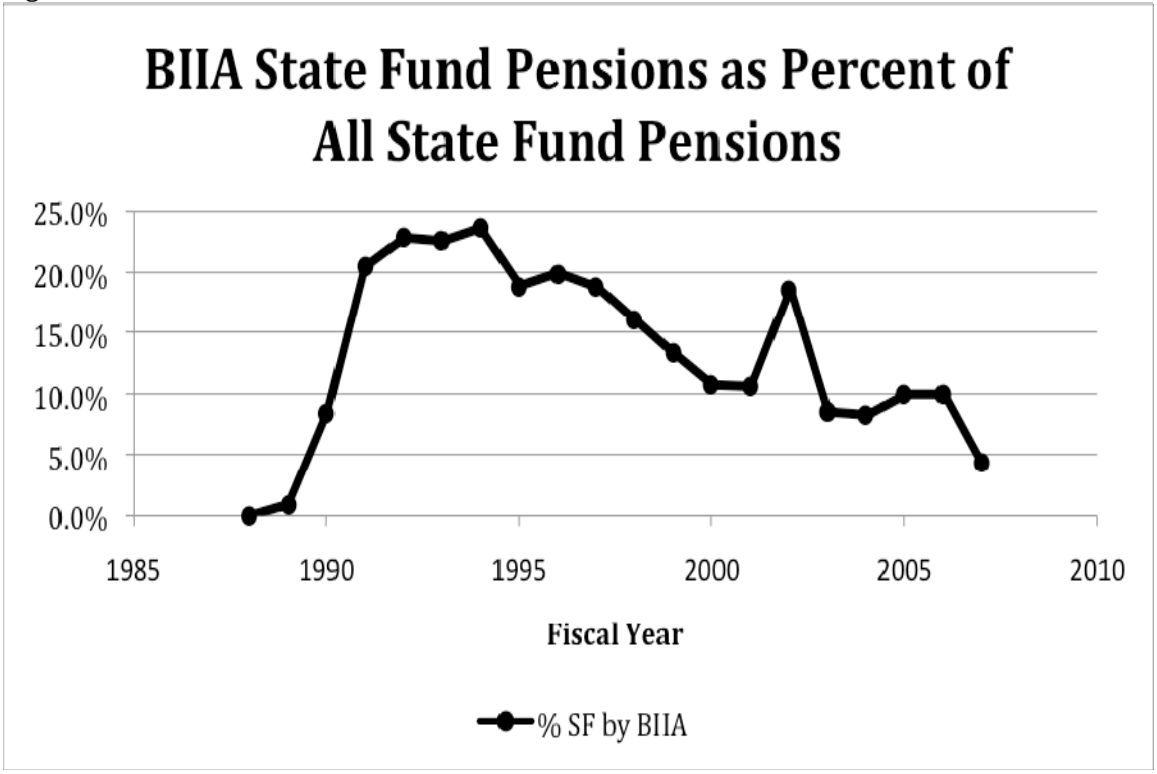
Figure 2.13

BIIA Pensions as Percent of All BIIA Decisions



SOURCE: Data Warehouse, Department of Labor & Industries.

Figure 2.14

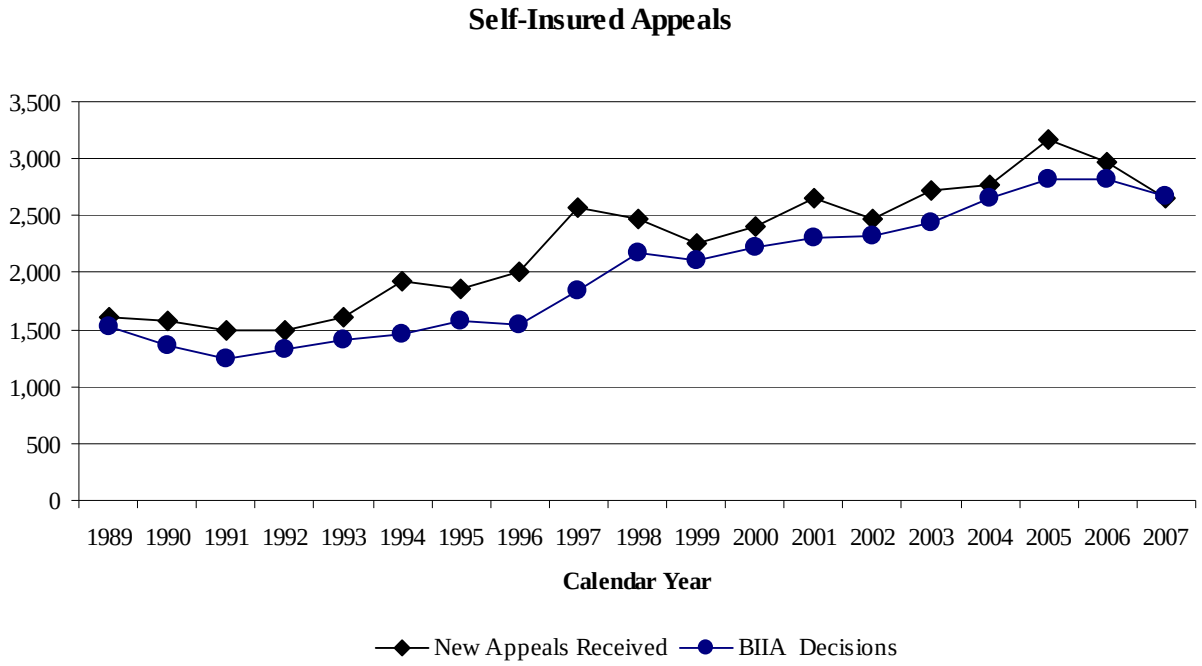


SOURCE: Data Warehouse, Department of Labor & Industries.

Self-Insured Appeals

The BIIA currently receives about 2,600 to 2,800 self-insured appeals per year and issues decisions on about 2,700 to 2,800. (Figure 2.15) While there has been a gradual increase since 1998, accelerating slightly around 1997, the time trend does not show the same sharp increase of the state fund appeals from the year 2000 to 2002.

Figure 2.15

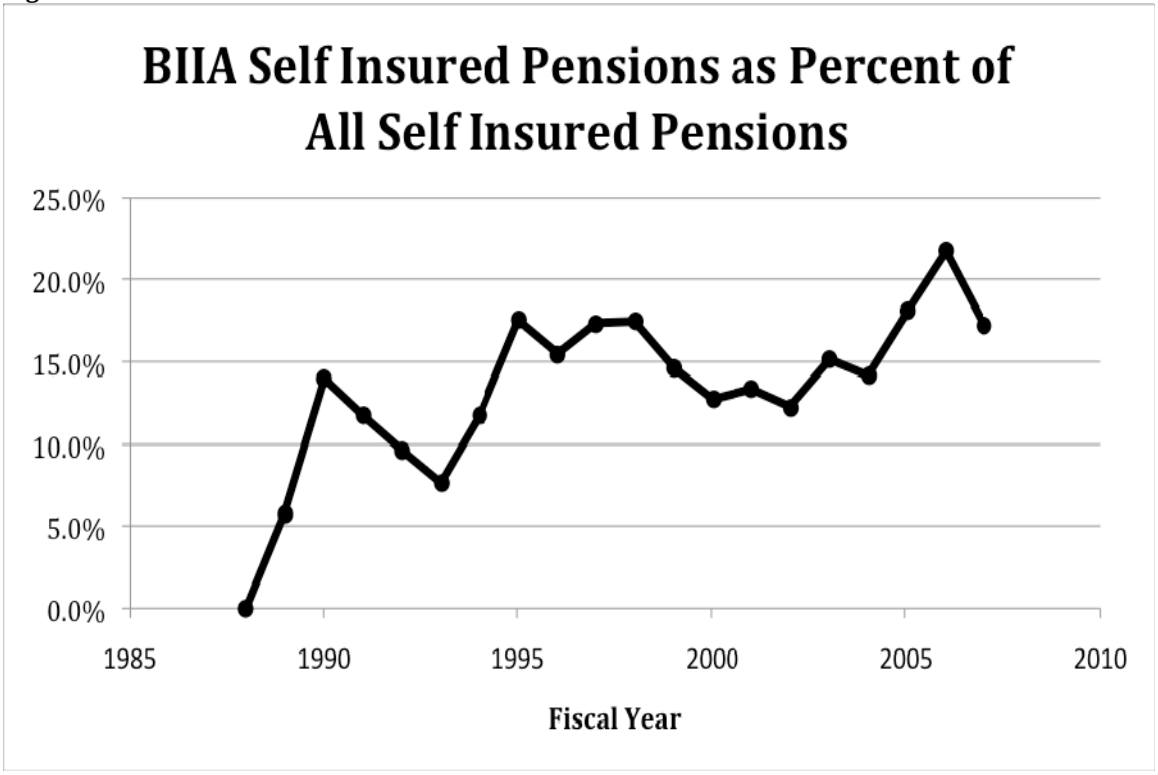


SOURCE: Data Warehouse, Department of Labor & Industries.

The number of self-insured pensions awarded by BIIA decision rose gradually from 1988 to a peak of 63 in 2006, but without the steep state fund pension increases found in 1992 and 2002. (Figure 2.12) The frequency of self-insured pensions, as a percent of all BIIA self-insured decisions, has consistently ranged between one and two percent since calendar year 1989, except for a one-year peak of 2.5 percent in 2006. (Figure 2.13) This pattern is substantially different from the trend downwards in state fund decisions.

The pattern of self-insured pensions awarded by the BIIA as a percent of all self-insured pensions is also very different from the state fund trend. (Figure 2.16) For self-insured pensions the percent rose consistently from FY 1988 to a peak of 22 percent in 2006, with small drops for the years 1991 to 1993 and 1999 to 2000, almost opposite to the trend in state fund pensions.

Figure 2.16



SOURCE: Data Warehouse, Department of Labor & Industries.

Trends

State fund appeals rose substantially during the years 1997 to 2003 when L&I was making its most concerted effort to reduce time-loss duration. The number of state fund pensions resulting from BIIA decision also rose during these same years. However, the percent of all BIIA decisions that these pensions represented increased only very slightly, and after 2002 this percent resumed a long decline. Also, and perhaps most important, state fund pensions resulting from BIIA decisions have never been more than 25 percent of all state fund pensions and this percent has been declining sharply since a peak in 1994 (with the exception of a jump from 10 percent to 18 percent in 2001 after which the downward trend continued).

State fund pensions experienced their sharpest increase during the fiscal years 2000 to 2003 when the yearly total rose from 993 to 1,506. During these four years the total number of state fund pensions was 4,675. During these same years there were 556 state fund pensions awarded by BIIA decision or 12 percent of the total. From 2000 to 2001 the total number of state fund pensions increased by 72 with the BIIA state fund pension decisions increasing only by 6. From 2001 to 2002 the total increase was 46, but there was an increase of 94 in the BIIA state

fund pension decisions. From 2002 to 2003 the state fund pensions rose by 394 while the BIIA state fund pension decisions actually declined by 78.

The pattern for self-insured pensions has been different. The number of self-insured appeals and the number of pensions by BIIA decision have been increasing since 1988 without the exceptional upsurge seen in the state fund pensions from 1997 to 2003. The likelihood of BIIA awarding a pension has remained steady since 1988. But, with some fluctuations, the percent of self-insured pensions that result from BIIA decision has been rising while it has been falling for state fund pensions. The most likely explanation for this difference is that self-insured employers and self-insurance staff at L&I were less inclined to award pensions during the period of time in which L&I became more likely to award pensions in state fund claims.

Increasing numbers of appeals are not likely to cause the sizeable upturn in the number of pensions, but they are likely to be related.[43] There is a very strong correlation between the number of appeals and the number of pensions allowed. If one correlates the number of pensions allowed with the number of appeals filed two years earlier for the years 1990 to 2007, the correlation coefficient is .82. Several reasons for this relationship are possible though the usual caution applies, that is, that a correlation does not mean that a causal relationship exists.

A concerted push to resolve claims is likely to result in more pensions as well as more workers who are dissatisfied with a claim manager's resolution of their claim. Additionally, as the numbers of appeals mount, the time available for claims staff to focus on managing claims is constrained. Large numbers of appeals and reconsiderations followed some significant legal decisions in 2000 and 2001 (including Avundes and Cockle respectively, both noted later in this chapter). A very large amount of staff time was needed to calculate or recalculate the appropriate amount of benefits that were being paid. The result is that such diversions, necessary though they may be, are associated with appeals and contribute to delays that distort the timing of pension awards. Additionally, more appeals may be symptomatic of changes in claim filing or legal behavior, or possibly a greater involvement by attorneys.

[43] Thanks to Russell Frank of Actuarial Services for bringing this calculation to our attention.

Conclusion

When these data are considered as a whole, we cannot conclude that changes in BIIA behavior can explain the changes in the rate of state fund pensions from the late 1990s to the present. But we are unable to rule out the importance of BIIA decisions in the years prior to the sharp upturn in the pensions granted by L&I. Increased BIIA pension decisions have contributed to the overall increase in pension numbers because of the increase in appeals reviewed by the BIIA, not because the BIIA has become more likely to award pensions at a higher rate.

CHANGES IN THE NUMBERS OF ACCIDENTS, INJURIES, ILLNESSES, AND IMPAIRMENTS

In seeking to explain the upsurge in pension awards beginning in the late 1990s we need to rule out some sources that theoretically could be in whole or in part responsible. One possible cause could be that there was an increase in the number and/or the severity of occupational injuries and illnesses several years before the surge.

Injury Incidence

Because consistent data series for Washington and the U.S. are not available for the years prior to 1996, we are somewhat restricted in the years we consider in Table 2.23. But the table makes three things very clear. First, the first two columns show that both the U.S. and Washington appear to have had consistent long-term downward trends in the incidence rates of non-fatal work injuries from 1996 forward.[44] Second, the incidence rate for Washington is consistently higher than the corresponding annual rates for the nation as a whole. Third, column 3 in Table 2.23 shows the ratio of the lost-time rate in Washington to the national rate. That column indicates that while Washington's rate has declined from 1996 to 2006, the rate fell more rapidly in the country as a whole.

[44] Incidence rates are reported annually by the U.S. Bureau of Labor Statistics. The rates are based on cases with days away from work per 100 full-time equivalent workers (employed 200,000 hours).

Table 2.23 Incidence Rates of Non-Fatal Injuries and Illnesses, Cases with Days Away from Work, for Washington and U.S., per 100 FTE Employees

Year	WA lost time rate	US lost time rate	Ratio WA/ US lost time rate	WA rate if US distribution
1996	3.05	2.19	1.39	2.99
1997	3.09	2.10	1.47	3.00
1998	2.81	1.89	1.48	2.74
1999	2.68	1.86	1.44	2.62
2000	2.50	1.77	1.42	2.45
2001	2.50	1.70	1.47	NA
2002	2.50	1.60	1.56	NA
2003	2.24	1.48	1.51	2.22
2004	2.16	1.39	1.56	2.14
2005	2.01	1.33	1.51	1.98
2006	2.14	1.26	1.70	2.09

SOURCE: US Bureau of Labor Statistics.

Washington's incidence rates may be higher than those of the U.S. because of the nature of the work done there. We asked, "what would Washington's lost-time rate have been overall if the distribution of employment in Washington was the same as the composition of employment in the U.S?" We simply take the Washington incidence rates by industry, re-weight the average for the state using the composition of employment for the country as a whole and recalculate the state rate. The hypothetical rates are shown in the last column of Table 2.23.

What we find is that the rate in Washington would be slightly lower than the actual rates, confirming that Washington's lost time rate would be lower if its industrial composition were closer to that of the U.S. as a whole. Simply put, there is a concentration of industries in Washington that are associated with a high incidence of lost-time injuries and illnesses, but this accounts for only a tiny portion of the difference between Washington and the nation. While the rate in Washington is relatively high, its consistent decline (at least till 2006) suggests that there was not a sudden bulge in incidence rates in the early part of the 1990s that might have resulted in the upsurge in pension awards after 1997. The high rate could account for the levels of workers' compensation time-loss cases and pension cases, but the long-term movement in the rate has been downward, consistent with the decline in time-loss claims for workers' compensation. This suggests that the increases in pensions during the 1990s and early in the current century were not caused by more accidents and injuries.

Data on occupational fatalities confirm these findings. From 1993 to 1998, the level of occupational fatalities in Washington stayed in a fairly narrow range (Table 2.24). After 1998 the number of these fatalities declined reaching its lowest point in 2000. It is important to keep in

mind that the size of the workforce in Washington was growing over much of this period, even as the number of fatalities was declining. For the U.S. the number of fatalities has also tended to decline with much of that occurring in the latter years of the range shown. In the third column we calculate the ratio of the numbers of occupational fatalities in Washington to those for the entire nation.[45] Considering that Washington's workforce grew more rapidly than did the country's, the state's relative safety performance record as judged by the number of fatalities has been stronger over this time.

Table 2.24 Occupational Fatalities, Washington and U.S., 1992–2005

Year	Washington	U.S.	Washington/ U.S. Ratio
1992	97	6,217	1.5
1993	112	6,331	1.8
1994	118	6,632	1.8
1995	109	6,275	1.7
1996	128	6,202	2.1
1997	112	6,238	1.8
1998	113	6,055	1.9
1999	88	6,054	1.5
2000	75	5,920	1.3
2001	102	5,915	1.7
2002	86	5,534	1.6
2003	85	5,575	1.5
2004	98	5,764	1.7
2005	83	5,734	1.4

SOURCE: US Bureau of Labor Statistics.

Level of Impairment

Even if the incidence of injuries and illnesses may not account for the upsurge, is it plausible that the increase was the result of more serious impairments that somehow befell the state's workers? We have no reason to expect that this happened but since it is a conceivable source of the upsurge, we need to consider this possibility. One way to analyze this is to examine the record for permanent partial disabilities over the time period in question. If the type of injuries and illnesses experienced by Washington's workers was becoming more severe, we would expect to see the number of permanent partial disability awards and the degree of impairment associated with them to be increasing.

[45] We are not using the ratio of fatality rates which would be a preferable metric to use. While we know the level of employment in Washington and in the U.S. for all the years shown in the table, we do not have estimates of full-time employment equivalents for each of these years.

Tables 2.25 and 2.26 shed some light on the severity and frequency of permanent partial disability awards. We separate the data by those who received awards without also receiving a pension, and those who were pensioned and also received a permanent partial disability award.

Table 2.25 Permanent Partial Disability Awards for State Fund Claims

	Non-Pension Recipients				Pension Recipients		
Injury Year	Awards	% of Body (Median)	% of Body (Mean)	% of Time Loss*	Awards	% of Body (Median)	% of Body (Mean)
1985	6,287	7.5	9.0	19	218	11.3	16.1
1986	6,385	7.5	9.2	19	214	11.3	14.8
1987	6,780	7.0	8.8	19	236	10.2	13.4
1988	7,692	6.0	8.3	20	295	10.4	15.8
1989	8,680	6.0	9.0	21	295	11.4	15.9
1990	9,641	5.7	8.6	21	267	11.7	16.4
1991	9,724	5.5	8.5	22	299	10.2	15.9
1992	9,971	5.4	8.3	24	316	10.1	14.3
1993	9,713	5.4	8.1	25	274	10.1	14.4
1994	9,522	5.4	8.1	25	245	10.1	12.6
1995	9,197	5.4	7.8	25	249	10.1	12.2
1996	8,852	5.4	7.8	25	220	10.1	12.3
1997	9,400	5.4	7.8	26	215	10.1	12.1
1998	9,267	5.4	7.8	26	227	10.1	12.3
1999	9,081	5.4	7.7	25	221	10.0	11.4
2000	9,443	5.4	7.6	27	218	10.0	12.6
2001	9,287	5.4	7.9	28	183	10.0	11.7
2002	8,969	5.4	7.7	29	143	10.0	11.4
2003	8,723	5.4	7.5	29	105	10.0	10.6
2004	8,479	5.0	7.2	28	60	10.0	10.6
2005	8,011	5.0	7.0	26	30	6.0	7.1

Hearing loss awards are not included.
*Awards for non pension recipients taken to ultimate. Time-loss claims in % of time-loss claims estimated at ultimate.
SOURCE: Data Warehouse, Department of Labor & Industries.

For those who did not receive a pension, the number of permanent partial disability recipients has fallen, particularly in the last several years. However, the proportion of time-loss claims that resulted in permanent partial disability awards has steadily moved higher, from 19 percent of time-loss cases in 1985 to 29 percent in 2002 and 2003.[46] By this gauge, we could conclude either that the rate of more serious injuries and illnesses (but not the level) has increased over time, or that the standards for awarding permanent partial disability benefits have been relaxed.

[46] One reviewer has asked if this rate possibly reflects some non-reporting of relatively minor injuries. That would lower the denominator and explain the increasing rate. Though this is a logical possibility, nothing that we have heard or seen suggests to us that such a change has been occurring.

We cannot resolve this issue here with certainty though it is instructive to see that the average impairment rating—both the mean and the median—associated with awards has steadily declined. This is consistent with the data from Table 2.23 showing that the rate of injuries resulting in lost time has declined quite steadily. On that basis we are inclined to believe that the severity of injuries and illnesses resulting in permanent disability has not increased. Instead, the criterion for granting a worker a permanent partial award may have been relaxed, thereby allowing a larger proportion of time-loss recipients to benefit.

For those disability pensioners who also received a permanent partial disability benefit, the median accepted impairment rating has remained within a remarkably narrow band from 1989 to 2004 (Table 2.25). However, the mean value of impairment rating awards has been declining, particularly since the mid 1990s. At a minimum this suggests that the severity of the impairment associated with those who were eventually determined to be permanently and totally disabled has not increased and probably declined over the period when the upsurge in pension awards occurred. A note of caution is needed, however, because those who received a permanent partial disability award may have had a change in their condition—and the degree of their impairment—in the time after receiving the permanent partial disability determination and before receiving the pension.

Table 2.26 shows a somewhat similar pattern for self-insured claims. From 1991 to 2005 (and 2006 using estimates of ultimate losses) permanent partial disability awards were flat based on the reported counts, and rose slightly based on the estimated ultimate counts. However, both of these occurred in an era of declining time-loss claims. As a result, as was true for the state fund claims, the proportion of time-loss claims that became permanent partial disability cases steadily increased, though the proportions were still substantially lower than in state fund cases.

Table 2.26 Permanent Partial Disability–Self-Insured

Accident calendar year	PPD latest reported counts	TL latest reported counts	PPD/TL latest reported counts	Estimated ultimate counts	Estimated ultimate counts	PPD/TL latest reported counts
1991	3,478	17,989	19	3,480	17,989	19
1992	3,594	17,728	20	3,597	17,728	20
1993	3,540	17,703	20	3,547	17,703	20
1994	3,590	17,562	20	3,599	17,562	20
1995	3,313	16,512	20	3,324	16,514	20
1996	3,591	17,397	21	3,607	17,409	21
1997	3,782	18,554	20	3,804	18,584	20
1998	3,926	18,748	21	3,960	18,801	21
1999	3,956	18,245	22	4,011	18,327	22
2000	3,897	17,859	22	3,984	17,982	22
2001	3,937	16,747	24	4,079	16,931	24
2002	3,775	15,754	24	3,992	16,035	25
2003	3,456	14,529	24	3,787	14,959	25
2004	3,284	14,158	23	3,870	14,910	26
2005	2,860	13,020	22	3,954	14,433	27
2006				4,039	14,328	28

SOURCE: Actuarial estimate supplied by Department of Labor & Industries.

Conclusion

In summary, we have no reason to believe that injury and illness severity increased in Washington from the early 1990s until more recent years. A variety of improvements in health care and in safety and prevention practices over this period make it difficult to accept that severity of time-loss claims has increased over time. Still, we cannot rule out the possibility based on the data for permanent partial disability awards.

DEMOGRAPHIC CHANGES MAY HAVE PLAYED SOME ROLE IN THE INCREASE IN PENSIONS

In this section we turn to the issue of the age of the Washington population and workforce to ask if this may provide any clues as to the upsurge in claims for total permanent disability.

Aging and Work Disability

Hardly surprisingly, social scientists have reported mixed results regarding the impact of age on workers' compensation claims.[47] Still, most of the literature on this subject tends to be in agreement on several ways that the aging of a workforce can affect workers' compensation

[47] A highly useful summary of this issue with special reference to Washington can be found in Joseph Jauquet and Heather Grob, *The Aging Workforce: Implications for Workers' Compensation*, L&I Research and Data Services, 2005.

programs. [48] First, older workers are not more prone to being injured on the job. While a number of reasons for this seem evident, the age group that tends to have the highest rate of accidents and injuries are the youngest members of the labor force. However, Cheadle et al. in their 1994 study of older workers (more than 45 years of age) in Washington reported that this group was at higher risk of having long-term disability result from work injuries and illnesses.[49] Indeed, the authors concluded that older age is the most important and consistent influence on the duration of disability. Biddle et al. found that for workers above the age of 55, a larger proportion than other workers never returned to employment after a permanent disabling work injury.[50] And in another study, Biddle et al. reported that older workers receive disproportionately higher rates of permanent disability benefits. Barth et al. reported that for employees with more than seven days' lost work time due to a work caused injury or illness the lowest rate of permanent partial disability was for those below the age of 25, followed by those aged 25–34.[51] It is hardly surprising then that Higdon and Collins report that according to their analysis one can add a constant $36.45 to the median cost of a workers' compensation claim for every year of the worker's age.[52]

Gender differences in disability rates are more challenging to sort out. First, due to occupational segregation exposure to risks differ, as do the types of disabilities that are more likely to affect one gender or the other. For example, permanent partial disability rates for women drop more than for men if hand and wrist injuries are excluded from counts.[53] The literature on the relationship between gender and disability rates and duration is mixed, with inconsistent conclusions.[54]

The Aging of Washington's Population

Table 2.27 shows the changing age distribution of the state's population from 1985 to 2005. Consistent with the experience of many other jurisdictions, and the U.S. as a whole, the Washington population is getting older. From 1985 to 2000, the median age of the state's population increased from 31.6 years to 36.3. And over the same time period the proportion of

[48] One summary article on the findings on aging and work related disability is found in Michael Silverstein, *Meeting the Challenges of an Aging Workforce*, 2008.
[49] Cheadle, et al., 1994.
[50] Biddle, et al., 2001.
[51] Barth, et al., 2002.
[52] Higdon and Collins, 2004.
[53] Barth, Helvacian, and Liu, 2002.
[54] Stover, Wickizer, Zimmerman, et al., 2007.

the state's population aged 50 and above increased from 18.7 percent to 21.1 percent. Viewed over a 15-year period these changes are substantial, but on a year-to-year basis they are hardly observable.

Table 2.27 Washington State Population

Years	Washington population 20 years and older	Washington population as a percent of the population, 20 years and older				Median age for all ages in years
		25-49	50-54	55-59	60-64	
1985	3,121,059	53.3%	6.2%	6.2%	6.3%	31.6
1990	3,461,045	56.0%	6.3%	5.5%	5.5%	33.3
1995	3,873,804	56.4%	7.5%	5.6%	4.9%	34.9
2000	4,211,102	53.9%	9.3%	6.8%	5.0%	36.3

SOURCE: Office of Financial Management, Washington State.

With the state's population aging over this entire period, and the work force likely following the same pattern, one might attribute some portion of the growth in pension awards to this demographic change. However, were that to be a significant source of the upsurge, one should observe an increase in the average (mean) age of those whose injuries resulted in pensions. Yet, if there is any trend in the average age at the time that the pension was granted, it has declined, particularly for males. As shown in Figure 2.17, for males the average age at pension award declined from 1995 to 1998, spiked up for one year, and then fell for most of the following years.

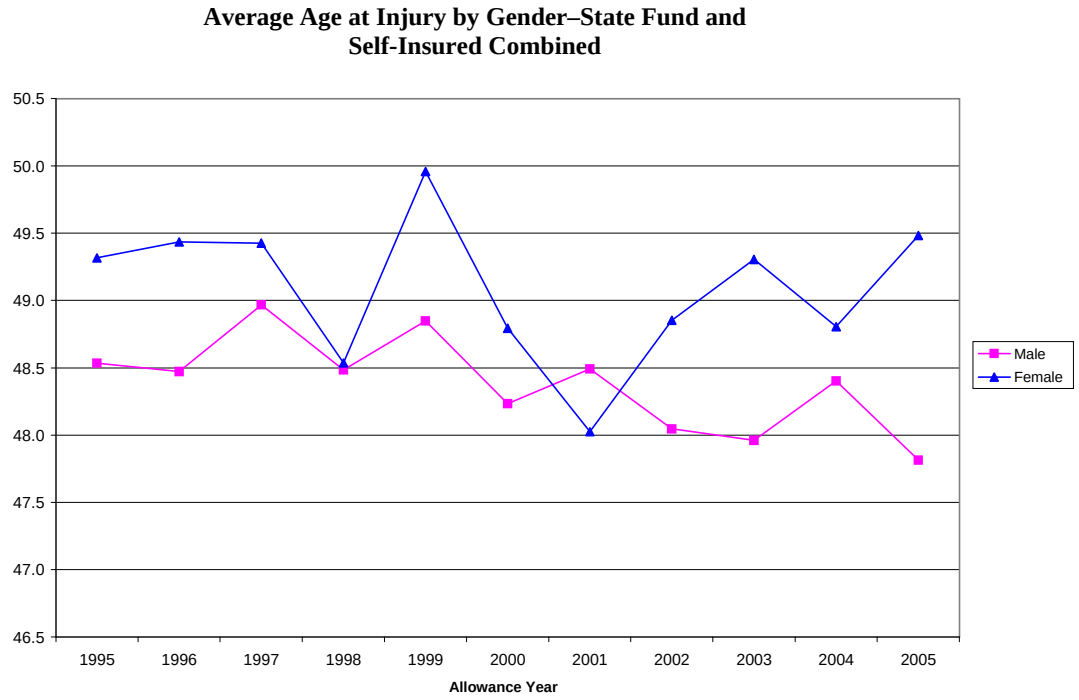
Figure 2.17

Average Age at Pension by Gender
State Fund and Self-Insured Combined

SOURCE: Data Warehouse, Department of Labor & Industries.

While the experience for females is not exactly the same as for males, in large part it is consistent indicating that pensions are being awarded to persons, on average, at slightly younger ages. Moreover, the age at which injury occurred for males who ultimately were granted pensions also has tended to fall over time as shown in Figure 2.18. For females no trend seems evident in the average age at the time of injury for those granted pensions. An important contributing factor to the declining age at pension is the recent trend to award pensions to claims of somewhat lesser duration. However, this would not explain the decline in age at the time of injury. In Tables, 2.28, 2.29, and 2.30 below we present the data by age, gender and by state fund and self-insurance.

Figure 2.18



SOURCE: Data Warehouse, Department of Labor & Industries.

Table 2.28 Age Data for Pensions Allowed 1995–2005–State Fund and Self-Insured Combined

	Age at allowance Percentiles				Age at Injury Percentiles			
Allowance Year	25%	50%	75%	Mean	25%	50%	75%	Mean
1995	48.7	56.9	62.9	55.8	40.6	49.6	56.7	48.6
1996	49.2	57.3	62.3	55.5	40.1	49.8	56.7	48.6
1997	49.5	56.5	62.4	55.4	41.2	49.0	56.5	48.4
1998	49.7	56.2	61.8	55.3	40.3	48.9	54.9	47.5
1999	50.5	57.3	63.0	56.7	41.2	49.0	56.8	48.7
2000	50.7	57.5	63.2	56.8	40.4	49.0	56.3	48.3
2001	50.2	57.6	63.2	56.6	40.3	49.0	56.7	48.4
2002	49.5	57.0	62.5	56.2	40.5	49.0	56.4	48.3
2003	49.4	56.8	62.7	56.1	40.4	49.1	56.7	48.5
2004	49.7	56.0	62.0	55.6	41.5	49.3	56.1	48.8
2005	49.1	56.1	62.1	55.4	41.0	49.0	56.4	48.6

SOURCE: Data Warehouse, Department of Labor & Industries.

Table 2.29 Average Age at Pension by Gender

	State Fund		Self-Insured		Total	
Allow Year	Male	Female	Male	Female	Male	Female
1995	57.0	57.2	56.0	58.2	56.8	57.6
1996	56.8	57.8	56.4	56.8	56.7	57.4
1997	57.3	58.1	55.6	56.6	56.8	57.4
1998	57.3	58.4	55.0	54.3	56.8	57.0
1999	57.9	59.8	56.5	55.4	57.6	58.4
2000	57.5	57.3	55.4	57.1	57.2	57.2
2001	57.2	56.1	56.9	57.4	57.2	56.4
2002	56.4	56.8	55.7	57.7	56.3	57.0
2003	55.7	56.7	56.4	56.4	55.8	56.6
2004	55.5	55.9	56.1	56.2	55.6	56.0
2005	54.6	56.7	56.4	56.8	55.0	56.8
Grand Total	56.5	57.1	56.1	56.6	56.4	57.0

SOURCE: Data Warehouse, Department of Labor & Industries.

Table 2.30 Average Age at Injury by Gender

	State Fund		Self-Insured		Total	
Allow Year	Male	Female	Male	Female	Male	Female
1995	48.0	47.6	50.3	52.1	48.5	49.3
1996	47.5	48.3	51.2	51.0	48.5	49.4
1997	48.5	48.2	50.2	50.8	49.0	49.4
1998	48.2	48.5	49.3	48.7	48.5	48.5
1999	48.4	50.1	50.7	49.7	48.8	50.0
2000	48.1	48.1	49.1	50.9	48.2	48.8
2001	48.0	47.0	50.7	51.0	48.5	48.0
2002	47.6	47.8	50.5	52.0	48.0	48.9
2003	47.4	48.8	51.3	50.7	48.0	49.3
2004	47.8	48.3	50.7	50.1	48.4	48.8
2005	47.2	49.1	50.1	50.5	47.8	49.5
Grand Total	47.8	48.3	50.4	50.7	48.3	49.0

SOURCE: Data Warehouse, Department of Labor & Industries.

Conclusion

The conclusion that we draw from these data is that the average age of the workforce, though clearly increasing, is not a significant contributor to any sudden increase in the awarding of pensions. Age undoubtedly has an impact in the granting of pensions and there has been growth in the number and proportion of older workers. Since the aging of a workforce is not likely to change perceptively from one year to the next, it is not going to be the source of significant growth in the number of pensions awarded from one year to the next, or even over several years. Aging is likely to be a source of more permanent disability claims and longer duration time-loss claims and this can be important from perhaps one decade to the next, but we

do not see the link to any short-term increase in pensions. The effects of an aging workforce are likely to be felt more in economies that are experiencing higher unemployment levels and rates as has been the case in parts of Washington.

CHANGES IN THE TYPES OF CLAIMS AND CERTAIN TREATMENTS DO NOT SEEM TO BE A LIKELY CAUSE OF RISING PENSION LEVELS

One possible cause of the upswing in the number of pensions awarded for total permanent disability might be that there has been a change in the type of injuries and illnesses that are either occurring or being compensated. If that were to have happened and if these claims are ones that are more likely to result eventually in pensions being awarded, then we may have some explanation for the upsurge. In this section we consider three possible sources of such claims; back or spinal injuries and their treatment, psychological impairments and those injuries or illnesses that are being treated with certain pharmaceuticals that some have suggested are correlated with long-term disability.

We consider the possibility that back or spinal injuries may have some linkage to the upsurge, simply because back cases always represent a very large share of permanent disability claims in most jurisdictions in the U.S.[55] Moreover, it is well understood that injuries to the back and spine can be very disabling, particularly to those workers whose livelihood depends upon their ability to perform physically demanding labor. Difficulties in diagnosing the sources of back impairments and in evaluating the extent of the impairment create a variety of challenges for a workers' compensation agency.

Psychological injuries also pose difficulties for some workers' compensation systems. Such injuries do not commonly constitute the proximate cause of the claim for time loss. Instead, such injuries are often a confounding source of disability, following on the heels of a work injury. Some have termed such claims "physical-mental" cases. When such injuries or illnesses occur, they can lead to a higher permanent partial disability rating than if the physical injury alone were rated. Conceivably, the psychological impairment can lead also to longer periods of time loss, especially if the condition continues after the physical injury has healed sufficiently that it would not prevent the worker from returning to the labor market.

[55] This generalization is true in all American jurisdictions for which data are available. Strikingly, some countries including a number in Europe do not compensate back cases in the absence of some traumatic event on the grounds that such conditions result most often as ordinary conditions of life and are associated with the aging process.

If the worker is being assessed for a TPD pension the presence of the psychological impairment in combination with the residual physical impairment may be sufficient to make the worker seem worthy of the award. And perhaps even more than back injuries, the diagnosis of a psychological or psychiatric condition and the assessment of its extent are difficult to make and more subjective than many other impairments.[56]

If the use of certain pharmaceuticals can create a drug dependence, and if this dependence contributes to long-term disability, then the linkage between expanded use of these treatments and TPD pension awards is relatively direct. Later in this section we consider these possible links to the growth in pensions.

Back or Spinal Injuries

In Table 2.31 we seek to determine if back and/or psychiatric injuries have shown some trend from before the surge to recent years. This table shows that while time-loss claims fell by 26 percent from 1993 to 2004, accepted back or spinal injury claims fell by 29 percent and the number of denied claims over the same period fell by 48 percent. While more time-loss claims and accepted or denied back or spinal claims will ultimately develop with the passage of time, we consider here the experience only until 2004. This provides us with some confidence that the trend we observe will not disappear. Specifically, there is no blowout of back or spinal claims in the 12 years covered by this table. Further, if we consider the proportion of back or spinal injury claims that were accepted as a proportion of all time-loss claims from that accident year, the rate falls over the 12 years shown in the table, albeit slightly.

[56] Psychiatric impairments that are primarily cognitive in nature or involve some other dysfunction of the central nervous system are evaluated in Washington according to the AMA Guides to the Evaluation of Permanent Impairment. Other psychiatric impairments are rated according to Washington's Category Rating System. As is true in many jurisdictions, claims caused by stress are not considered to be compensable occupational diseases.

Table 2.31 Time-Loss Claims with Back/Spine and/or Psych Involvement for State Fund

Accident year (CY)	TL claims	Accepted back or spinal codes	Denied back or spinal codes	Psych involvement	Accepted back or psych involvement	% claims with accepted back or spinal codes	% claims with psych involvement	% claims with accepted back or psych involvement
1993	35,429	13,810	1,980	1,462	14,544	39.0%	4.1%	41.1%
1994	35,685	13,982	1,916	1,590	14,798	39.2%	4.5%	41.5%
1995	33,087	12,626	1,728	1,362	13,309	38.2%	4.1%	40.2%
1996	32,334	12,402	1,723	1,462	13,166	38.4%	4.5%	40.7%
1997	32,703	12,499	1,549	1,441	13,239	38.2%	4.4%	40.5%
1998	32,261	12,250	1,512	1,381	12,941	38.0%	4.3%	40.1%
1999	31,849	11,939	1,443	1,341	12,642	37.5%	4.2%	39.7%
2000	30,581	11,238	1,418	1,350	11,967	36.7%	4.4%	39.1%
2001	28,373	10,668	1,381	1,346	11,339	37.6%	4.7%	40.0%
2002	26,783	10,123	1,237	1,325	10,781	37.8%	4.9%	40.3%
2003	26,435	10,028	1,081	1,235	10,583	37.9%	4.7%	40.0%
2004	26,503	9,888	999	1,114	10,424	37.3%	4.2%	39.3%

Back/spine involvement is determined by Accepted, Accepted Temporarily, or Denied, ICD9 diagnosis codes into the L&I data base to control medical bill payment. Psych involvement is determined by billings for psychological or psychiatric evaluation or treatment as determined by specific service procedures, provider specialties, provider types, revenue codes and ICD9 or DRG codes. Accepted back or psych involvement indicates that a claim has either psych involvement or at least one accepted back or spine diagnosis code, or both.
SOURCE: Data Warehouse, Department of Labor & Industries.

We also consider the possibility that the treatment for back injuries may be responsible for the upsurge in pensions. It has been suggested to us that increased use of lumbar fusion surgery in Washington State, especially with intervertebral cage devices, may have made a significant contribution to the increase in pension awards. The number and frequency of lumbar fusion surgeries in the U.S. increased dramatically during the 1990s despite controversy about the effectiveness of these procedures for reducing pain and disability.[57] For example, the age and sex adjusted rates of fusion surgery per 100,000 adults tripled from 19 in 1990 to 61 in 2001. The rates climbed 180 percent among adults aged 40 to 59. The increase in rate and numbers accelerated in 1996 following FDA approval of intervertebral cage devices. While the rates increased sharply for many types of chronic and degenerative back disorders, the increase in rate was particularly steep for patients with herniated discs, especially after 1996.

Because of a concern that fusion surgery might have adverse outcomes in substantial numbers of injured workers, the Occupational Epidemiology and Health Outcomes Program at the University of Washington conducted a population based retrospective cohort study of injured

[57] Deyo, Gray, and Kreuter, et al., 2005.

Washington State workers who underwent lumbar fusion between calendar years 1994 and 2001.[58]

The lumbar fusion incidence rate among Washington workers rose from 15 per 100,000 workers in 1994 to 20 per 100,000 in 2001 with the highest single year rate of 24 per 100,000 in 1998.[59] The proportion of fusions with intervertebral cages climbed from 3.6 percent in 1996 to 59.1 percent in 2001. Among the 1,950 injured workers with fusion surgery, 11.3 percent or 220 were receiving pensions two years after surgery and another 52.6 percent were receiving some other work disability payments. Pension and other disability rates at two years following surgery among the intervertebral cage subgroup were only slightly higher than the group without cages. For all groups, if pensions were to develop they would most likely emerge more than two years after surgery.

Conclusion

While this study does raise important concerns about the possible contribution of fusion surgery to long-term disability, this type of surgery could not have been responsible for more than a small percent of the increased number and rate of pensions during calendar years 1996 to 2003. There were 403 state fund pensions awarded in 1996. If the pension frequency had stayed unchanged from 1996 to 2003 there would have been 3,224 pensions over this eight-year period. Instead there were 6,940 or an increase of 3,716. There were 220 pensions from 1996 to 2003 among injured workers who had fusion surgery between 1994 and 2001. Even if the surgery were responsible for all 220 of these pensions this would explain only 220/3,716 or 5.9 percent of the pension increase.

Psychological or Psychiatric Claims

Next we consider claims with psychological or psychiatric involvement, that is, where there was treatment given or health care provider payment that related to a psychological or psychiatric condition. Table 2.32 shows what we term “psych involvement” rather than psych claims since some of these psych injuries are not the primary injury. They frequently emerge as add-ons subsequent to the original injury, some of which include back or spinal injuries.

The number of cases with psych involvement fell by 24 percent from 1993 to 2004, though we anticipate that the numbers for the later accident years will increase over time as

[58] Maghout-Juratili, Franklin, and Mirza, et al., 2006.

[59] While the rates rose during the 1990s, they are still substantially lower than the rate of 31.5/100,000 workers reported by Franklin in 1986–87.

workers with some of the longer-term cases eventually seek benefits for permanent partial disability or for a TPD pension. The percentage of allowed pension claims that involved a psych injury increased steadily until 2000, peaking at 50.5 percent in that year.[60] Combining accepted back cases with pensions where there was a psych involvement meant that one or the other or both together were involved in 61 to 71 percent of pensions from 1988 to 2007.

Unlike Table 2.31 which considered time-loss claims, Table 2.32 focuses on pensions and views them by the year in which they were awarded. The table indicates the following:

- the number of claims with pension awards where back conditions were accepted or where there was psychological involvement grew from 1988 to 2007;
- accepted back or spinal conditions declined as a percentage of all pensions awarded between the late 1980s until 2000, and then have begun to climb again though not reaching the rates seen in earlier years;
- the number of pension award claims with psychological or psychiatric involvement rose from 178 in 1988 to 631 in 2003;
- the proportion of pensions awarded that had some psychological involvement increased steadily and substantially from 1988 to 2000. After increasing from 30.3 percent in 1988 to 50.5 percent in 2000 the rate declined rapidly; and
- combining the separate trends in the rates of pension awards with a either a back or a psych involvement or both results in rates that have been quite level over the past two decades.

[60] We recognize that this may represent an underestimate by us. In a 2005 study by pension adjudicators of 100 awarded pensions a non-random survey found that 64 involved psychiatric issues.

Table 2.32 TPD Pension Claims with Back/Spine or Psych Involvement for State Fund

Pension allow-ance year (CY)	TPD pensions	Accepted back or spinal codes	Denied back or spinal codes	Psych involve-ment	Accepted back or psych involve-ment	% pensions with accepted back or spinal codes	% pensions with psych involvement	% pensions with accepted back or psych involvement
1988	588	314	127	178	378	53.4%	30.3%	64.3%
1989	750	394	174	247	505	52.5%	32.9%	67.3%
1990	814	423	192	302	557	52.0%	37.1%	68.4%
1991	640	364	153	235	454	56.9%	36.7%	70.9%
1992	616	324	145	236	428	52.6%	38.3%	69.5%
1993	545	258	148	202	368	47.3%	37.1%	67.5%
1994	574	264	175	208	371	46.0%	36.2%	64.6%
1995	455	214	142	194	318	47.0%	42.6%	69.9%
1996	403	162	153	178	270	40.2%	44.2%	67.0%
1997	484	204	176	215	328	42.1%	44.4%	67.8%
1998	534	207	191	247	356	38.8%	46.3%	66.7%
1999	779	304	279	344	506	39.0%	44.2%	65.0%
2000	1,126	415	443	569	753	36.9%	50.5%	66.9%
2001	897	351	302	435	608	39.1%	48.5%	67.8%
2002	1,278	526	426	585	866	41.2%	45.8%	67.8%
2003	1,440	580	473	631	954	40.3%	43.8%	66.3%
2004	968	377	307	379	590	38.9%	39.2%	61.0%
2005	866	366	252	341	563	42.3%	39.4%	65.0%
2006	1,025	435	283	380	653	42.4%	37.1%	63.7%
2007	1,559	714	361	622	1,039	45.8%	39.9%	66.6%

Back/spine involvement is determined by Accepted, Accepted Temporarily, or Denied, ICD9 diagnosis codes into the L&I database to control medical bill payment. Psych involvement is determined by billings for psychological or psychiatric evaluation or treatment as determined by specific service procedures, provider specialties, provider types, revenue codes and ICD9 or DRG codes. Accepted back or psych involvement indicates that a claim has either psych involvement or at least one accepted back or spine diagnosis code, or both.
SOURCE: Data Warehouse, Department of Labor & Industries.

Conclusion

Claims with psych involvement have clearly increased and may have played a role in the growth of pensions. However, the rates of increase are not sufficient to account for a major share of the increase in pensions during the period under question. We believe that psych involvement should be examined more carefully and will include it as one factor in our multivariate models.

Opioid Utilization

Next we consider the growing reliance on pharmaceuticals for pain management as a possible contributor to the upsurge in pensions. It has been suggested to us that the increased use of opioids in treating injured workers may be responsible, at least in part, for the increase in pensions. Opioids are pain relief drugs that have properties like morphine and other derivatives

of the opium poppy. Other opioids include heroin, codeine, hydrocodone, oxycodone, fentanyl and methadone. Percodan, Percocet, OxyContin, and Dilaudid are some of the more common brand name drugs containing opioids. Opioids are regulated by the Drug Enforcement Administration as narcotics because of their potential for addiction, abuse, and risk.

Over the past thirty years these drugs have become more commonly prescribed by treating physicians, with the prevalence of outpatient opioid prescriptions for musculoskeletal pain doubling from 1980 to 2000.[61] Treatment prevalence rates for the more potent opioids have increased more than 4.5 fold. There has been considerable debate within the scientific community about the effectiveness of opioid therapy for relief of pain and improvement of function. One recent review of 16 published studies of moderate dose opioid therapy found that pain relief was achieved in 15 of the 16, but in 5 studies pain relief was not accompanied by improved functioning.[62]

Despite several professional guidelines recommending opioids only for short periods in moderate doses for the treatment of significant pain that is resistant to other therapy, there is concern that many clinicians have become increasingly liberal in their use of opioids in high doses for prolonged periods. Ballantyne and Mao note "current guidelines recommend a cautious approach to dose escalation and the discontinuation of opioids if treatment goals are not met. However, in busy practice settings, the reality of dealing with patients who have complex problems often forces physicians to compromise. As a consequence, very large doses of opioids are prescribed for patients with chronic pain that is not associated with terminal disease, often in the absence of any real improvement in the patient's pain or level of functioning."

Known and suggested adverse effects of long term, high dose opioid therapy include tolerance, increased pain sensitivity, hormonal changes affecting libido and drive, and dependence or addiction. These features of opioid use have raised the possibility that they may be counterproductive for many injured workers, prolonging recovery time, interfering with return to work and fostering long-term or permanent disability. One large-scale study found those with work-related low back pain had significantly longer disability duration where they had a combination of early imaging studies in the first month following the injury and prolonged

[61] Caudill-Slosberg, Schwartz, and Woloshin, 2004.
[62] Ballantyne and Mao, 2003.

opioid use (>7 days) than those without either imaging or opioids.[63] A recent study for the California Workers' Compensation Institute concluded:

> The preponderance of evidence suggests that through its adverse impact on both activity levels and on self efficacy, prolonged administration of pain medication impedes, rather than facilitates, injured workers' recovery from occupational back conditions.[64]

For the past several years Dr. Gary Franklin and colleagues have been studying the effects of opioid use among workers' compensation claimants in the State of Washington.[65] [66] Their findings include the following:

1. Overall opioid prescription use among worker compensation claimants increased only modestly from 1996 to 2000, but prescriptions for the more powerful Schedule II opioids more than doubled (from 23,000 to 57,000 annually) during this period. This increased frequency of use was accompanied by a 50% increase in the average daily dose of long acting opioids, especially OxyContin. A total of 32 workers' compensation claimant deaths from definite or probable opioid overdoses were identified.
2. About 34% of 1,843 state fund worker compensation claimants with a back injury and at least four days of disability from July 2002 through April 2004 were prescribed an opioid within the first six weeks of their first medical visit. Among this group the chance of being disabled one year after injury was more than twice as high for those prescribed opioids for more than seven days in the first six weeks compared with those not receiving any opioids.

In addition to Dr. Franklin's studies L&I staff evaluated opioid use in claim file reviews of 100 pensions awarded in 1995 and 100 awarded in 2003. Opioid use among the 1995 claims was 26 percent and among the 2003 claims was 34 percent. The sampling strategy was not recorded and these samples may not have been representative.

These exploratory investigations raise the possibility of a relationship between opioid usage and disability, potentially including total permanent disability. However, evidence for a causal link is very limited. Although Dr. Franklin's back injury studies did control for a number of potentially confounding variables, including injury severity and pain, it remains possible that opioid use did not cause or worsen disability but reflected changing medical treatment of disabled individuals. Thus, the familiarity and availability of opioid treatment may have led to the appropriate selection of the more serious injuries for this pain management therapy. Similarly, the increased proportion of pensioners being treated with opioids may reflect increased opioid use in all time-loss claims with severe pain conditions.

---

[63] Mahmud, Webster, Courtney, et al., 2000.
[64] Swedlow, Gardner, Ireland and Genovese, 2008.
[65] Franklin, Mai, and Wickizer, et al., 2005.
[66] Franklin, Stover, Turner, et al., (unpublished).

Conclusion

If a link between opioid use and disability pensions can be demonstrated, it is unlikely that this can explain more than a relatively small part of the increased pension rate that occurred from 1996 to 2007. The L&I claim file reviews of 1995 and 2003 pension files found an increase from 26 percent to 34 percent in claims for which opioids had been prescribed (see Chapter 4). If this review were representative of all pensions awarded in these years, the total number of state fund pensions with opioid use in 2003 was 489 (34 percent of 1,439 total 2003 pensions). If the percent of opioid use among pensioners had remained constant from 1995 to 2003 only 374 (26 percent of the 1,439 pensions) would have had opioid use in 2003. There were therefore 489-374=115 more pensions with opioids in 2003 than would have been expected based on the 1995 experience. Since there was a total of 984 more pensions in 2003 than 1995, these 115 claims would account for only 115/984=11.7 percent of the upsurge in pensions over this period even if opioids were actually responsible for all of these claims.

THE ROLE OF LEGAL DECISIONS AND LEGISLATIVE DIRECTIONS

Individuals with work caused injuries or illnesses can be granted a pension under Washington's law for one of two reasons. First, if the individual has sustained an extraordinarily serious impairment, one that is listed in the statute:

> 'Permanent total disability' means loss of both legs, or arms, or one leg and one arm, total loss of eyesight, paralysis … [67]

A listing of specific conditions that would be presumed to leave a worker with a total permanent disability is not unusual. According to a 1999 study, 39 states, including Washington identify specific, catastrophic injuries in their statutes or specify rules that are presumed to establish total permanent disability.[68] The impairments listed in Washington's statute are very similar to those found in most of the other 38 states. However, those instances where total permanent disability is presumed because of the statute are relatively rare. In the 2003 Pension Adjudicators study of 100 pension awards only two were the result of statutory pensions.

Of the 39 states that list such specific conditions, 11 limit total permanent disability claims to those that appear on the list. Even in those jurisdictions where the presumption is not irrebuttable, these catastrophic injuries are still frequently found to be total permanent disability.

---

[67] RCW 51.08.160 (2008).
[68] Barth, and Niss, 1999.

Aside from the 11 that limit total permanent disability to their listed conditions, the other states either use no list or as is the case for Washington, will consider claims for total permanent disability for injuries that are not specified in statute or regulation. For Washington, aside from the specific losses noted above, total permanent disability is also defined as

> …or other condition permanently incapacitating the worker from performing any work at any gainful occupation.[69]

Certainly, the law is not very explicit as to conditions that are pensionable and this absence of direction can create substantial uncertainties as to what will be treated as pensionable. The regulations that assist in the administration of the law also shed virtually no light on the meaning of total permanent disability. The Washington Administrative Code (WAC) does define "gainful employment" but does not go beyond that:

> Gainful employment for wages for the purposes of RCW 51.32.160 shall mean performing work at any regular gainful occupation for income, salary or wages.[70]

While RCW 51.32.160 is not the section that defines total permanent disability, it does refer to pension claims for total disability. This is as close as the WAC or the statute comes to explicating the circumstances under which a pension claim will be accepted.[71] The result is that the determinations have been made by the state's courts and in turn by the Board of Industrial Insurance Appeals and by the agency in the light of previously rendered legal decisions.

As the courts change and as public opinion gradually is modified the likelihood that a given claim might result in a pension being granted can change. However, though the courts and/or L&I may have changed their standards regarding the eligibility characteristics of claims for a pension, we see no evidence that the upsurge in pension awards is the product of any change in the underlying statute or the regulations. The statute's definition of total permanent disability has been in place for many years. The upsurge in pension cases has occurred in the presence of an unchanging definition in the statute. Further, the regulations that assist in the administration of the law have not been modified in any way that sheds light on the upsurge either. Those considerations aside, adjudicators within L&I have told us that they are not aware

[69] RCW 51.08.160 (2008).

[70] WAC 296-14-150.

[71] It should also be noted that the paucity of language in the legislation and the WAC does not apply similarly to permanent partial disability as can be seen RCW 51.08.150 or in several parts of the WAC including WAC 296-20-200.

of significant changes in the law that have affected their determinations of whether to recommend that an injured worker be given a pension for total disability.

Significant Decisions

If the rapid growth in the number of pensions is not attributable to legislative or regulatory changes, but instead to the law's application, we need to look at any changes that may be the result of actions of the Courts. The following is a brief overview of some of the legal decisions that may have shaped or reshaped Washington's treatment of pension claims. We begin with a decision that is still an important part of Washington case law despite its being more than 65 years old:

Kuhnle v. Department of Labor and Industries (1942)[72]

Albert Kuhnle worked as a hook tender for Simpson Logging Company when an accident caused his neck to be broken. Following the injury he watched over his family farm with the considerable assistance of his wife and eight children. The doctors for the Department of Labor and Industry rated his impairment at 75 percent, that is, as a permanent partial disability.

The Supreme Court held that where a work injury leaves the individual in such a condition that he can no longer follow his previous occupation or any other similar occupation, and is fit only to perform "odd jobs" or "special work" not generally available, then the burden is on the Department to show that there is special work that can actually be obtained. The court held that "sporadic competence, occasional, intermittent and much limited capacity to earn something does not reduce what is otherwise total to a partial disability" and that the court must make a "practical and reasonable interpretation" of the worker's ability to obtain work. The Court indicated that for a worker to be permanently and totally disabled did not require that the individual be "absolutely helpless or physically broken and wrecked for all purposes except merely to live."

Pacific Car and Foundry v. Walter Colby, et al. (1971)[73]

In this case the employer argued that the worker's injury to his right arm entitled him (only) to a permanent partial disability award. A medical expert had found that the injury resulted in an impairment with a 30 percent to 50 percent loss of the arm. The trial court had affirmed a decision by L&I to grant the worker a total permanent disability pension and that

[72] 120 P. 2d 1003 (1942).
[73] 489 P. 2d 176 (1971).

court's decision was upheld in the Court of Appeals (Division 3). It found that the injury's debilitating nature, coupled with the worker's age, the extent of his education, and the prognosis for any occupational retraining clearly established that the worker was incapable of future gainful employment and was therefore entitled to a pension for total disability. Pacific Car and Foundry makes clear what factors need to be considered in evaluating the worker in deciding on the awarding of a pension.

Graham v. Weyerhaeuser (1993)[74]

In this decision the Court of Appeals used the distinction between "general work" and "special work" (see Kuhnle, above). General work, which can include light and sedentary work, is work that is reasonably continuous, within the worker's range of capabilities training and experience and is generally available on the competitive job market. This court said that a worker is permanently and totally disabled under the statute only if the individual is unable to perform general work.

James A. Adams v. The Department of Labor and Industries (1995)[75]

In its decision the Supreme Court pointed out that it has long recognized the difficulty in applying the statutory language defining total permanent disability (shown above). As such the trial courts have had to supplement the language of the legislation with case law. The court found that the case law that has emerged has both a medical aspect—the extent of the physical impairment—and an economic aspect—the effect of the injury or illness on the individual's wage-earning capacity. The two aspects are combined in the standard instructions to a jury that "a worker is totally disabled if unable to perform or obtain regular gainful employment." (Note the presence of the words "or obtain" which are not directly found in the statutory language.) The court went on to say that the extent of physical impairment relates to the ability to perform, while the effect on wage earning capacity relates to the ability to obtain employment. Providing that the worker produces sufficient evidence of the loss of wage earning capacity along with expert medical evidence that the working causes the person serious discomfort or pain or puts his or her life in immediate danger, total disability is then a matter for a jury to determine.

In this case Adams had been re-employed at his pre-injury job earning $13.72 per hour (the jury decision was in 1987). A vocational counselor testified that in light of his (work injury

[74] 856 P. 2d 11 (1993).
[75] Supreme Court of Washington, 905 P. 2nd 1220 (1995).

caused) physical condition, his educational limitations, his skills, his limited potential for benefit from retraining, and the conditions of the general labor market, Adams was not capable of gainful employment in the general labor market with any degree of success or continuity. The court observed that the purpose behind the law was to insure against the effective loss of wage earning capacity. Wage earning capacity means "sustainable wage earning capacity," and since Mr. Adams had been able only to work in great pain, this was not sustainable.

Pauline Young v. The Department of Labor and Industries, Sisters of Charity Providence (1996)[76]

Following an award for a permanent partial disability and an appeal by injured worker, Pauline Young, superior court found that she was permanently and totally disabled as a direct result of her injury. Sisters of Charity Providence appealed the decision arguing that the findings and conclusion of the Board of Industrial Insurance Appeals were not proven incorrect by a "fair preponderance of the evidence." The Board's findings and conclusions are *prima facie* correct and the burden of proof is on the party (Ms. Young) attacking them. The superior court is not bound by the Board's findings, however, unless the court finds itself unable to make a determination on the facts because the evidence is evenly balanced. Appellate review is limited to the examination of the record to determine whether substantial evidence supports the findings after the superior court's *de novo* review and whether the court's conclusions of law flow from the findings. In this case the superior court gave special weight to the attending physician's opinion and discounted the diagnoses of the orthopedic surgeons retained by L&I.

The employer contended that the court had inappropriately found permanent and total disability without any testimony from a vocational expert showing Ms. Young's employability in the competitive labor market. The appeals court agreed with the trial court . . .

> that the testimony of a vocational expert was unnecessary here because common sense, supported by the evidence, showed that Ms. Young's limited employment skills and her physical inability to stand or sit for any consistent length of time prevented her from finding or retaining reasonably continuous gainful employment. In sum there is sufficient evidence to support the court's finding that Ms. Young is totally and permanently disabled because she cannot perform work of a general nature.

Catherine Leeper v. The Department of Labor and Industries (1994)[77]

Although the individuals we interviewed could not point to any single decision or set of decisions that emerged from the Board of Industrial Insurance Appeals or the courts that might

[76] 913 P. 2d 402 (1996).
[77] 123 Wn.2d 803 (1994).

have accounted for the upsurge in pensions awarded, the case cited most frequently as having some importance is the Leeper case.[78] In addition to concisely summarizing the Supreme Court's thinking about total permanent disability in work injury claims, it does break some ground and clarifies (or extends) some previous decisions. However, it appears to us to fall well short of being an important source of the pension upsurge in the time period we are considering.

Catherine Leeper was injured on the job on two separate occasions. In 1980 while employed at Western State Hospital as a licensed practical nurse a psychiatric patient struck her injuring her jaw, shoulder, and neck. In June 1984, she was serving as a union shop steward at a personal conduct hearing and was injured once again. A supervisor appearing at the hearing, apparently seeking to demonstrate the misconduct of another staff member, grabbed Ms. Leeper's hair at the nape of her neck and yanked it backwards. These and some other circumstances forced her to stop working, and in April 1985 she was given a disability separation by Western State. She did not work after her termination. The Department of Labor and Industries and the Board of Industrial Insurance Appeals rejected Ms. Leeper's claim for a pension—as they did the two other cases with a similar central issue that were to go before the Supreme Court at the same time. In Superior Court for Pierce County and in the Court of Appeals the findings in each of the three cases favored the worker's appeals for total permanent disability pensions.

Before 1989 the Washington Supreme Court Committee on Jury Instructions defined total permanent disability as a medical condition that made a worker "unable to perform a gainful occupation."[79] In 1989 the 2nd edition of the Committee's jury instructions was replaced and the 3rd edition modified the language to read "unable to perform or obtain a gainful occupation."[80] The 3rd edition version was used in the jury instructions and as the judicial criterion for determining the presence of total permanent disability. The Department of Labor and Industries argued that the Committee's recommended change was inappropriate, and that it did not conform to the law. However, in Leeper and the two other cases decided that day the Supreme Court held that the instructions were appropriate and that total permanent disability could be considered on this basis. The Supreme Court wrote that instructing a jury on the

[78] Actually, the central issue in Leeper was settled in three consolidated cases that the Court decided, *en banc*, on the same day. Aside from Ms. Leeper, the plaintiffs in the other appeals were Janice M. Jones and Donald Taasevigen.

[79] 6 Wash. Prac., WPI 155.07 (2nd ed. 1980).

[80] 6 Wash. Prac., WPI 155.07 (3rd ed. 1989).

meaning of permanent and total solely by reciting the statute's definition of permanent and total disability was inadequate. Instead, the jury should be instructed with language that was consistent with the language found in the Kuhnle decision.

The court was saying that where a work injury left a worker with a permanent impairment and the result was that the particular worker was judged unlikely to be able to obtain employment, then the award of a pension was appropriate. This appeared to widen somewhat the standard for awarding total permanent disability. It certainly can be helpful in claims where the worker has some type of burden in the labor market, which combined with the work caused impairment makes re-employment highly unlikely. As an example, a person with a very poor work history—possibly a prison record—who loses his/her job as a result of the work injury is not likely ever to overcome the challenge imposed by both conditions. And the Leeper decision along with the other two decided that day did go farther than the Graham decision where the standard had been set by the Court of Appeals, i.e., that a worker is permanently and totally disabled under the statute only if the individual is unable to perform general work. Leeper now extends that to include the ability to obtain employment. However, as can be seen above, the difficulty in obtaining employment had been a factor in earlier cases that the courts held to be pensionable even if the matter was not addressed as explicitly as it was in Leeper.

Impact on L&I

Decisions by the BIIA and the courts affect L&I in two ways. The first is the direct effect on the outcome of specific cases whenever the BIIA or court does not affirm an L&I decision but modifies or reverses it. The second is an indirect effect on claim outcomes when a BIIA or court decision on a particular case (or series of cases) has an impact on the way L&I handles subsequent claims. This is the traditional way that judicial decisions have a broad impact on executive behavior. When legal decisions are published opinions of Washington Court of Appeals or the State Supreme Court, they have binding legal precedent for future situations and L&I has no discretion. All other legal decisions (Superior Court decisions, significant BIIA decisions, and non-significant BIIA decisions) carry no such binding legal precedent. However, in some circumstances if L&I agrees with a particular non-precedential decision (or a series of decisions) it may change its policy and practice to conform with the decision. Or if L&I disagrees with the non-precedential decisions they will continue with the current practice while

awaiting a similar case to appeal to a higher court, hoping to prevail and thereby achieve a precedential decision that is consistent with the Department's interpretation of the law.

While L&I executives and managers are very attentive to the outcomes of BIIA and court decisions it is not clear that the agency has a formal, systematic and consistent process for evaluating the potential impact of important BIIA and court decisions and for responding to them with appropriate timely changes in policies and/or procedures. Since the late 1980s or early 1990s L&I has had a standing Policy and Litigation Control Committee (PLCC) that does review important court decisions, with senior representation from Claims, Policy & Quality Coordination, Legal Services, Self Insurance, Insurance Services, the Director's office, and the Office of the Attorney General. The PLCC's primary function is to review cases that may proceed to higher level courts (beyond the BIIA) and to evaluate whether adverse decisions should be further appealed. Part of the Committee's consideration is the impact of court determinations on L&I's statutory interpretations and policies. The PLCC does not have a process to routinely evaluate the annually published list of significant BIIA decisions although members may bring up a particular case for discussion.

The PLCC does engage in discussion of how precedential decisions may change L&I's application of a particular statute. Although L&I executive managers are participants in these discussions, we are unable to identify a formal mechanism within the agency to move this informal process toward timely policy decisions and to ensure that communication and training is promptly and effectively implemented. Instead, it is assumed that senior managers participating in PLCC discussions will take their knowledge and understanding with them into the regular decision making processes of the Insurance Services Division and that these processes will sufficiently address the issues raised by the BIIA and court decisions.

Two examples illustrate the apparent variability in the way L&I responds to precedential legal decisions. First, when a 2001 State Supreme Court decision found that an injured worker's loss of employer-paid healthcare benefits should be included in the calculation of wage loss, L&I mounted an immediate and systematic effort to assess the impact of the decision on administrative systems and behavior and took formal steps to communicate with and train staff on new policies and procedures.[81] Second, when the State Supreme Court issued its Leeper case decision in 1994, finding that total permanent disability is not limited to the inability to perform

[81] *Cockle v. Department of Labor & Industries* 142 Wn. 2d 801, 16 P. 3d 583 (2001).

gainful work but also means being unable to "obtain a gainful occupation," L&I apparently concluded that the decision did not call for a significant change in adjudicative policy and did not undertake a systematic, comprehensive effort for communicating instructions to staff.[82] This was despite the fact that L&I and its attorneys expected trial lawyers to interpret the decision differently and to make new demands on the department regarding disability determinations. It was not until the vocational rehabilitation rules were rewritten in 2001 that definitive written direction was given about the implementation of the Leeper decision.[83]

Conclusion

The statute and the regulations were not changed in the time period under consideration in a way that accounts for the upsurge. The language of the statute itself has remained unchanged for decades. Of the many persons we have interviewed, no one has pointed to legislative or regulatory change as the reason that more pensions have been awarded. It appears that one would be hard pressed to make that argument.

We are not able to conclude whether or not the upsurge in pensions awarded is a product of the Board or the Courts becoming more "worker friendly." While this is a possibility, as is the possibility that attitudes favoring such determinations are the product of changing attitudes at the Department, there is no unambiguous way to show that there has been some changing standard for the granting of a pension. Though decisions such as Leeper undoubtedly favor applicants for pensions, the Kuhnle decision of 1942, among others, already shows a relatively tolerant standard by the courts. However, there are several observations regarding legal decisions and directions in the state that can be made with some confidence.

We have four observations to offer as a result of this review.

First, the language of the statute that defines total permanent disability provides precious little guidance to the Board or the courts. In the absence of very explicit language it has been left to the courts to determine what a pensionable claim is, and the Board and the Department have in

[82] Memo from Thomas Chapman, Senior Counsel, to Mark Brown, Director, 4/26/94. Attorney Chapman noted the Court's statement that "the inability to obtain work because of a workplace injury is relevant evidence at all stages of a disability hearing" and offered his opinion that "just what the Court means is not entirely clear. As I read it, the opinion seems to equate the inability to obtain with the inability to perform." In other words, notwithstanding the fact that the Court specifically added the "ability to obtain work" criteria to the pre-existing "ability to perform" criteria, it was his view that the new language was equivalent to the old.

[83] In 2001 the VR rule was changed in WAC 296-19A-010(1)(a) to define employability to "…necessary…to be capable of performing and obtaining gainful employment" from the previous definition of "…necessary…to be gainfully employed…"

turn had to follow the lead of the courts. This may lead some to be critical of the legislative and executive branches for their lack of clear guidance on the matter. There are several factors that ought to be considered before lawmakers are skewered for the very limited definition that the statute provides. First, if the legislature is unhappy with the way the courts have developed the case law, it has had the opportunity to change the statute's language in every session. The fact that no such change has occurred for decades suggests that there is at least some general satisfaction with the way that the law is being carried out. Yet another possibility is that there is dissatisfaction with the application of the disability pension provision but there is no consensus about how to remedy that. No doubt there may be some who would prefer a more explicit definition in the hopes of liberalizing or tightening up the granting of pensions. However, if that is so the movement for change has not been very evident in recent years, though there is some concern about finding the source of the upsurge. The request for this study indicates that.

Second, it is clear that total permanent disability pensions are granted in some cases where the extent of impairment is relatively low. This sets Washington apart from many, but not all states. In Washington total permanent disability results from the combination of the functional loss due to the injury, and the impact of the injury on the worker's future wage earning capacity. In cases where the impairment is evaluated as less severe, a pension is still possible depending upon the impact on the person's earning capacity in the light of the person's age, educational attainment, literacy and language skills, their likely ability to benefit from a rehabilitation program, and possibly other factors as well.

Third, it appears to us that Washington has sizeable numbers of pension cases relative to other jurisdictions in part because of the potentially large gap that can exist between a permanent partial disability award and a total permanent disability pension.[84] Washington's permanent partial disability benefit is based on the rating of impairment-done by a medical assessment, without consideration of the economic impact that the injury might have for the worker. Washington is not unique in doing this. Though the state's benefits for permanent partial disability are not exceptionally low, they can appear that way when the economic consequence to the worker of a work illness or injury is severe. Restated, the gap between the permanent partial and the total permanent benefit is large, and where the impairment causes serious economic

[84] A longer discussion of the linkage generally between permanent partial and total permanent disability and the approaches taken by the different jurisdictions is found in chapter 3.

dislocation the permanent partial disability benefit can appear to some to be inadequate. Since there is no way under the law to increase the partial disability benefit above what the medical impairment dictates, virtually the only alternative is to consider granting the worker a pension. It is not difficult to imagine that juries among others are sensitive to this gap and are moved to award the larger benefit, that is, the pension. The alternative, not available in Washington's system, is to award a partial disability benefit that takes some account of the special circumstances that can make an impairment particularly costly to certain workers. Several variations of this approach are being used by other states. We are not endorsing these alternatives but are simply pointing out that the large gap can be reduced by measures that are not currently available under Washington's approach to disability determination.

Fourth, there are indirect ways that the legal system can impact the incidence of pensions that could not be measured by us. Court decisions such as Cockle or Avundes, led to increases in compensation benefits for injured workers.85 To the extent that this affects the return-to-work behavior on the part of injured workers, this could be related to the number of pensions. We do not doubt that enhancing the value of compensation benefits can affect the return-to-work behavior of some workers, as it also can induce employers to strengthen their return-to-work strategies. However, Cockle and Avundes were decided only in 2001 and 2000, respectively, and were not factors in the growth in pensions that occurred in the late 1990s. Further, it is reasonable that any impact these decisions had on the awarding of pensions would have taken a number of years, considering the typical length of time between an accident date and the pension decision. It is true that these decisions required substantial commitments of time by the state fund and self insurers' staff to recalculate the wage basis and deal with large numbers of appeals by workers. Some of this effort required of the state fund staffers undoubtedly contributed to a backing-up of unresolved claims.

[85] *Cockle v. Department of Labor & Industries* 142 Wn. 2d 801, 16 P. 3d 583 (2001) where the basis for the average monthly wage was modified to take account of health care benefits that workers received at the time of injury, Department of Labor & Industries v. Avundes, 140 Wn.2d 282 (2000) where the basis for the average monthly wage for purposes of compensation was modified for seasonal workers.

Appendix 2.1 Breakdown of Vocational Rehabilitation Expenses

Voc Expenses	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Job Analysis	$146,937	$18,651	$571	$121	$0	$0	$0	$0	$0	$0
Job Modification	$755	$12,675	$40,843	$85,085	$92,346	$103,703	$79,228	$46,084	$71,989	$446,826
Other	$49	$34	$0	$0	$108	$1,146	$27,486	$61,222	$120,105	$462,731
Professional Services	$10,896,741	$20,332,722	$20,516,254	$20,891,977	$25,550,683	$28,190,506	$32,131,913	$33,354,605	$35,941,137	$37,863,648
Retraining Expenses	$1,331,838	$2,123,950	$3,161,919	$3,064,140	$3,324,071	$4,041,795	$4,081,939	$3,718,152	$3,306,216	$2,267,279
Retraining Tuition	$1,251,632	$1,931,210	$2,782,630	$2,564,318	$2,362,903	$2,724,030	$2,663,312	$2,442,222	$2,024,744	$2,330,134
Testimony	$0	$1,996	$72,917	$12,218	$16,504	$2,157	$1,308	$118	$110	$0
VRC Travel/Mileage	$940,036	$199,226	$78,803	$74,532	$100,375	$154,333	$46,614	$12,589	$0	$5
Work Evaluation	$1,555,101	$969,842	$525,460	$508,782	$685,531	$881,880	$828,505	$707,051	$810,927	$876,150
Total	$16,123,089	$25,590,305	$27,179,397	$27,201,171	$32,132,521	$36,099,548	$39,860,304	$40,342,043	$42,275,228	$44,246,773

Voc Expenses	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Job Analysis	$0	$74	$0	$0	$0	$0	$44,453	$171,871	$175,096	$273,814
Job Modification	$1,210,427	$1,073,743	$933,933	$1,007,950	$885,940	$801,985	$699,319	$720,355	$800,769	$1,015,448
Other	$605,800	$678,025	$696,262	$743,557	$333,463	$831	$32	$0	$585	$0
Professional Services	$36,982,372	$37,876,915	$37,582,419	$39,479,778	$36,151,688	$35,559,494	$35,594,714	$36,909,995	$39,493,946	$40,082,392
Retraining Expenses	$1,349,568	$1,251,740	$1,028,550	$1,653,759	$2,665,130	$2,095,088	$2,410,240	$2,705,427	$2,835,491	$2,732,717
Retraining Tuition	$1,846,918	$1,831,938	$1,732,137	$2,092,376	$2,432,576	$2,225,580	$2,782,487	$3,156,370	$3,385,942	$3,433,629
Testimony	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
VRC Travel/Mileage	$0	$56	$0	$0	$759,036	$1,677,541	$1,620,555	$1,668,842	$1,717,719	$1,827,951
Work Evaluation	$748,490	$680,467	$710,248	$677,716	$410,692	$269,426	$426,287	$404,125	$345,368	$464,388
Total	$42,743,576	$43,392,958	$42,683,549	$45,655,137	$43,638,525	$42,629,944	$43,578,086	$45,736,984	$48,754,917	$49,830,340

SOURCE: Department of Labor and Industries

Appendix 2.2 Breakdown of VR Referrals

CY referral start	Injured workers referred (unique SSNs)	Claims referred (unique claim Ids)	*Voc intervention referrals	Early intervention referrals	Ability to work assessment referrals	Voc plan development referrals	Voc plan implementation referrals	Total referrals
1988	9,538	9,555	8,522	0	0	1,767	2,424	12,713
1989	11,835	11,874	11,227	3	3	1,059	1,945	14,237
1990	13,793	13,873	13,604	12	11	1,167	2,328	17,122
1991	14,435	14,515	14,118	11	9	1,126	2,307	17,571
1992	15,475	15,605	15,550	17	31	1,090	2,170	18,858
1993	14,756	14,884	14,734	64	91	1,062	1,965	17,916
1994	14,155	14,290	14,185	198	273	890	1,503	17,049
1995	13,235	13,398	13,096	151	298	882	1,411	15,838
1996	12,745	12,945	12,361	138	274	878	1,282	14,933
1997	13,130	13,338	13,089	146	256	803	1,214	15,508
1998	13,158	13,428	13,308	205	265	913	1,063	15,754
1999	13,818	14,134	13,970	148	440	1,264	1,334	17,156
2000	12,744	13,050	11,065	229	1,859	1,470	1,105	15,728
2001	12,925	13,188	1,567	4,966	7,960	2,847	1,107	18,447
2002	14,997	15,362	0	9,900	9,342	3,874	1,748	24,864
2003	15,262	15,673	0	6,230	11,599	4,255	1,952	24,036
2004	17,085	17,547	0	7,070	12,584	3,954	2,141	25,749
2005	17,300	17,797	0	6,713	13,645	3,934	1,854	26,146
2006	16,346	16,850	0	5,674	12,933	3,865	1,856	24,328
2007	14,299	14,697	0	4,782	10,708	3,187	1,446	20,123

Referral Start was used to determine Year rather than Referral Completion, as prior to 2001 many referrals did not have a completion date entered until the claim was closed, or a new referral started. Referrals with no completion date that were started prior to 2004 have been excluded as probable bad data.

Injured workers with multiple referrals or claims with referrals during a year were counted only once in the 'Injured Workers' column. They would be counted again in other years if they had other referrals starting in those years.

There were major changes in the data and how voc referrals were described made in 2001. There was no distinction made between Assessment and Intervention captured in the data prior to 2001, so these are considered generic Voc Intervention Referrals. Referral for Plan Development and Plan Intervention referrals were not separated prior to 2001, but the old data was migrated (split) into the two separate categories in 2001. This may cause apparent differences in the data pre- and post-2001.
There are some Early Intervention and Ability to Work Assessment referrals showing as prior to 2001 that were likely entered into the system post-2001 or migrated over from the old data.

Referrals for Forensic Assessment (a fairly small number) and Stand-alone Job Analysis have not been included. Likewise, workers referred to the ERTW (Early Return to Work) process, but not to a private VRC, have not been included.

Anticipation of major voc benefit changes in 2008, have caused changes in the numbers of referrals in 2007 as compared to previous years. Also, referrals without completion dates were not counted, causing 2007 statistics to look low.

SOURCE: Referral, Voc Referral, and Clm-Clmt tables from the L&I Data Warehouse.

Appendix 2.3 Timeline of Pension Relevant Events

Date	Events	Source
1981	L&I begins to purchase vocational rehabilitation services from private vendors.	Fiscal Note, HB 1084 and SB 4193, 1985 legislative session
1982	Mandatory Vocational Rehabilitation established. Change in time-loss provisions: prior to 1982 no more time loss when injured worker is medically stable; after 1982 time loss can continue when medically stable if injured worker is in voc rehab.	Documents on HB1084, 1985 legislative session
1984	Joint Select Committee on Workers' Compensation established by House Concurrent Resolution 35. The Select Committee makes 17 recommendations for vocational rehabilitation and other recommendations on cost containment.	Documents on HB1084, 1985 legislative session
1979-1984	Average time loss increases from 3.55 months to 7.11 months; Voc referrals increase from 2,767 to 17,020; payments to voc providers increase from $1 million to $22 million. State fund goes from substantial surplus to greater than $100 million deficit.	Documents on HB1084, 1985 legislative session
1985 to 1993	Joe Dear, Deputy Director and then Director of L&I. Focused on industrial insurance, time-loss reduction, and cost containment.	
1985	Total Claims Management, Phase I. Claim Examiner and Treatment Authorizer positions were abolished. Their functions were combined in a new position of Claim Manager so that one person was now responsible for handling time loss and medical treatment issues. Also, a new position of Claim Analyst was created. Rehab Reviewers were moved into the claim units. Medical Adjusters and word processing specialists were moved out of claim units into separate support units. The transition to this new system moved through several phases, lasting through the 1990s and has been described as "chaotic." According to several interviewees claim loads grew above 500, many claims were not thoroughly managed and as a result many claims "languished," time-loss duration increased and it became too late for long-term claims to get back to work. The department "grew time-loss duration." While some have argued that the reassignments of personnel, job duty changes, and shifting claim loads had negative consequences with reduced continuity and consistency in claims management, others believe these changes were necessary for long-term success. Example: Prior to TCM Disability Adjudicators made pension referrals. After TCM Claim Managers made them. Claim Managers were overloaded and had to make choices: working on authorizing a surgery and/or making a time-loss payment vs. working on a pension referral. As a result they often did not make pension referrals but simply continued claims on time loss.	Review of Classification Questionnaires
1985	HB 1084 repeals mandatory vocational rehabilitation. L&I supports the legislation. The purpose of voc rehab	Documents on HB1084, 1985

Date	Events	Source
	changes from "qualify worker for employment" to "make the worker employable."	legislative session
Summer 1985	L&I began a five-year project to automate the functions of the Industrial Insurance division by launching the Labor and Industries Industrial Insurance System (LINIIS), an integrated online information management system. LINIIS was implemented in phases. Each phase involved significant training in new business processes, some of which had important impact, at least temporarily, on the speed and manner in which claims were managed.	Information Technology Executive Summary 2/6/92
5/86	LINIIS Phase 1 completed: Database and claims inquiry system established. Older computer system (ARMS) was retired.	Information Technology Executive Summary 2/6/92
11/86	LINIIS Phases 2 and 2.5 completed: Online updating of records and entry of new claims; tracking of vocational rehabilitation disputes.	Information Technology Executive Summary 2/6/92
1986 to 1990	A major cost containment initiative was started, in response to the Joint Select Committee recommendations and rapid increases in medical costs (38 percent increase in 1986–87 alone). Changes included fee schedules for ancillary services, DRG system, surgical utilization review, and standards for chiropractic care.	
1987	Dennis v. Dept of L&I, Washington State Supreme Court (109 Wn.2d 472, 745 P.2d 1298). This decision significantly expanded the definition of occupational diseases by allowing work-related aggravation of a pre-existing non work-related disease if the condition came about as a "natural consequence or incident of distinctive conditions" of the injured workers particular employment, even if the risk is no greater than in other employments or non-employment. The decision rejected the Court of Appeals test from L&I v. Kinville in 1983 that held that a condition arose "naturally" out of employment only if there was a greater risk in the injured worker's employment than in other employments.	L&I summary
10/87	LINIIS Phase 3 completed: Medical Information and Payment System (MIPS) moved into the LINIIS database with new inquiry screens and reporting and statistical functions.	Information Technology Executive Summary 2/6/92
2/89	Within the previous one-year period there was complete turnover in staff for the three PAs assigned to the state fund. This resulted in a dramatic decrease in the experience level as a PA since these positions are typically static for years until retirement.	PA Monthly Reports
12/12/1988 to 9/30/1989	Yes We Can Initiative, a major effort to reduce time-loss duration and to return trust funds to healthy surpluses. CARE (Communication Action Resolution Effort) Teams were established to look at the worst cases. Claims units looked at everything else. CARE's intent was to "achieve appropriate resolution of claims with ongoing time-loss benefits," to "reduce the overall average time-loss duration of claims" and to reduce voc rehab costs. Order of priority for review: voc cases "returned" after unsuccessful plan development; claims referred by attending physicians in need of coordinated resources; active time-loss claims with injury dates 1984–1987; active time-loss claims with 4,000 or more time-loss days; inactive claims. A significant amount of overtime was authorized for claims staff during this period.	• Ron Gray, CARE Team Project Overview, 12/1/1988 • CARE Follow-up Report, 8/17/1990 • Review by Operations Managers

Date	Events	Source
	1,317 claims were closed in 9 ½ months, although 25 percent of these were still in various stages of litigation when a follow-up study was done in August 1990. Ninety-three of these claims were pensioned by 6/29/90. Pension awards were strongly associated with year of injury and time-loss duration. Only 18 claims with more than 4,000 days of time loss were included in this project, but 87.5 percent of these were pensioned. 51.6 percent of the 152 "returned" voc cases were pensioned. The largest numbers of claims reviewed were active time-loss claims with less than 4,000 days and inactive claims. Fifty-nine percent and 40 percent, respectively, went on PPD while very few were pensioned.	
1990	Total Claim Management, Phase II. The Worker Compensation Adjudicator series was established. Claim Analysts became WCA 1, Claim Managers becameWCA2, Disability Adjudicators became WCA3, Claim Consultants became WCA4, and Pension Adjudicators became WCA5. Rehabilitation Reviewers became Rehabilitation Consultants. Various duties were redistributed as a result of these changes and there are varying views about the pros and cons of these changes. For example, there was a loss of expertise when Disability Adjudicators were no longer the only ones handling certain decisions, but there was a gain in efficiency when Claim Managers no longer had to wait for a limited number of Disability Adjudicators to make decisions.	Review of Classification Questionnaires Review by Operation Managers
1988 - 1990	LINIIS Phase 6 completed: Voc rehab subsystem simplified and claims subsystem improved with a variety of enhancements, including tickler system, activity log, intervention and investigation referrals, automatic and paperless adjudication, and overpayment tracking.	Information Technology Executive Summary 2/6/92
5/90	The VocLink Project was developed to allow preferred vocational providers to tie into the LINIIS system and to receive electronic referrals and input summaries of service outcome.	Information Technology Executive Summary 2/6/92
1991	A referral system was established to provide on-line referral of phone inquiries from the Office of Information & Assistance Hotline to claims staff.	Information Technology Executive Summary 2/6/92
1991	The State Personnel board established a new five-level vocational services series, proceeding from Trainee to Intern to Specialist to Consultant to Supervisor. Previous classes of Voc Rehab Counselors, Reviewers and Evaluators were eliminated.	Review of Classification Questionnaires and related documents
3/91	LINIIS Phase 7 completed: Online and batch processes to update MIPS authorization files through LINIIS. Improved medical management and communication between MIPS and claims unit staff on bill resolution.	Information Technology Executive Summary 2/6/92
9/91	L&I implemented a Conciliation Plan that reassigned claims consultants to claims units and empowered claim managers to settle disputes previously handled only by claims consultants. Impacts included significant changes in job duties and authorities as well as an increase in the number of claims consultants. Several experienced CMs became CCs. This Plan included a mandatory memo process for communication between CMs and CCs. CMs were required to get permission from CC to issue reaffirm orders. Also a process for CCs to direct CMs to refer claims to Pension Adjudicators rather than closing them. This system allowed CCs to staff a claim at any level and not just upon receipt of an appeal.	• Memos from Mike Watson to Janet Morris, 8/20/91 and 12/10/91 • Related documents from the Office of Claim Consultants, 1992-1996 • Review by Operations Managers

Date	Events	Source
	This system lasted until 1998–99. Claim Consultants were later moved out of Claims Administration into Legal Services.	
1992	Vocational Dispute Resolution Office (VDRO) pushes to clear backlog, resulting in many claims going to pension.	Interviews
7/93	Benefit Payment System (BPS) Project: This replaced the Accident Fund Payment System with a new automated system to process a TL payment every 14 days for workers eligible for disability benefits as long as the tickler on the claim was current. Receipt of a Disability Certificate, contending disability benefits and providing medical certification was no longer the driver for issuance of TL benefits.	Information Technology Executive Summary 2/6/92
11/93	New Pension Adjudicator position added to state fund bringing staffing levels to four PAs.	PA Monthly Report
1993 to 1997	Mark Brown, Director of L&I. Major departmental reorganization. Less attention to industrial insurance issues, including time loss.	
3/21/94	HB 2843 adopted, requiring L&I to undertake two pilot projects on long-term disability (LTD).	HB 2843
4/94	Leeper v. L&I, Washington Supreme Court (123 Wn.2d 803). This decision held that "total permanent disability" means being unable to perform or obtain a gainful occupation. L&I argued unsuccessfully that disability was limited to being unable to perform a gainful occupation. Prior to this decision WAC 296-18A-420 defined "employable" as "having the skills and training that are commonly and currently necessary in the labor market to be gainfully employed on a reasonably continuous basis…" When the vocational rehabilitation rules were rewritten in 2001 the employability definition in WAC 296-19A-010 became "having the skills and training that are commonly and currently necessary in the labor market to be capable of performing and obtaining gainful employment on a reasonably continuous basis…" Assistant Attorney General Thomas Chapman memo to L&I Director Mark Brown noted the Court's conclusion that "the inability to obtain work because of a workplace injury is relevant evidence at all stages of a disability hearing" and states that "just what the Court means is not entirely clear. As I read it, the opinion seems to equate the inability to obtain with the inability to perform."	• Washington Supreme Court Decision 123 Wn.2d 803. • WAC 296-18A (1994 version) • WAC 296-19A (2001 version) • Memo from Thomas Chapman, Senior Counsel, to Mark Brown, Director, 4/26/94
1994	WISE (With Imaging Service Excellence) was established, using imaging technology to present paper-based documents on computer screens. Staff were encouraged to utilize imaging for quick retrieval of claim information instead of ordering and reviewing microfiche files.	Online Reference System: Appendix J: Imaging Users Guide
9/94	L&I Vocational Services Handbook continued to define employability per WAC 296.18 as "having the skills...necessary…to be gainfully employed…"	Vocational Services Handbook
9/1/94	The LTD pilot project was underway in Yakima and Everett	PA Monthly report

Date	Events	Source
mid 1990s	L&I reminded voc providers that services are for those for whom they are necessary and who are likely to benefit. If unlikely to benefit services should be discontinued. This was intended to address a growing number of claims languishing in voc services.	
9/1/95	A Business Process Redesign (BPR) was underway for vocational services.	PA Monthly report
3/96	Responsibility for the administrative fraud program moved from the PAs to two full-time dedicated Fraud Adjudicators. Due to an expansion in the number of fraud cases the PAs had found that this aspect of their work, which had a statutory one-year date of discovery, had become their primary focus hampering efforts to review claims for pension eligibility.	PA Monthly report
3/25/96	HB 2724 was adopted, allowing an additional $5,000 of voc rehab expenditures for job modifications or accommodations necessary to perform essential functions or to participate in a retraining program.	HB 2724
1997 to 2004	Gary Moore, Director of L&I. Increased attention to industrial insurance and time-loss duration.	
1997- 1998	A State Audit Finding that L&I needed objective criteria for voc case referrals led to the development of the Complexity-Adjusted Cost Outcome (CACO) system.	
1997-1998	WCA3 in-training program started.	
1/97 3/97	One new PA hired, increasing PA unit from 4 to 5 FTE Pas acquire a new job duty- adjudicating applications for a $100,000 death benefit through the Department of Retirement Systems	PA Monthly Reports PA Monthly Reports
6/97	L&I reallocates 59 positions to claims management, including many field voc rehab staff. One impact was reduced supervision of private voc rehab providers.	1998 L&I supplemental budget request
12/97	Two additional positions added to PA unit as part of the reallocation of 59 positions noted above bringing staffing levels to seven PAs in the state fund..	PA Monthly Reports
1998	Coaching system established. Several experienced CMs and CCs became coaches. Clarification and training was provided to CMs to help them understand when to seek help from claim consultants, Pension Adjudicators or coaching staff. Coaching and mentoring focused on in-training positions. “Everything seems to have changed in the past few months. You may not even be sure what is expected of you if you ask for help.”	Robert Dziedzic memo, 8/1/98
3/11/1998	1998 Supplemental Operating Budget proviso: $686,000 from the accident fund and $686,000 from the medical aid fund was provided to fund 24 Claim Managers (in addition to the 59 positions reallocated in 1997. L&I was expected to reduce time-loss duration by 5 percent by 6/30/2000 and 2.5 percent more by	1998 Conference Committee Amendment to ESSB 6108

Date	Events	Source
	6/30/2001. L&I was also expected to reduce level-2 claim manager claim loads from 260 to 190. If substantial progress was not made by 6/30/2000 the positions and funding would be discontinued.	
5/1/98	The statutory Time Loss duration goal of 5 percent reduction was not being met; 8 percent reduction was now needed by 2000 to meet the goal.	PA Monthly reports
6/98	Responsibility for the initial adjudication of claims filed for cardiac diagnoses moved from the PAs to the Claims Units.	PA Monthly report
7/1/98	PAs asked themselves how to do more pension referrals for the TL duration initiative.	PA Monthly reports
9/1/98	The pension backlog was mentioned in the Director's meeting as a detriment to the goal of reducing TL duration. Plan to hire an additional PA.	PA Monthly reports
10/98	DART (Duration Appropriate Reduction Team) was launched with 10 staff assigned. "Claim closure is primary goal." DART focused on claims with injury before 10/97, 2 or more IMEs, 2 or more voc interventions, a current voc plan development request 9 months or older, a prior pension deferral, a claim needing a pension referral, a claim protest over 180 days old.	• PA Monthly reports
12/11/98	JLARC Performance Audit of Washington State Workers' Compensation System. Thirty-two recommendations included: reorganizing claims units, modifying claims management duties, changing performance measures for claim managers, reduced reliance on formal claims closure process, make successful return to work the primary goal of vocational rehabilitation, make a percent of wages the standard for employability, increase retraining funds and time, increase vocational rehabilitation professionalism, improve CACO.	JLARC Report 98-9
7/9/99	In Re: Roger Neuman, BIIA D&O 97 7648. This Board decision held that a worker is permanently totally disabled when medically fixed and demonstrably permanently unable to be gainfully employed. It may be administratively practical for L&I to take additional time to complete its work and to establish a date of legal fixity that is some time after the date of disability. However, denying second-injury fund relief to a self-insured employer during the period between disability and legal fixity is prejudicial to the employer who is entitled to the relief.	BIIA D&O 97 7648
7/99	Consultant Robert Shaffer & Associates conducted breakthrough strategy workshops. Teams were to be established over the summer that would develop measurable performance objectives that are achievable in 6 to 8 weeks. The intent was to improve time loss and customer service performance. Eighteen teams developed breakthrough strategies in Phase One. Examples of goals: reduce number of inactive time-loss claims by 20 percent; reduce number of provisional/not allowed claims over 30 days by 75 percent; complete 80 percent of voc closure able-to-work reports within 10 days; reduce claims eligible for pension referrals; close 20 percent of pending medical-only and inactive time-loss claims. Additional teams and goals were	Jody Moran memo 7/28/99 and related documents

Date	Events	Source
	established in Phase Two in May 2000.	
8/99	1485 DART claims reviewed, 443 claims closed. Since beginning of 1999 open time-loss claims 10+ years old decreased 2.7 percent while those 1 to 2 years old increased 1.2 percent.	Robert Dziedzic memo 5/19/99 and related documents
11/1/99	181 DART pension referrals completed.	PA Monthly reports
12/1/99	DART winding down.	PA Monthly reports
12/20/99	Time-Loss 2000 announced with the goal to reduce time-loss duration 10 percent by 7/00 in order to meet the legislative requirement of 5 percent reduction from baseline. Activities were to include approving overtime, speed up IME processing, streamline voc rehab closures, establish five-person team (TART) to tackle difficult claims, and relieve claims staff of hearing loss claims. In addition to special teams and projects, the claims units undertook initiatives, e.g. Horse Race, Down Hill Slope, Tommy Timeloss. Options for reducing time loss included: 1) Terminate time loss by RTW, voc rehab determination of able to work, medical release, or a variety of "inappropriate" measures driven by pressured atmosphere (e.g. stop payment because there is no objective medical evidence or because paperwork is not complete) and 2) Claim closure with PPD, without PPD, or with pension.	• Jody Moran memo, 12/20/99
1/1/00	Overtime for CMs is increasing pension referrals.	PA Monthly reports
1/26/00	Responsibility for issuing ministerial orders required by the BIIA is given to the claim consultants. "Assumption of this task supports the Time-Loss Duration improvement efforts." The responsibility was returned to claims administration in May, 2002.	• Craig Lowe memo, 1/26/2000 • Jody Moran memo, 4/26/02
2/1/00	Pension referrals continue to increase with CM overtime.	PA Monthly reports
2/8/00	TART (Targeted Area Resource Team) was established. TART was to concentrate on "vacated claim loads." "Each claim will be reviewed. If it can be closed, we will close it. If it cannot be closed, we will take whatever action needs to be taken to get the claim moving."	Debbie Hadley memo of 2/8/2000
3/1/00	Record number of pension referrals. CM overtime continues. PA overtime has reduced pension backlog to 2 months. Prior to 1998 about 40 to 50 percent of claims were referred back to claims. During the time-loss duration initiative this percentage went way down. PAs were told, "don't delay claim resolution." If the worker was otherwise eligible for pension, PAs were to take actions to clean up the claim themselves and move to pension rather than defer and return the claim to the CM. PAs started negotiating with attorneys and awarding pensions with negotiated resolution instead of deferring back to the CM. Examples: files with period of back time-loss contested but not paid or denied; claims with contention of new condition or	• PA Monthly reports

Date	Events	Source
	aggravation that had neither been accepted or denied; old medical information that needed updating. Speed up meant PAs were not looking at every piece of paper in the file and were doing less detailed written file reviews.	
3/17/00	TART six-week progress report. 2,309 claims reviewed, 361 closed, 54 referred for pension. "Because we are working for production, reduction and claim closures, most claims are receiving a cursory review, some action taken to get it moving…Overall, we are not doing full file reviews, dotting all the I's and crossing all the t's…"	Debbie Hadley memo, 3/17/2000
5/00	Personnel approves change in minimum qualifications for Pension Adjudicators to include one year as a WCA4.	PA Monthly report
6/1/00	Seven QA staff became temporary WCA5s to make pension reviews and determinations (completed 38 reviews by 11/00). QA staff were assigned a PA "buddy" for training and as mentors.	PA Monthly reports
11/1/00 12/00	1,783 pension referrals received for year to date, compared with 1,158 for previous year. PAs receive Governor's award for reducing the turnaround time from receipt of a pension referral to the awarding of pension benefits from 11 months to 3.5 months.	PA Monthly reports PA Monthly reports
2001	Cockle v. Dept. of L&I, Washington State Supreme Court. This decision expanded the definition of wages to include a worker's loss of employer-paid healthcare benefits. L&I devoted substantial resources to complying with this decision as well as the Court of Appeals decision in Fred Meyer v. Shearer (2000) that found that wages also included shift-differential pay, vacation, holiday and sick leave hours, and funeral pay.	L&I summaries
2001	The vocational rehabilitation rules were rewritten. Changes in the definition of employability included: 1. "Necessary…to be gainfully employed" became "necessary…to be capable of performing *and obtaining* gainful employment." (see 1994 Leeper decision above) 2. In the list of factors to be considered in assessing employability "physical and mental capabilities due to the industrial injury…" was changed to "physical and mental limitations caused, *at least in part*, by the worker's industrial injury or occupational disease…" 3. "*Preexisting*" physical and mental limitations was added to the factors to be considered The new rules also defined transferable skills as "any combination of learned or demonstrated behavior, education, training, work traits, and work-related skills that can be readily applied by the worker. They are skills that are interchangeable among different jobs and workplaces. Non work-related talents or skills that are both demonstrated and applicable may also be considered." Changes were made in administration of the voc program. For example, contracts to major firms were	• WAC 296-18A (1994 version) • WAC 296-19A (2004 version)

Date	Events	Source
	reduced and those to smaller providers increased. Some people feel that the voc rule changes made the system more open to pension recommendations	
Spring 2001	Creation of OLRS (OnLine Reference System). This online application provided claim staff with electronic versions of reference materials useful in managing claims. Searches were possible by subject matter. Reference materials included the RCWs, Policy Manual, WACs, WCA Manual, Management memos, Provider bulletins, and others.	
3/1/01	Need to close 1,000 claims in next 100 days in addition to business as usual in order to meet the time loss duration goal.	PA Monthly reports
6/30/01	The Time-loss Duration initiative was completed.	
8/14/01	In Re: Frederic Cuendet, BIIA D&O 99 21825. This Board decision held that a self-insured employer is entitled to reimbursement from the second-injury fund for time-loss benefits paid during a period following the effective date of a pension. Recovery or offset for any overpayment to the injured worker during that time period is the responsibility of L&I.	BIIA D&O 99 21825
2001-2002	The first proposal for Centers for Occupational Health and Education (COHE) was made. Relations between L&I and medical community were at an all-time low, having deteriorated through the 1990s. The COHE proposal was rejected by Washington State Medical Association.	
2001-2003	Boeing layoffs, reduction of 17,000.	Boeing interview
4/03	One time “special offer” extended to Claims Units to submit 10 claims each for pension review without completing a formal pension referral request.	PA Monthly report
4/1/04	The Early Return To Work program was launched.	

Date	Events	Source
4/14/04	Jody Moran gave a comprehensive presentation to an L&I Time-Loss Duration Symposium. She reported that the time-loss duration initiative began in 1997 when 59 FTEs were moved to claims management. Intensity increased in 1998 when the legislature funded 24 more positions, contingent on reaching time-loss duration reduction goals. Initially little work was done to reach the time-loss goals (e.g. DART did not last long) because other high priority events "diverted" attention. These diversions included: major change in personnel system for hiring and training claims staff, labor/management agreement for retraining, need to set up new units with major physical reconstruction to accommodate new staff, resources needed to respond to Cockle decision, "backlash" from BIIA, high vacancy rates. More focused planning began in 2000, including an actuarial target for reducing time-loss claims, pension identification, voc closures, addressing returned IMEs, moving hearing loss claims away from claim managers, special teams in each service area, and weekly meetings with executive management. The activity was described as a "frenzy." Each service area met the actuarial goals but time-loss duration did not decrease. Jody Moran suggested reasons for failure: the above diversions plus high unemployment rates, increased frequency and duration of occupational disease claims, increase complexity of claims (evidenced by increased percent of PPD awards), and "in our zeal to reach the goal" there were many appeals to the BIIA "which were not defendable." "The department hired consultants and many breakthrough strategies were implemented…" Jody Moran described these breakthrough teams, intended to contribute to the time-loss reduction effort, as unhelpful diversions. Others involved with these activities assess them more positively.	Jody Moran PowerPoint slides
2005	Vocational Improvement Initiative, focusing on changes in 2001 legislation.	
2005	Pension Adjudicators stop accepting referrals directly from attorneys.	
2004-2005	Worker Compensation Adjudicator apprenticeship program started.	
1/05	PA for CRI (Chemically Related Illness) Unit is brought under the PA Section bringing total number of PA staff to eight for state fund.	PA Monthly report
4/05	Transition from WISE imaging system to LUCI (Look Up Claim Images) imaging system. LUCI is a web-based system, adding functionality and expanding access to external customers.	
6/28/05	L&I Pension Adjudicators reviewed a random sample of 100 pensions awarded in 1995 and another 100 from 2003. There was an increase in the percent of pensions to injured workers with language barriers (6% to 18%), opiate drug use (26% to 34%) and psychiatric issues (35% to 64%). The percent of pensions allowed after BIIA review decreased from 19 percent to 13 percent.	L&I PowerPoint presentation for GMAP (Government Management, Accountability and Performance) review, 6/28/05
9/05	Claim Lead Unit Expert (CLUE) position established at WCA4 level with responsibility to assist and mentor WCA3 and WCA2 staff and to be a technical a resource to the claim unit supervisor. Several experienced	

Date	Events	Source
	WCA3s and WCA4s became CLUEs.	
2006	The courts stay CACO. L&I starts to revise performance indicators.	
8/06	Pension Adjudicators began having 2 "focus days" a month to work solely on pension referrals with "protected time" during which there was no expectation to respond to phone calls or emails and staffings were discouraged. The effect was to increase production and decrease backlog.	
8/05	CAC (Claimant Account Center) implemented. CAC allows authorized external customers access to claim information from remote location via a secure internet connection. Authorized users are able to view medical and vocational information, claim log notes, information on authorized and denied conditions and other claim file documents received and imaged into the imaging system after 1994. Users are able to send a secured message to their assigned claim manager providing or asking for information.	Quick Reference Guide for L&I CAC, March 2007
5/07	ORION (ORganized Information ONline) begins. ORION is a web based integrated document management system for the department and selected external users. It extends imaging to other L&I programs including employer services and self-insurance). The desktop has predefined queries that search for and filter information to reduce the number of tools CMs need to manage claims.	WAC Manual, Chapter 1

Note: Interviews with the following individuals provided important information and insights for this timeline:
Carrie Boyd
Joe Dear
Sandy Dziedzic
Ron Gray
Gary Moore
Roy Plaeger-Brockway
Sandra Torstenson
R Wilson

SOURCE: Department of Labor and Industries.

Appendix 2.4 Active and Open Claims

Some analysts believe that Tables 2.12 and 2.13 should be shown in terms not of active claims but in terms of open claims. We believe that an argument can be made for each so we replicate below Tables 2.12 and 2.13 that appear in the text of the chapter in terms of active claims.

An "Open" claim is one that has not been rejected or closed. A claim that has been rejected and is being protested is not open nor is a claim where a re-opening application is pending. An "Open-Active" time-loss claim is an open claim which has been paid time-loss for a period of disability within 60 days prior to the date of the report. About one-half of Open time-loss claims are Open-Active claims though this fraction is not absolutely stable. Though this definition is used by the Data Warehouse, the actuaries rely on a somewhat different definition of "active." They look at whether a claim was active during a specific accident quarter, that is, did the claim receive a time-loss payment during that quarter, regardless of the eligibility period that was being covered for the payment or the claim's open/closed status at the end of the quarter, (e.g. a claim paid a year's worth of back time loss after an appeal for a period of five years in the past would still be considered active during the quarter the payment was made)

3 Jurisdictional Comparisons

This chapter complements chapter 2, "Program Assessment" which describes the problem (upsurge in TPD awards) and potential causes of that problem in some detail. We do not repeat the descriptions or statistics cited there. Instead, we take a comparative perspective which will enable us to assess the performance of the Washington workers' compensation system relative to its peers. We will begin with a description of various methods of compensating permanent disability, as exemplified in the workers' compensation systems of the U.S.

This chapter will put the compensation of total permanent disability claims in the State of Washington into perspective in two different ways.[86] First, we will use data published by the U.S. Department of Labor (USDOL) and the National Council of Compensation Insurance (NCCI) to provide the perspective of other U.S. jurisdictions. We will look at benefits and system performance in terms of incidence of permanent disability awards. Second, we will do a one-on-one performance comparison with the Canadian province of British Columbia; the jurisdiction which we think represents the closest match to Washington.

TOTAL PERMANENT DISABILITY BENEFITS

The workers' compensation systems for work injury in the U.S. are based in the states and as a result there is considerable variety in the provisions of such programs. There is some variation in the rate at which lost earnings get replaced; most frequently two-thirds (or 60 percent, 70 percent or 75 percent) of gross earnings before injury, but also eighty (or 75) percent of spendable (after tax) earnings. There is much more variation in the maximums and minimums that are applied to limit the range of these wage replacement formulas. There is also wide variation in the period for which such benefits will be paid, either because of a limited term or because of an age limitation or offset for other benefits that may be received by the injured worker.

The highest weekly maximums are found in Iowa ($1,173), New Hampshire ($1,124), Illinois ($1,078), District of Columbia ($1,022), and Connecticut ($1,005). The lowest weekly maximums are in Mississippi ($351), Arizona ($374), New York ($400), Georgia ($450), and Louisiana ($454). Washington is generally in the upper part of the distribution of benefit

[86] Terminology is also specific to jurisdiction. Most states (and the NCCI) refer to permanent total disability (PTD). But we will follow Washington's practice of referring to such claims as total permanent disability (TPD).

generosity, particularly in relation to its neighbors. Washington's maximum benefit in 2006 was $932 per week, followed by California at $840, Oregon at $713, Montana at $520, Utah at $501, and Idaho at $489. Maximum benefits reflect the wage structure of a state as well as the benefit formula, so the magnitude of these discrepancies would be reduced if they were expressed relative to the average wage. However, the absolute differences are large.

Compensating for Permanent Partial Disability in U.S. Workers' Compensation Systems[87]

Those experienced in workers' compensation issues speak of workers' compensation "systems." This seems entirely appropriate to us as the many aspects of workers' compensation programs are directly or indirectly linked to each other. Recognizing that many linkages exist means that some limits must be placed on describing systems here. In this section of the report our focus is on how Washington compares to other jurisdictions in its treatment of total permanent disability claims. But to do that we think that it is necessary to understand how states compensate for permanent partial disabilities (PPDs) as well. We do this in part because we believe that the method used to compensate for PPDs in Washington is closely connected to the outcomes of TPD claims.

Scheduled or Specific Benefits

Although great variation exists in the precise method used, almost all jurisdictions in the U.S. and elsewhere provide explicitly that benefits are to be paid to workers who sustain occupational injuries or illnesses that result in permanent but partially disabling impairments. Most jurisdictions in the U.S. differentiate between injuries or illnesses that result in impairments to certain specified body parts and those that do not.[88] At a minimum, these body parts involve the upper and the lower extremities and frequently include the eyes as well. Most commonly these are referred to as scheduled or specified losses. Forty-three jurisdictions including Washington use such schedules and most of these are drawn directly from the jurisdiction's workers' compensation statute.[89] In 33 of them the benefit that the worker is eligible to receive depends in part on the employee's average weekly (or monthly) wage.

[87] Much of the following discussion is adapted from Barth and Niss (1999) by permission of the Workers Compensation Research Institute, Cambridge Massachusetts. While some of the data drawn from that report may have changed since they were gathered, in large part they remain accurate today.

[88] By jurisdictions in the U.S. we are referring to the 50 states and the District of Columbia.

[89] For Washington, see R.C.W. 51.08.150.

In 10 of the states, including Washington, the benefit paid is not a function of the injured worker's pre-injury earnings, and a high-paid or low-paid worker would receive the same amount of compensation if they each sustain the same degree of impairment to the same body part. For the jurisdictions with scheduled conditions, differences exist in how benefits are determined when they involve certain types of body losses and for partial losses of specific body parts. Some jurisdictions differentiate in how they compensate between losses where there has been an amputation, while others do not distinguish between the loss of a body part and the "loss of use" of a body part.

In 34 of the jurisdictions, the partial loss (or loss of use) of a specific body part is compensated solely on the basis of the degree of impairment—the physiological loss as evaluated by a health care provider. These jurisdictions simply measure the amount of the body part lost and apply that percentage to the compensation value of the entire body part. For example, such a state would set the benefit for the loss of one-quarter of a hand at precisely one-quarter of the benefit specified for the loss of an entire hand (with distinction between dominant or lesser hand, possibly).

Unscheduled Benefits

Although a small number of states schedule almost all permanent partial disabilities, most states do not schedule injuries or illnesses that affect the spine or internal organs of the body. We can classify these states into one of four methods used to compensate for unscheduled or general injuries and illnesses.

Impairment only

Nineteen jurisdictions, including Washington, pay PPD benefits simply on the basis of the degree of impairment resulting from the injury or illness. Thus, once the medical rating has been determined, the size of the compensation is essentially also determined. Two of these states that use this approach for unscheduled impairments will allow additional benefits to be paid after the PPD benefits have been fully paid if the worker demonstrates some continuing disability.[90] And 2 of the 19 states provide for benefits to be paid strictly based on impairment but will adjust the benefit amount taking account of the worker's age at the time of the injury.

[90] Texas and Connecticut allow for such supplemental benefits to be paid if certain specified circumstances exist.

Loss of wage earning capacity

Thirteen jurisdictions in the U.S. pay PPD benefits based on the loss of wage earning capacity (or some parallel phrase) that the worker is believed to have sustained as a result of the occupational injury or illness. Essentially, the determination of the amount of compensation is based on the projected or forecasted effect that the impairment will have on the worker's ability to earn income. Factors that are or can be considered in determining this (often specified as such in the statute) include the degree of impairment, the worker's age, the level of educational attainment, past training and the ability to benefit from vocational rehabilitation, and language skills. Unlike the strict impairment determination of the PPD rating in Washington, many of these factors are the very ones that are considered in the assessment of a TPD or pension claim in Washington. In PPD cases in other states, since such forecasts can be highly subjective, there is lots of room for the parties to contend with each other over the degree of disability, frequently resulting in compromise and release settlement outcomes.

Wage loss

Ten states use this approach where the worker has suffered an unscheduled injury or illness. Where the loss is unscheduled, temporary benefits can continue for a considerable period of time so long as the worker has not returned to employment. If the worker has returned to work but at some lower earnings level, the difference between the pre-injury and the post-injury wage levels can be the basis for continuing periodic compensation. And given the uncertainty about how long such time-loss benefits may have to be paid, the insurer in a wage-loss state has a strong incentive to close the claim quickly, frequently employing a compromise and release settlement to do so. In Washington, temporary disability benefits can continue for extended periods of time; but unlike most wage-loss jurisdictions, Washington's statute does not place a time limit on such wage (earnings) losses before benefits are terminated, nor are compromise and release agreements allowed.

Bifurcation

Nine states use an approach that we label bifurcated. At the time the worker can be rated for disability, usually occurring when maximum medical improvement has been established, the worker is rated in one of two ways. If the worker has returned to employment with earnings at least close to the pre-injury earning level, then the employee will be rated simply on the basis of impairment. However, if the employee has not returned to work or is currently earning a wage

that is below (by some percentage) the pre-injury wage level, the worker can be rated based on the assessed loss of earning capacity. This estimate usually begins with the degree of impairment and then adds other factors to consider that will tend to increase the assessment of the degree of disability. For the employer or the insurer, in theory this should provide a financial incentive to reemploy the disabled worker, thereby incurring a lower cost of compensation.

Direct Linkages between Permanent Partial Disability and Total Permanent Disability

There are a number of ways that total permanent and permanent partial benefits are linked together. Perhaps most significantly for the State of Washington, where permanent partial benefits are paid exclusively for the degree of impairment that the worker has sustained, there can be obvious inequities. The classic case is one where the piano player loses only a tip of her finger and has suffered only a relatively minor impairment, but there is a resulting disability that is obviously far greater than the measured impairment. The disparity between determining the degree of disability solely based on impairment and the actual disability sustained can lead the pianist to seek total permanent disability benefits, if possible, as her remedy.

The difference in the cost to an insurer between the size of the impairment benefit entitlement and a possible total permanent disability benefit will almost always lead to a settlement between the parties where the benefit is greater than what the impairment alone is supposed to provide, but less than the possible cost of a total permanent disability award. Typically, in most circumstances such as this one, a compromise and release agreement will close the claim. Only a small number of jurisdictions, including Washington, have legislated provisions barring or limiting the use of such agreements.

Another significant form of linkage exists in states with compromise and release agreements, even where total permanent disability awards are not as commonly found as is customary in most jurisdictions. If there is some possibility that a claim could be awarded a total permanent disability benefit, the settlement value for a permanent partial disability benefit may be increased.

An interesting example of this was found in Florida until the statute was recently amended. Although Florida paid permanent partial disability benefits strictly based on the degree of impairment, a worker could receive additional benefits based on disability after the impairment income benefits had expired. A necessary condition in order to obtain such

additional benefits was that the impairment was a serious one, specifically that it was rated at least 20 percent or higher.

Some workers' attorneys as well as certain judges of compensation treated the 20 percent threshold as the line above which a total permanent award was likely justified. For several reasons Florida was a state with a relatively high rate of awards for total permanent disability claims. Oddly then, what had been a measure to limit supplementary impairment benefits to those with more serious degrees of impairment became an important threshold for the possible awarding of total permanent disability benefits.

Since impairment ratings were often subject to a "dueling docs syndrome" and disputes over these ratings could lead to extended litigation, the disputes became more important than one might otherwise expect as the possibility was assessed of a rating above or below the all-important 20-percent level. The result of this was that impairment ratings that were thought to be near that threshold resulted in compromise and release settlements (known as "washouts" in Florida) that were considerably higher than the possible ultimate impairment rating alone might justify.

Compensating for Total Permanent Disability in the U.S.

Statutory total permanent disability

All jurisdictions in the U.S**.** provide compensation for total permanent disabilities although a few do not use that terminology.[91] Thirty-nine states, including Washington identify specific, catastrophic injuries in their statutes or rules that are presumed to constitute total permanent disability. Table 3.1 shows which states use such specific conditions as a basis for awarding total permanent disability benefits.

[91] Texas, for example, provides "lifetime income benefits."

Table 3.1 TPD Awards

Jurisdiction	Medical impairments are specified as TPD in statute or rule	TPD benefits can be awarded for injuries not specified in statute	Maximum Duration of TPD Awards: Lifetime	Maximum Duration of TPD Awards: Retirement age	Maximum Duration of TPD Awards: Other
Alabama		X	X		
Alaska	X	X	X		
Arizona	X	X	X		
Arkansas	X		X		
California	X	X	X		
Colorado	X	X	X		Or the period of disability
Connecticut	X		X		
Delaware	X		X		
District of Columbia	X	X	X		Or the period of disability
Florida	X	X	X		
Georgia	X		X		
Hawaii	X	X	X		Subject to review every 2 years
Idaho	X	X	X		
Illinois	X	X	X		
Indiana	X	X			500 weeks (including any TTD previously paid)
Iowa	X	X	X		
Kansas	X	X			To a maximum of $125,000
Kentucky	X	X	X		Until the worker is eligible for social security old-age benefits
Louisiana		X			Period of disability
Maine	X				800 weeks from date of injury
Maryland	X		X		
Massachusetts		X			Period of disability
Michigan	X		X		
Minnesota	X	X		X	
Mississippi		X			450 weeks from date of injury
Missouri		X	X		
Montana		X		X	
Nebraska	X	X	X		Or the period of disability
Nevada	X	X	X		
New Hampshire		X	X		
New Jersey	X	X			Subject to periodic reconsideration and extension
New Mexico	X		X		
New York	X	X			Period of disability
North Carolina	X	X	X		
North Dakota		X	X	X	Lifetime if age 65 was reached before August 1, 1995; retirement age if reached after August 1, 1995
Ohio	X	X	X		Return to work
Oklahoma	X	X	X		
Oregon		X	X		Offsets can reduce award
Pennsylvania	Not applicable				
Rhode Island	X		X		
South Carolina	X	X			To a maximum of 500 weeks; lifetime for paraplegic, quadriplegic, and physical brain damage

Jurisdiction	Medical impairments are specified as TPD in statute or rule	TPD benefits can be awarded for injuries not specified in statute	Maximum Duration of TPD Awards: Lifetime	Maximum Duration of TPD Awards: Retirement age	Maximum Duration of TPD Awards: Other
South Dakota	X		X		
Tennessee		X		X	For those injured at age 60 or older, 260 weeks of benefits
Texas	X		X		
Utah	X	X	X		Or the worker's return to "gainful" employment
Vermont	X	X	X		
Virginia	X		X		
Washington	X	X	X		
West Virginia	X	X	X		
Wisconsin	X	X	X		
Wyoming		X			80 months, and then the worker may apply for extended benefits

[a] In South Carolina, the statute and rule mention only "disability." In practice, impairment ratings are used as a starting point from which disability is determined.

[b] Texas does not have a separate explicit TPD benefit category, but pays lifetime income benefits (LIBs) for specified multiple losses, including limbs, eyes, a spinal injury that results in the loss of use of limbs or hands, or a skull injury that results in incurable insanity or imbecility.

SOURCE: Barth and Niss, 1999, p. 61.

The medical conditions listed in Washington's statute are very similar to those found in most of the other 38 states.[92] In some instances these are irrebuttable presumptions. Even where the presumption is rebuttable these catastrophic injuries are still frequently found to be total permanent disability. As an example of a law with a list of impairments and a presumption that can be rebutted, Florida's law specifies certain injuries that are presumed to be permanent and total disability unless the employer or insurer establishes that the employee is physically capable of engaging in at least sedentary employment within a 50-mile radius of the employee's residence.[93]

Of the 39 states that list specific medical conditions, 11 limit total permanent disabilities exclusively to those enumerated in the statute. (See Table 3.1) As a result, in some of these states injuries or illnesses that are very obviously disabling but are not listed in the statute will result in only permanent partial disability awards.[94] Another measure separating some of the jurisdictions

[92] Washington lists the "loss of both legs, or arms, or one leg and one arm, total loss of eyesight, paralysis …" (RCW 51.08.160).

[93] Fla. Stat. 440.15 (1) (b).

[94] Of course, some of these states may permit temporary total or wage-loss benefits to be paid for extended periods of time.

that list certain impairments as permanently and totally disabling is that some require that the loss of an extremity involve the actual loss and not simply the loss of use of the body part.

Non-statutory total permanent disability

An essential difference among those states that allow total permanent disability even for injuries that are not listed in their statute is the degree to which factors other than the extent of impairment can be considered in determining total permanent disability. The "odd-lot doctrine" is often cited in judicial opinions as the basis for awarding total permanent disability benefits, referring to the difficulty that an impairment will create for the reemployment of a worker with limited education, experience, language skills or possibly advanced age. Though most states appear willing to consider factors other than simply impairment, the presence of some severe impairment appears to substantially strengthen a worker's case. Indeed, in some cases an explicit recognition of this is found in the law (see below).

In terms of compensation for total permanent disability, we believe that Washington's approach is almost unique and is likely to contribute to its significant rate of awarding pensions.[95] Only one other state, Nevada, combines certain approaches to provide compensation in the same way for permanent partial and total permanent disability and claim closure that Washington does. Table 3.2 shows what we mean.[96] First, Washington is different from most of the other states in that its workers' compensation program does not allow for lump-sum settlements for indemnity benefits that decisively close claims. We believe that only eight states either do not allow such agreements or they place important limits on their use for indemnity benefits.

[95] All states have certain features which make their workers' compensation laws unique or almost so. The fact that workers directly pay a portion of the costs of the system through a payroll tax is unique. Workers pay one-half of the medical costs and the inflation adjustment costs on indemnity benefits in Washington. This is not found in any other U.S. jurisdiction, although economists will maintain that workers always share in the costs of workers' compensation through indirect wage tradeoffs.

[96] The data in the table are drawn from a study done in 1999. The references to Nevada are drawn from an analysis of that statute and interviews, both undertaken in August 2008. The original table has been modified to include Nevada in the last column along with Washington.

Table 3.2 Arrangements for Permanent Disability Compensation among State Workers' Compensation Systems

Limits on lump-sum settlements for indemnity benefits for permanent disability	Permanent partial disability benefits based solely on impairment (unscheduled injuries)	Total permanent disability benefits paid only for conditions listed in the statute	Total permanent disability benefits paid based on impairments listed in the statute, or on incapacity from performing any work
Delaware	X	X	
Indiana	X		
Nevada	X		X
New Mexico		X	
Tennessee			
Texas	X	X	
Washington	X		X
West Virginia	X		

Notes:

1. Columns 1 and 2 are based on a 1999 publication. Were these state practices evaluated today, some of the entries would need to be changed. States with major legislative changes since then include Nevada, Tennessee, and West Virginia. Some jurisdictions could be added as in the case of California which became an impairment based state (with modifications) in 2004.
2. Texas does not explicitly pay total permanent disability benefits. It does pay Lifetime Income Benefits, but limits those to conditions listed in their statute.
3. Texas pays a supplementary income benefit (SIB) in cases where the impairment benefit has been fully paid, where the impairment is evaluated by the AMA Guides to be 15 percent or greater, and where a lump-sum payment was not taken by the worker for the permanent partial disability.
4. Indiana allows lump-sum settlements in cases where the claim is disputed.

SOURCE: Barth and Niss (WCRI, 1999)

While 19 states, including Washington, pay PPD benefits for unscheduled injuries or illnesses strictly on the basis of the extent of medically determined impairment resulting from the injury or illness, only six of these are states that limit lump-sum settlements as well. Of these six remaining jurisdictions only Washington and Nevada compensate total permanent disability on the basis of impairment (for conditions specified in the statute) or disability. In Washington the worker is totally disabled for the purposes of a pension when the injury or disease permanently incapacitates the worker from obtaining and performing any work at any gainful occupation. As a result, the opportunity to return to work is central to the pension award decision, aside from those conditions listed in the statute, which account for few cases annually.

Thus, among the states where permanent partial disability compensation is based on the degree of impairment, and where the use of compromise and release agreements is limited by law or practice, only Washington and Nevada use other criteria besides the degree of impairment to evaluate and grant total permanent disability pensions.[97] As a result, where a work-related

[97] Interestingly, Washington and Nevada share another feature, that is, that an injured worker can simply re-open a previously closed claim.

injury causes a severe economic hardship, the law requires that only the impairment be considered in the awarding of permanent partial disability benefits. Yet the impairment benefit may bear very little relationship to the degree of disability. In Washington the absence of compromise and release settlements places the worker and the state fund or the self-insured employer in a position where the only possible source of additional compensation from workers' compensation is a TPD pension.[98]

Attempts to restrict TPD

A number of jurisdictions have perceived that their total permanent disability programs require some explicit statutory description of when such benefits are to be awarded. In order to keep the number of such awards in check they may limit them to cases where impairment is severe. Effectively, this gives significant weight to the impairment component of a claim for total permanent disability. Without such a measure, the future employability of the injured worker could be virtually the sole consideration in determining a pension where the worker sustains any degree of impairment. This serves as a minimum threshold for workers to meet before they can be considered for the granting of these benefits. There seems to have been some increased use of this or other measures in recent years by a number of states. Nowhere is this better illustrated than in West Virginia, a state whose exclusive state fund built up huge unfunded liabilities that finally led to privatization of the workers' compensation system by the Governor and legislature. Under its new approach total permanent disability is given special attention. In line with several other jurisdictions noted above, West Virginia raised the permanent partial disability rating

[98] This raises the issue of Nevada's experience with total permanent disability, the other state that combines these three characteristics. Using the most recently available NCCI data, Nevada had 10 total permanent disability cases per 100,000 workers at Third Report for policy year 2002–2003, resulting in only 5 states out of 45 reporting a higher rate. For policy year 2001–02, Nevada also had a rate of 10 total permanent disability cases out of 100,000 workers at Third Report, with only 7 states of 45 reporting higher rates. It appears that Nevada can be fairly characterized as a state with a high incidence of total permanent disability as well. However, we are aware of at least two things that clearly differentiate Nevada's workers' compensation system from Washington. First, the Nevada economy and labor markets have been very strong in recent years although softening has occurred there in 2007–08. From 1998 to 2007 the average unemployment rate in the state was 4.7 percent compared with an average of 5.8 percent for Washington from 1998 to 2006 (see Table 2.16 for Washington's rates.) During these years, many employers in Nevada were eager to employ and retain labor in the fast growing economy. Secondly, total permanent disability claims are not as attractive to attorneys in Nevada as they are in many other jurisdictions, including Washington. Nevada's workers receive their pension benefits periodically and Nevada law does not enable attorneys to receive their fees through the insurer's withholding of a share of the worker's benefit. As a result the attorney will receive payment when the worker pays, and there is no guarantee that the attorney will continue to receive payments regularly on a consistent basis. The attorney is unable to place a lien on the worker's benefit. This is in contrast to Washington where the attorney receives the pension payment from L&I and in turn remits the workers share.

threshold from 40 percent to 50 percent as the minimum requirement for awarding total permanent disability benefits.[99]

A novel approach to making certain that the finding of total permanent disability requires a high level of impairment is found Minnesota's statute:[100]

> For purposes of subdivision 4, "total permanent disability" means only:
>
> (1) the total and permanent loss of the sight of both eyes, the loss of both arms at the shoulder, the loss of both legs so close to the hips that no effective artificial members can be used, complete and permanent paralysis, total and permanent loss of mental faculties; or
>
> (2) any other injury which totally and permanently incapacitates the employee from working at an occupation which brings the employee an income, provided that the employee must also meet the criteria of one of the following clauses:
>
> (a) the employee has at least a 17 percent permanent partial disability rating of the whole body;
>
> (b) the employee has a permanent partial disability rating of the whole body of at least 15 percent and the employee is at least 50 years old at the time of injury; or
>
> (c) the employee has a permanent partial disability rating of the whole body of at least 13 percent and the employee is at least 55 years old at the time of the injury, and has not completed grade 12 or obtained a GED certificate.
>
> For purposes of this clause, "totally and permanently incapacitated" means that the employee's physical disability in combination with any one of clause (a), (b), or (c) causes the employee to be unable to secure anything more than sporadic employment resulting in an insubstantial income. Other factors not specified in clause (a), (b), or (c), including the employee's age, education, training and experience, may only be considered in determining whether an employee is totally and permanently incapacitated after the employee meets the threshold criteria of clause (a), (b), or (c). The employee's age, level of physical disability or education may not be considered to the extent the factor is inconsistent with the disability, age, and education factors specified in clause (a), (b), or (c).

Minnesota's approach builds into its scheme very explicit impairment thresholds, and combines this with the factor that most states implicitly include in their decisions, the age of the worker. Notice that the precision set out here for the degree of impairment still leaves considerable room for subjectivity, once the minimum standards of (a), (b), or (c) of subdivision 5 are met.

---

[99] Senate Bill 2013 (2003).

[100] Minn. Stat.171.101, Subdivision. 5.

A variant of this can be found in New Jersey's law. Aside from the list of conditions that are explicitly set out to be total permanent disability, the statute requires that:[101]

> Factors other than physical and neuropsychiatric impairments may be considered in the determination of permanent total disability, where such physical and neuropsychiatric impairments constitute at least 75% or higher of total disability.

Only when the 75 percent threshold is met, a rating that suggests that a very severe impairment exists, will factors such as the worker's age, education, and training be allowed to be considered in determining whether or not the claim for total permanent disability is allowed.[102]

California has adopted a somewhat similar approach.[103] The law provides that:[104]

> Permanent total disability means a permanent disability with a rating of 100 percent permanent disability only.

However, the law also allows that for claims with a disability rating over 70 percent, once the maximum number of weeks of permanent partial disability benefits terminate, the worker becomes eligible for a lifetime pension.[105] With the 2004 legislation effective January 1, 2005, the disability rating will be heavily determined by an impairment rating using the AMA Guides to the Evaluation of Permanent Impairment.[106]

Another variant of these approaches is found in North Dakota. Aside from a list of impairments that are presumed to be sufficient to establish total permanent disability, the law provides that a worker must have a whole-body impairment rating of at least 25 percent in order to be eligible to receive a total permanent disability award.[107] As with the other jurisdictions listed above, this threshold level of impairment is set as a minimum condition for receiving total permanent disability benefits. Undoubtedly, it limits those workers with impairment levels below the threshold to permanent partial disability benefits.

Pennsylvania's statute sets a threshold value such that a 50 percent permanent impairment rating—according to the latest version of the AMA Guides to the Evaluation of

---

[101] N.J. Stat 34:15-36.

[102] Darmetko v. Electron Technology, 243 N.J. Super.536. (Appeal dismissed)

[103] The California statute also lists four conditions that are conclusively presumed to be total permanent disability.

[104] Cal. Labor Code 4452.5.

[105] Cal. Labor Code 4659.

[106] Cal. SB 899 (2004).

[107] ND Cent. Code 65-01-02 (25) (h).

Permanent Disability—creates a presumption that the worker is permanently and totally disabled.[108] However, the presumption is rebuttable and a recent court decision held that the employer was able to challenge the presumption on the grounds that the worker had "earning power" and that employment was generally available for him.[109]

Further tightening standards in West Virginia law states that the comparability of pre-injury to post-disability income is not to be a factor in determining total permanent disability. The availability of employment within a 75-mile radius of the worker's residence can be considered, although if the distance traveled to work prior to the injury exceeded 75 miles then that distance was to be used. West Virginia also adopted tighter standards for monitoring post-award activities and requiring more frequent medical evaluations.

The Florida provision for non-statutory total permanent claims, parallels the provisions for statutory total permanent disability noted above, and it requires that the worker prove that he/she is unable to engage in even sedentary employment due to the physical limitation, within a 50-mile radius of the employees' residence. The specification of a geographic range of work is similar to the West Virginia approach.

Another jurisdiction with a past record of a significant number of total permanent disability awards is Louisiana. That law has been modified to tighten eligibility standards although many in the employer community continue to express dissatisfaction with the current system. The existing statute provides that clear and convincing evidence, unaided by any presumption of disability is required for such an award, and that the employee is physically unable to engage in any employment or self-employment:[110]

> …including, but not limited to any and all odd-lot employment, sheltered employment or employment while working in any pain (sic) notwithstanding the location or availability of any such employment or self-employment.

Montana defines total permanent disability as a condition resulting from an injury after maximum medical healing has occurred and:

> …in which a worker does not have a reasonable prospect of physically performing regular employment. Regular employment means work on a recurring basis performed for remuneration in a trade, business, profession, or other occupation in this state. Lack of

[108] (77 Pa. Stat. Ann. § 511.2)
[109] Sign Innovation v. Workers' Compensation Appeals Board, 937 A.2d 623; 2007.
[110] LA R.S. 23:1221 (2) (c).

> immediate job openings is not a factor to be considered in determining if a worker is permanently totally disabled.[111]

Montana's code provides that "The determination of total permanent disability must be supported by a preponderance of objective medical findings."[112] In one case the worker's severe pain that resulted from the occupational injury was sufficient to prove a total permanent disability.[113] The definition of total permanent disability contains both medical and non-medical components; the non-medical component of the definition requires that the claimant establish that there is no reasonable prospect for employment in the labor market.[114] Even if the statutes of states do not require that certain levels of the "medical component" are met, the courts may expect that they are. In a Wyoming decision the court found:

> In order to come within "odd-lot" doctrine, it is the burden of the employee to establish not only that he is no longer capable of working at the job in which he was employed at the time of his injury, but **that the degree of obvious physical impairment**, coupled with other facts, such as mental capacity, education, training, or age, must prima facie place him in that category. The burden of proof then shifts to the employer to establish that light work of a special nature which the employee could perform but which is not generally available was in fact available to him.[115]

Oregon's definition of total permanent disability is not a particularly unusual one:[116]

> …the loss, including preexisting disability, of use or function of any portion of the body which permanently incapacitates the worker from regularly performing work at a gainful and suitable occupation.

Suitable occupation is defined as well, meaning that the worker has the ability and the training or experience to perform, or can perform the work after rehabilitation. One of the challenges for applicants, however, is the need to meet another provision of the law that applies to all forms of compensation benefits. It requires that no injury or disease is compensable as a consequence of a compensable injury unless the compensable injury is the major contributing cause of the consequential condition.[117] The worker has the burden of proving total disability—

---

[111] Mont. Code Anno. 39-71-116 (25).
[112] Mont. Code Anno. 39-71-702.
[113] Killroy v. Reliance Nat'l Indemnity, 923 P.2d 531 (1996).
[114] Larson v. Cigna Ins. Co., 915 P.2d 863 (1996).
[115] (Emphasis added) Anaya v. Holly Sugar Corp., 928 P.2d 473, 1996 Wyo.
[116] ORS 656.206 (1) (d).
[117] ORS 656.005 (7) (a) (A).

not unusual—and must also establish that he/she is willing to seek "gainful employment" and that they have made "reasonable efforts" to obtain such employment.[118]

For some of the jurisdictions that will grant total permanent disability for conditions that are not listed in a statute or regulation, the standards can be very explicit. An extreme example of this can be found in Ohio where the statute is relatively simple and straight forward but where the regulations are extraordinarily detailed.[119] The statute sets out that the test for this benefit requires either that:[120]

> (1) The claimant has lost, or lost use of both hands or both arms, or both feet or both legs, or both eyes, or of any two thereof …
>
> or
>
> (2) The impairment resulting from the employee's injury or occupational disease prevents the employee from engaging in sustained remunerative employment utilizing the employment skills that the employee has or may reasonably be expected to develop.

Rather than leave a great deal for the courts to decide, the regulations associated with this section of the statute are filled with details. The following are examples of the explicit guidance that is set out in the regulations to be used in determining whether a claim is to be designated a total permanent disability.[121]

> (a) "Sedentary work" means exerting up to ten pounds of force occasionally: (activity or condition exists up to one-third of the time) and/or a negligible amount of force frequently (frequently: activity or condition exists from one-third to two-thirds of the time) to lift, carry, push, pull, or otherwise move objects. Sedentary work involves sitting most of the time, but may involve walking or standing for brief periods of time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.
>
> (iii) "Limited education" means seventh grade level through eleventh grade level. Limited education means ability in reasoning, arithmetic and language skills but not enough to allow an injured worker with these educational qualifications to do most of the more complex job duties needed in semi-skilled or skilled jobs. Generally, seventh grade through eleventh grade formal education is limited education.

Several methods are used to limit the costs incurred in these claims. A number of jurisdictions place limits on the period of time for which TPD benefits are to be paid or on the

---

[118] ORS 656.206 (3).
[119] Ohio, like Washington, is an exclusive fund state.
[120] Ohio Rev. Code 4123.58.
[121] Ohio Administrative Code 4123-3-34.

age of the recipient. As examples, Indiana limits total disability (temporary and permanent disability combined) to 500 weeks, while South Carolina has a 500-week cap on total permanent disability benefits except for claims where the worker is paraplegic, quadriplegic, or the claim is for brain damage. Kansas has a dollar cap on the benefits that are to be paid in total permanent disability cases.

Some jurisdictions are able to hold down the frequency of the total permanent disability awards by making serious impairments disproportionately more valuable as permanent partial claims. As the benefits for serious impairments are increased more substantially, the attractiveness of a total permanent disability award, relatively, declines. One method of doing this is for the statute to provide "tiered" benefits to those with PPD claims. Fourteen states increase the rate at which benefits will be paid as the degree of measured impairment or disability increases.[122] As an example, in Florida the worker is entitled to 2 weeks of benefits for each rated point where the impairment rating is between 1 and 10 percent, but if the rating is between 11 and 15 percent, the worker is entitled to 3 weeks per point above the 10-percent level. Thus, for example, an impairment rating of 14 percent would entitle the worker to receive 32 weeks of benefits ($10 \times 2 + 4 \times 3$).

Several measures have also been used by states that would lead to lower levels of benefits for those found to be permanently and totally disabled. An example of this is where jurisdictions terminate benefits whenever the worker achieves a certain age. Another method that some states use to limit the costs of these claims is to offset benefits for other income that the worker receives. Nineteen states, including Washington, offset compensation payments for old-age benefits paid under the Social Security program. (See Table 3.3) Five states offset total permanent disability benefits for any employer-paid pension benefits that the worker receives.[123] And 14 states, including Washington, use the reverse offset by reducing workers' compensation indemnity benefits to place a cap on the combined benefits from the state program and the Social Security Disability Insurance program.

[122] Typically, this is done by paying more weeks of benefits per point of impairment or disability as the impairment or disability rating increases. Thirteen states are listed in Barth and Niss (Table 3.10) and Florida recently added this approach in its statute.

[123] These are AL, AK, CO, KY and MI.

Compromise and release agreements

The use of compromise and release agreements (C&Rs) in workers' compensation is common across the U.S., though it is not allowed in Washington.[124] In most cases a C&R means that the insurer and the worker agree that for a sum of money paid to the worker, usually provided in a lump sum, no further liability exists for the employer or the insurer as a result of the injury or illness. The use of the C&R is attractive to many insurers as a way to "close the books" on a claim, and establish with certainty the ultimate cost and resolution of the claim. Fully resolving the claim cannot be possible unless the C&R also ends any potential insurer liability for future health care costs. Still, agreements between the insurer and the worker are sometimes used that seal off future liability for the indemnity portion of the claim and leave open, if necessary, future health care costs.

[124] In fact, a lump-sum payment can be made "in case of death or permanent disability" (RCW 51.32.130). However, the maximum amount is limited to $8,500 and such payments do not constitute a compromise and release in the legal sense. Where such a payment is made, the death or total permanent disability claim has already been resolved.

Table 3.3 Jurisdictions that Offset TPD Benefits

Jurisdiction	Social Security old-age benefits	Employer-paid pensions	Reverse offset for SSDI benefits
Alabama		X	
Alaska	X	X	
California[a]			X
Colorado	X	X	X
District of Columbia	X		
Florida			X
Kansas	X		
Kentucky	X	X	
Louisiana[b]	X		X
Massachusetts	X		
Michigan	X	X	
Minnesota[c]	X		X
Montana	X		X
Nevada[d]			X
New Jersey[b]			X
New York	X		X
North Carolina[e]	X		
North Dakota[f]	X		X
Ohio[g]	X		X
Oklahoma			
Oregon[b]	X		X
Rhode Island		X	
South Dakota	X		
Tennessee	X		
Utah	X		
Washington[h]	X		X
Wisconsin			X

[a] In California, the reverse offset applies only to payments from the Subsequent Injuries Fund. Also, the state allows offsets for certain employer-provided benefits, including short-term disability insurance.
[b] In Louisiana, New Jersey, and Oregon, the reverse offset applies only to TPD-benefit cases.
[c] In Minnesota, the reverse offset applies only to TPD-benefits cases and to "certain supplementary workers' compensation payments."
[d] In Nevada, the reverse offset applies only to cases with onset before March 1, 1981, or to cases in which the month of onset is before September 1981.
[e] North Carolina also allows an offset for severance pay.
[f] In North Dakota, the reverse offset applies for TTD or TPD benefits if the injury occurred after January 1, 1980.
[g] In Ohio, the reverse offset applies to combinations of payments that include workers' compensation and the Disabled Workers Relief Fund.
[h] In Washington, the reverse offset applies to both TPD and TTD benefits.
SOURCE: Information on SSDI benefits is from the U.S. Social Security Administration.
SOURCE: Barth and Niss, 1999, p. 67.

Some states seek to protect workers in their rights to compensation by limiting the types of settlements that they will approve. (See Table 3.4) Several jurisdictions do not allow C&R agreements to include a provision that ends an insurer's liability for future medical benefits, or for future vocational rehabilitation benefits. Since future medical treatment is impossible to predict, it is felt that such rights should not be signed away. Of course, these states also may be

protecting themselves from having to deal with covering future health care costs for any injured workers who become indigent after having settled their claims with a lump sum.

Table 3.4 Limitations on Lump-Sum Settlements

	Lump-sum settlements cannot terminate future liability for		
Jurisdiction	Permanent disability indemnity benefits	Medical benefits	Rehabilitation benefits
Arizona			X
Connecticut			X
Delaware	X	X	
Florida			X
Indiana	X	X	
Massachusetts		X	
Montana			X
Nevada	X	X	
New Hampshire		X	
New Mexico	X	X	
Oregon		X	
South Dakota		X	
Tennessee	X	X	
Texas	X	X	
Vermont			X
Washington	X	X	X
West Virginia	X	X	

SOURCE: Barth and Niss, 1999, p. 68.

Since injured workers are generally not experienced in using such agreements, unlike the typical insurer, most states require that the agreement be approved by the state workers' compensation agency, or by a court. Where the employee is represented by an attorney, who is also presumed to be experienced with these agreements, such a review need not occur or where it does it may be only *pro forma*. However, the C&R may fail to end disputes over a claim where the worker sustains a subsequent condition that the worker alleges is a new condition and the insurer argues that it is the same condition that the employee had agreed to settle. Of course, such disputes do not occur in a state like Washington that prohibits compromise and release in the first instance.

Nevertheless, the use of C&R agreements in other states poses a problem for our analysis of TPD claims in Washington. In most states we have no way of knowing whether a C&R

agreement was used in a claim where the worker would have ultimately been found to be permanently and totally disabled. Insurance rate-making organizations generally classify C&Rs as permanent partial disability cases. However, some unknown number of these are undoubtedly claims that would have developed into total permanent disability had they not been settled before a final determination was made. Thus, comparing the incidence of total permanent disability claims in Washington with that in other jurisdictions involves some measurement difficulties. We will turn to that task next.

A COMPARATIVE ANALYSIS OF WASHINGTON AND NCCI STATES

The existence of compromise and release settlements in most states is not the only complicating factor. There are a host of statutory differences among state workers' compensation statutes, not to mention administrative rules, court precedents, and local practice. In fact, it would be safe to say that no two workers' compensation jurisdictions are exactly alike, which makes any generalization hazardous.

Some of the differences that should be noted include coverage differences. The proportion of all employment covered by workers' compensation statutes differs, and this definitely affects the performance numbers. For instance, if farm sector employers are excluded from coverage, the number of injuries and their distribution will be affected since agriculture tends to be an industry of high-injury incidence. The opposite is true of industries with low-accident incidence, like banking or insurance. So the precise nature of workers' compensation coverage will affect the measured performance of the system. According to the National Academy of Social Insurance (NASI), Washington is among the highest states in workers' compensation coverage when compared to unemployment insurance covered employment.[125]

Insurance arrangements also differ across jurisdictions. While Washington is unusual in having an exclusive state fund with allowance for self-insurance, there are many other models. Approximately 20 states have competitive state funds, which means that they compete for employer clients in the workers' compensation insurance market with private insurers. If they also allow self-insurance for the largest employers, such jurisdictions are referred to as "three-way" systems. There are only four states (OH, ND, WA, WY) that currently follow the exclusive state fund model.

[125] See Sengupta, Reno, and Burton, (2007), Table A1.

There is also great variation in the allowance of the self-insurance privilege among systems. In some jurisdictions like Washington, only the most fiscally stable, large employers are allowed to self-insure. In Canadian jurisdiction, self-insurance is frequently restricted to the largest public utilities or government entities, and even they are generally not allowed to self-administer their workers' compensation claims. In other jurisdictions, the rules are less strict. In Michigan, even the smallest employers are eligible for "group self-insurance" if they belong to an industry association that secures access for their members through various financial guarantees and collective responsibilities.

There is a fundamental data problem in workers' compensation as well. The data that are gathered in the states are generally intended for use in rate-making for workers' compensation insurance. Because these are our oldest social programs, they do not have a strong policy-oriented research tradition as many other programs do. Thus, there is no universal and consistent source of data on the state workers' compensation systems. The annual report published by the National Academy of Social Insurance (NASI) captures some basic measures like coverage, benefits, and employer costs across time.[126] The National Council on Compensation Insurance (NCCI) gathers the rate-making data from the states that use private insurance for their workers' compensation programs. They publish an annual Statistical Bulletin which reports data on workers' compensation claims in some detail for 45 states, not including Washington or the other exclusive fund states.[127] And the U.S. Chamber of Commerce publishes an annual volume that summarizes the benefits and law provisions of the states.[128] However, these sources are only of marginal value in comparing workers' compensation system performance. Because they offer the most specific detail, we will use NCCI published data to compare the 45 states with private insurance to the Washington workers' compensation system.

NCCI Data

The NCCI maintains an extensive workers' compensation claim reporting system that calls for specific reports at definite times after the completion of an "accident year." For instance, the First Report is required 6 months after the end of the exposure period. So, adding 6 months to the 12-month insurance term means that First Report covers accidents that occurred from 6 months to 18 months ago. Similarly the Second Report, which comes a year later, covers

[126] Sengupta, Reno, and Burton, 2007, Table A1.
[127] NCCI, 2007.
[128] U.S. Chamber of Commerce, 2007.

accidents that occurred from 18 to 30 months previously; and Third Report gives the results from 30 to 42 months after the injury, and so on. While these reports cover the same original population of claims from a given accident year, their experience may have changed significantly with each intervening 12 months. Changes from report to report are referred to as claim "development," and the aggregate change in anticipated costs from year to year is termed "loss development." These loss development factors reflect many system features, including the litigiousness of the workers' compensation system.

The truth is that there is no guarantee that measures from any two workers' compensation systems that have the same name will actually be completely comparable, even though the NCCI and the independent state rating organizations put considerable effort into ensuring they are as comparable as possible. This "tower of Babel" is one of the motivations behind the series of administrative inventories produced by the Workers Compensation Research Institute over the past 25 years. These volumes provide a detailed introduction and overview to the workers' compensation systems of 22 larger states, including the state of Washington (Pease, 1989 and Telles and Fox, 1996).

In addition, there is the problem of non-comparable policy periods. States use different dates to define an accident year for workers' compensation insurance purposes. This means that when comparing two states in some performance dimension, we can be up to nine months out of sync with the measurement. For example, California, Oregon, and Montana all use the calendar year (January through December) as the accident year, but Louisiana and Mississippi use September through August. Presumably this reflects some historical influence that is no longer obvious. The NCCI reports data for the "policy period" specified by the individual state. Washington uses the state fiscal year (July through June) for data reporting. There are nine other states that use this period. But the point is that there are still differences among the states, even when we are trying to measure the same thing.

Last is the critical issue of claim development. It is vital to allow workers' compensation claims sufficient time to develop if we are to compare apples to something close to apples. The full implications of a work injury are not apparent at one month, or even one year following the accident. For our comparisons between Washington and NCCI states, we have elected to use data from the NCCI Third Report (meaning claims that occurred 30 to 42 months previously) as a

compromise between claim development and reporting currency. If we maximize the time for claim development, we are analyzing older claims that may not be relevant to current practice.

The "countrywide" average incidence of permanent and total disability claims according to the NCCI stabilizes at 7 claims per 100,000 workers by the Third Report, and does not rise beyond that level (at least by Fifth Report, which is the latest available to us).[129] For the state of Florida, another state with high incidence of TPD, analysis of the last four years of data indicates that TPD incidence reaches a level of 19–20 TPD claims per 100,000 workers by Second Report, and then slowly edges up from there. California appears to peak between Second and Third report and then decline.

Montana lacks the statistical credibility of larger states, but as a high TPD incidence, close neighbor state it is of considerable interest to Washington. Montana total permanent disability incidence rates reported by NCCI appear to peak at second report, and then decline significantly thereafter. This is not to say that the actual number of permanent and total disabilities is declining. Presumably this reflects both compromise and release settlements and the normal caution of claims personnel who do not want unpleasant surprises after all premium is collected and the year has ended. Therefore, they would tend to be overly cautious in reserving for potentially expensive serious injuries.

Therefore, we believe that a comparison at Third Report allows sufficient time for the overwhelming majority of claims to develop enough that their ultimate outcome as a permanent and total disability claim is fairly clear. When the data gathering and publication lags are added to the reporting lag this means that we will be comparing claims from the period 2001–2002 (dates differing slightly in individual states) to Washington claims from the fiscal year July 1, 2001, through June 30, 2002.[130] In addition, it is clear that Washington claims are slower to develop than in most other states. Thus, comparisons at Third Report with NCCI states will substantially understate the ultimate Washington level. So we will also look at the actuarially projected ultimate level of Washington claims based on past development patterns.

Table 3.5 displays the NCCI data on the incidence of workers' compensation claims per 100,000 workers for each of the 45 states and the District of Columbia that report their data to insurance industry rate-making organizations. This is the most comprehensive data source for

[129] Based upon NCCI Annual Statistical Reports for 2005-2008.
[130] Thanks to the L&I Actuarial Department for developing these special runs for our purpose.

U.S. workers' compensation, but does not include all states and does not include the experience of self-insured employers in any of the jurisdictions.

Table 3.5 Frequency by Injury Type
NCCI Third Report

State	Policy period	Total claims per 100,000 workers	Medical only claims per 100,000 workers	Time-loss claims per 100,000 workers
AK	04/01 – 03/02	8,542	5,792	2,750
CA[2]	01/01 – 12/01	7,026	4,363	2,663
HI	06/01 – 05/02	5,647	2,994	2,653
RI	01/01 – 12/01	6,783	4,517	2,266
OR	01/01 – 12/01	6,763	4,810	1,953
WI	01/01 – 12/01	8,101	6,267	1,834
MT	01/01 – 12/01	8,576	6,771	1,805
OK	06/01 – 05/02	5,861	4,096	1,765
VT	07/01 – 06/02	6,600	4,855	1,745
MO	07/01 – 06/02	5,619	3,926	1,693
NH	04/01 – 03/02	6,441	4,868	1,573
ID	07/01 – 06/02	7,920	6,350	1,570
CT	08/01 – 07/02	5,115	3,598	1,517
IA	03/01 – 02/02	6,177	4,689	1,488
NV	01/01 – 12/01	7,628	6,157	1,471
MA[2]	07/01 – 06/02	5,138	3,676	1,462
ME	06/01 – 05/02	8,214	6,776	1,438
DE[2]	01/01 – 12/01	5,243	3,862	1,381
FL	01/01 – 12/01	5,945	4,574	1,371
IL	04/01 – 03/02	4,575	3,230	1,345
MS	09/01 – 08/02	5,844	4,504	1,340
MN[2]	01/01 – 12/01	6,408	5,073	1,335
NJ[2]	01/01 – 12/01	4,275	2,945	1,330
SD	01/01 – 12/01	7,817	6,532	1,285
PA[2]	01/01 – 12/01	6,757	5,497	1,260
CW[6]	average	5,543	4,303	1,240
KY	05/01 – 04/02	6,682	5,466	1,216
KS	07/01 – 06/02	6,358	5,145	1,213
NY[2]	01/01 – 12/01	3,479	2,267	1,212
SC	05/00 – 04/01	5,008	3,801	1,207
CO	03/01 – 02/02	6,540	5,346	1,194
MI	04/01 – 03/02	6,195	5,013	1,182
NM	07/01 – 06/02	5,601	4,431	1,170
TN	06/01 – 05/02	5,973	4,826	1,147
MD	04/01 – 03/02	3,847	2,704	1,143
TX	01/01 – 12/01	3,994	2,864	1,130
AL	05/01 – 04/02	5,787	4,666	1,121
UT	07/01 – 06/02	6,360	5,277	1,083
NE	08/01 – 07/02	6,013	4,934	1,079
AR	02/01 – 01/02	6,058	4,982	1,076

State	Policy period	Total claims per 100,000 workers	Medical only claims per 100,000 workers	Time-loss claims per 100,000 workers
LA	09/01 – 08/02	4,199	3,166	1,033
IN	07/01 – 06/02	6,920	5,898	1,022
AZ	03/01 – 02/02	5,994	5,059	935
NC	01/01 – 12/01	4,387	3,509	878
GA	07/01 – 06/02	4,499	3,672	827
VA	02/01 – 01/02	4,036	3,316	720
DC	02/01 – 01/02	1,316	855	461

[1] Based on fewer than 25 cases.
[2] Data provided by the appropriate local organization noted in the Appendix.
[3] Represents total incapacity.
[4] Represents partial disability.
[5] Based on fewer than three cases; value not displayed.
[6] Excluding California, Delaware, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Texas, and Wisconsin.
SOURCE: Annual Statistical Bulletin, 2007 Edition.

Of course, the variation in self-insurance incidence also affects the experience of the workers' compensation insurance pool. In a state with a relatively permissive self-insurance provision, more employers will be absent from the insurance pool data. Since self-insured employers are generally regarded as more safety-oriented and more inclined to engage in disability management practices (in part because of their direct interest in their workers' compensation costs), it could be expected that their absence would raise the average incidence of workers' compensation claims relative to a state that was more restrictive in granting access to self-insured status.

Nevertheless, it is worth noting that the range in workers' compensation experience by state is very large indeed. At the top of the scale are states like Montana, Arkansas, and Maine all of which have more than 8,000 workers' compensation claims per 100,000 workers. This means that approximately 8 workers out of 100 in these states have some contact with the workers' compensation system resulting from work-related injuries or diseases in a given year. At the bottom of the scale, jurisdictions like the District of Columbia, New York, and Maryland that have a lot of white-collar employment experience less than 4,000 workers' compensation claims per 100,000 workers; or less than half the incidence of work-related injury and illness.

Table 3.5 also reports the incidence for "medical only" and "time-loss" claims. Since the medical only claims are so numerous, they tend to dominate the total number of claims and the ranking of states is much the same; but when we look at the incidence of time-loss claims the picture changes somewhat. The table indicates that the highest incidence is in the states of

Arkansas, California, and Hawaii; all exceeding 2,500 time-loss claims per 100,000 workers annually. Since these are not states known for their dominant logging, mining, or manufacturing industries (with attendant high injury rates), we can presume that the relatively high incidence of time-loss claims reflects some combination of characteristics of their workers' compensation systems. Similarly for the states with relatively low incidence of time-loss claims; District of Columbia, Virginia, and North Carolina all have less than 1,000 time-loss claims per 100,000 workers annually.

Where does Washington stand? In terms of total claims, the Washington state fund reports an actuarially adjusted claim rate of 8,590 per 100,000 workers for 2001–2002.[131] This would place Washington in the first rank of states in terms of workers' compensation claims incidence, comparable to Montana, Arkansas, and Maine. Similarly for the incidence of time-loss claims; Washington reports 2,154 time-loss claims per 100,000 workers in fiscal year 2002, which would put Washington about 20 percent below the highest incidence states but still in the top five.

However, there is another very significant difference between Washington figures and those of other states. Washington measures employment in hours worked rather than payroll. In NCCI states, reported payroll figures are converted to estimated employment using average earnings reported to the unemployment insurance system in the state. Since coverage of workers' compensation is very similar to that for unemployment insurance for all states except Texas (which has a voluntary workers' compensation statute), this provides a fairly accurate employment estimate. But it becomes necessary to convert hours worked to number of employees to make Washington data comparable to other states. The Department of Labor and Industries in the State of Washington uses a rate of 1,920 hours (or the equivalent of working 40 hours per week for 48 weeks per year) to convert hours worked to employment.

We believe this figure for average hours per employee is too high, given the incidence of unemployment, seasonal employment, and part-time employment in Washington. Therefore, we would be underestimating the actual number of employees potentially exposed to work injury or

[131] We have selected fiscal year 2001–2002 because it is closest to the span of years covered by the most recent NCCI Third Report data (generally the year ending in the first half of 2002. See Table 3.5 for the exact dates for each state). We have not included self-insured employers in Washington since they are not included in NCCI figures. We are very thankful to the Actuarial Department of L&I for providing us with figures from the fiscal year ending 6/30/2002 and developed to the 42-month level using quarterly data. These figures should be as comparable to NCCI as we can make them.

disease. This in turn overestimates the incidence of workers' compensation claims, since the number of claims (the numerator) remains the same while the number of workers (the denominator) is decreased.

The Washington State Employment Security Department, Labor Market and Economic Analysis Branch reports that there were 3.4 million individuals employed in the State of Washington at some point in 2006. However, only 30 percent of them worked more than 2,000 hours and only one-half of them worked more than 1,560 hours in the year. More than one-fifth of the total worked fewer than 520 hours during the year.[132] Given the prevalence of migrant labor in Washington, and the growing incidence of part-time and contract employment in all labor markets, we have elected to use 1,600 hours per year as the lower bound and 2,000 hours per year as the upper bound for the average work year.

Using a more realistic average of 1,600 hours per employee would reduce the estimated incidence of workers' compensation claims in Washington by 20 percent. Thus the total incidence of claims in 2002 would be 6,872 per 100,000 workers and the incidence of time-loss claims would fall to 1,723 per 100,000 workers, and a rank of tenth among the states. It is worth noting that the overall claims incidence rate for self-insured employers in Washington is approximately the same as for state fund insured employers, varying by 10 to 20 percent (sometimes higher, sometimes lower) over the years.

Incidence of Total Permanent Disability

Table 3.6 reports the NCCI data on the incidence of total permanent disability claims (what the NCCI terms permanent total disability or PTD, but we will follow Washington practice and refer to these as TPD claims). California has the highest incidence rate at third report with 37 TPD claims per 100,000 workers. Montana, Florida, Arkansas, South Carolina, Kentucky, and Texas all had more than 10 claims per 100,000 workers. At the other end of the distribution; South Dakota, Rhode Island, and Indiana had TPD rates of 1 claim per 100,000 workers or less. Other low incidence jurisdictions included: Wisconsin, Pennsylvania, Massachusetts, Kansas, Arizona, and the District of Columbia, all with 2 TPD claims or less per 100,000 workers.

The Washington state fund had made 482 TPD awards to claims in fiscal year 2001–2002 by third report (or 42 months following the start of the period) against an estimated employment

[132] Cited in "2007 Washington State Labor Market and Economic Report," (LMEA, Olympia, WA) December 2007.

base (using 2,000 hours per employee) of 1.43 million for an incidence rate of 34 per 100,000 employees. Using our estimate of 1,600 average hours per employee, would reduce that to 27 TPD claims per 100,000 employees. This is in the same range as California and Montana, the highest incidence states shown in Table 3.6. However, this is not the end of the story, especially in Washington.

Table 3.6 Incidence of TPD Relative to Employment
NCCI Third Report

State	Policy period	TPD rate per 100,000 workers
CA[2]	01/01 – 12/01	37
MT	01/01 – 12/01	24
FL	01/01 – 12/01	19
AK	04/01 – 03/02	14 [1]
SC	05/00 – 04/01	13
KY	05/01 – 04/02	11
TX	01/01 – 12/01	11
MN[2]	01/01 – 12/01	10
NV	01/01 – 12/01	10
MS	09/01 – 08/02	9
VT	07/01 – 06/02	9 [1]
LA	09/01 – 08/02	8
NC	01/01 – 12/01	8
NY[2]	01/01 – 12/01	8
CO	03/01 – 02/02	7
CW[6]	average	7
AL	05/01 – 04/02	6
CT	08/01 – 07/02	6
NH	04/01 – 03/02	6 [1]
NJ[2]	01/01 – 12/01	6
OK	06/01 – 05/02	6
TN	06/01 – 05/02	6
MI	04/01 – 03/02	5 [3]
NM	07/01 – 06/02	5 [1]
AR	02/01 – 01/02	4 [1]
GA	07/01 – 06/02	4
IL	04/01 – 03/02	4
MD	04/01 – 03/02	4
MO	07/01 – 06/02	4
NE	08/01 – 07/02	4 [1]

State	Policy period	TPD rate per 100,000 workers
VA	02/01 – 01/02	4
DE[2]	01/01 – 12/01	3 [1]
HI	06/01 – 05/02	3 [1]
IA	03/01 – 02/02	3 [1]
ID	07/01 – 06/02	3 [1]
ME	06/01 – 05/02	3 [1]
OR	01/01 – 12/01	3
UT	07/01 – 06/02	3 [1]
AZ	03/01 – 02/02	2 [1]
DC	02/01 – 01/02	2 [1]
KS	07/01 – 06/02	2 [1]
MA[2]	07/01 – 06/02	2 [1]
PA[2]	01/01 – 12/01	2
WI	01/01 – 12/01	2
IN	07/01 – 06/02	1
RI	01/01 – 12/01	1 [1]
SD	01/01 – 12/01	— [5]

[1] Based on fewer than 25 cases.
[2] Data provided by the appropriate local organization noted in the Appendix.
[3] Represents total incapacity.
[4] Represents partial disability.
[5] Based on fewer than three cases; value not displayed.
[6] Excluding California, Delaware, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Texas, and Wisconsin.
SOURCE: Annual Statistical Bulletin, 2007 Edition.

The average age of a state fund claim at TPD pension award in Washington has varied between six and eight years over the past decade, so these incidence rates at an average of three years after the date of injury or disease reflect just the "early decision" claims. Thus, this estimate would be a significant understatement of the ultimate incidence of TPD in Washington. Using the ultimate projected total of TPD claims from the Actuarial Department of L&I would yield an estimate of 65 TPD claims per 100,000 for fiscal year 2001–02, nearly twice the pre-reform rate in California.

As discussed earlier, this extended decision period for permanent and total disability claims is not the norm in other states, possibly because of the compromise and release option. Private insurers are anxious to resolve claims as early as possible, and will use compromise settlements to achieve that objective. This would have the effect of reducing the count of TPD

awards as these claims get tabulated according to their monetary cost. For the NCCI countrywide average (36 states), the incidence of TPD does not increase between third and fourth report, or between fourth and fifth report. So, we conclude that 3rd report data represents the maximum estimate of TPD claims in most NCCI states, but it is only the beginning of the story in Washington. Our conclusion is that Washington has a very high incidence of total permanent disability claims relative to its employment base, perhaps twice as high as the nearest other state and approximately nine times the NCCI "countrywide" average.

Perhaps this is due to Washington being a relatively high-injury state, owing in part to its industrial mix as we discussed in chapter 2. Table 3.7 shows the incidence of TPD relative to all time-loss (or indemnity) claims from the NCCI third report. It indicates that the same group of states shows a high incidence of TPD relative to all time-loss claims. California, Florida, Montana, and South Carolina have TPD incidence rates of over 13 per 1,000 time-loss claims. The Washington state fund had an incidence rate of 15.6 TPD claims per 1,000 time-loss claims, slightly higher than the rate of California, Montana and Florida in fiscal year 2002. Scaling this to match the ultimate expected TPD numbers would yield an incidence rate of 38.0 per 1,000 time-loss claims, or nearly three times the rate in California and Florida at third report. And while Florida's rate is still increasing from third report to fourth and fifth report, California's is not. So the rate of TPD is high relative to the number of time-loss claims as well.

What about the relationship between TPD and permanent partial disability (PPD) claims? Perhaps the threshold between PPD awards and TPD awards is set at a lower point in

Table 3.7 Incidence of TPD Relative to All Indemnity Claims
NCCI Third Report

State	Policy period	TPD per 100,000 workers	Medical only per 100,000 workers	Indemnity claim per 100,000 workers	TPD per 1,000 indemnity claims
CA[2]	01/01 - 12/01	37	4,363	2663	13.9
FL	01/01 - 12/01	19	4,574	1371	13.9
MT	01/01 - 12/01	24	6,771	1805	13.3
SC	05/00 - 04/01	13	3,801	1207	10.8
TX	01/01 - 12/01	11	2,864	1130	9.7
NC	01/01 - 12/01	8	3,509	878	9.1
KY	05/01 - 04/02	11	5,466	1216	9.0
LA	09/01 - 08/02	8	3,166	1033	7.7

State	Policy period	TPD per 100,000 workers	Medical only per 100,000 workers	Indemnity claim per 100,000 workers	TPD per 1,000 indemnity claims
MN[2]	01/01 - 12/01	10	5,073	1335	7.5
NV	01/01 - 12/01	10	6,157	1471	6.8
MS	09/01 - 08/02	9	4,504	1340	6.7
NY[2]	01/01 - 12/01	8	2,267	1212	6.6
CO	03/01 - 02/02	7	5,346	1194	5.9
CW[6]	Average	7	4,303	1240	5.6
VA	02/01 - 01/02	4	3,316	720	5.6
AL	05/01 - 04/02	6	4,666	1121	5.4
TN	06/01 - 05/02	6	4,826	1147	5.2
VT	07/01 - 06/02	9 [1]	4,855	1745	5.2
AK	04/01 - 03/02	14 [1]	5,792	2750	5.1
GA	07/01 - 06/02	4	3,672	827	4.8
NJ[2]	01/01 - 12/01	6	2,945	1330	4.5
DC	02/01 - 01/02	2 [1]	855	461	4.3
NM	07/01 - 06/02	5 [1]	4,431	1170	4.3
MI	04/01 - 03/02	5 [3]	5,013	1182	4.2
CT	08/01 - 07/02	6	3,598	1517	4.0
NH	04/01 - 03/02	6 [1]	4,868	1573	3.8
AR	02/01 - 01/02	4 [1]	4,982	1076	3.7
NE	08/01 - 07/02	4 [1]	4,934	1079	3.7
MD	04/01 - 03/02	4	2,704	1143	3.5
OK	06/01 - 05/02	6	4,096	1765	3.4
IL	04/01 - 03/02	4	3,230	1345	3.0
UT	07/01 - 06/02	3 [1]	5,277	1083	2.8
MO	07/01 - 06/02	4	3,926	1693	2.4
DE[2]	01/01 - 12/01	3 [1]	3,862	1381	2.2
AZ	03/01 - 02/02	2 [1]	5,059	935	2.1
ME	06/01 - 05/02	3 [1]	6,776	1438	2.1
IA	03/01 - 02/02	3 [1]	4,689	1488	2.0
ID	07/01 - 06/02	3 [1]	6,350	1570	1.9
KS	07/01 - 06/02	2 [1]	5,145	1213	1.6
PA[2]	01/01 - 12/01	2	5,497	1260	1.6
OR	01/01 - 12/01	3	4,810	1953	1.5
MA[2]	07/01 - 06/02	2 [1]	3,676	1462	1.4
HI	06/01 - 05/02	3 [1]	2,994	2653	1.1
WI	01/01 - 12/01	2	6,267	1834	1.1
IN	07/01 - 06/02	1	5,898	1022	1.0

State	Policy period	TPD per 100,000 workers	Medical only per 100,000 workers	Indemnity claim per 100,000 workers	TPD per 1,000 indemnity claims
RI	01/01 - 12/01	1 [1]	4,517	2266	0.4
SD	01/01 - 12/01	— [5]	6,532	1285	—

[1] Based on fewer than 25 cases.
[2] Data provided by the appropriate local organization noted in the Appendix.
[3] Represents total incapacity.
[4] Represents partial disability.
[5] Based on fewer than three cases; value not displayed.
6 Excluding California, Delaware, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Texas, and Wisconsin.
SOURCE: Annual Statistical Bulletin, 2007 edition.

Washington than in other states, as discussed earlier in this chapter. If the "threshold" for TPD award is lower in Washington, we should find that the ratio of TPD awards to PPD awards would be higher. Table 3.8 reports the number of TPD claims per 100 PPD claims for NCCI states. Florida, Montana, Michigan, Kentucky, and Louisiana show at least 3 TPD claims per 100 PPD claims at Third Report.[133] California and South Carolina are close behind at about 2.8 TPD claims per 100 PPD claims. Washington's level stood at approximately 4.7 TPD claims per 100 non-hearing loss PPD claims in fiscal year 2002 at third report equivalent. But this could rise to 11.4 TPD claims per PPD claim ultimately, when the cohort has fully matured. Thus, it is clear that Washington makes considerably more TPD awards relative to PPD awards than these other states, and the threshold between PPD and TPD may well be an issue.[134]

Table 3.8 Incidence of TPD Relative to PPD Claims
NCCI Third Report

State	Policy period	TPD rate per 100,000 workers	PPD rate per 100,000 workers	TPD per 100 PPD claims
FL	01/01 –- 12/01	19	372	5.1
MT	01/01 – 12/01	24	631	3.8
MI	04/01 – 03/02	5 [3]	138 [4]	3.6
KY	05/01 – 04/02	11	355	3.1
LA	09/01 – 08/02	8	261	3.1

[133] Though Michigan should be discounted since it is a wage-loss state and does not use the PPD as a category for compensation. Thus PPD awards in Michigan are estimated based upon the expected dollar payout, or amount of the C&R settlement.
[134] Of course if compromise and release settlements are used to reduce the number of TPDs measured, they would also increase the number of PPDs measured. This would have the effect of lowering the ratio of TPD to PPD and making the Washington ratio look artificially high.

State	Policy period	TPD rate per 100,000 workers		PPD rate per 100,000 workers	TPD per 100 PPD claims
CA[2]	01/01 – 12/01	37		1,320	2.8
SC	05/00 – 04/01	13		466	2.8
MN[2]	01/01 – 12/01	10		376	2.7
MS	09/01 – 08/02	9		355	2.5
NC	01/01 – 12/01	8		337	2.4
AK	04/01 – 03/02	14	[1]	633	2.2
TX	01/01 – 12/01	11		513	2.1
VA	02/01 – 01/02	4		192	2.1
AL	05/01 – 04/02	6		292	2.1
NV	01/01 – 12/01	10		498	2.0
NH	04/01 – 03/02	6	[1]	299	2.0
VT	07/01 – 06/02	9	[1]	449	2.0
UT	07/01 – 06/02	3	[1]	173	1.7
CW[6]	average	7		423	1.7
NY[2]	01/01 – 12/01	8		490	1.6
DC	02/01 – 01/02	2	[1]	125	1.6
CO	03/01 – 02/02	7		460	1.5
ME	06/01 – 05/02	3	[1]	217	1.4
GA	07/01 – 06/02	4		297	1.3
TN	06/01 – 05/02	6		466	1.3
NM	07/01 – 06/02	5	[1]	400	1.3
CT	08/01 – 07/02	6		502	1.2
ID	07/01 – 06/02	3	[1]	268	1.1
AR	02/01 – 01/02	4	[1]	358	1.1
MD	04/01 – 03/02	4		358	1.1
DE[2]	01/01 – 12/01	3	[1]	308	1.0
NJ[2]	01/01 – 12/01	6		635	0.9
PA[2]	01/01 – 12/01	2		213	0.9
NE	08/01 – 07/02	4	[1]	478	0.8
AZ	03/01 – 02/02	2	[1]	264	0.8
OK	06/01 – 05/02	6		817	0.7
IL	04/01 – 03/02	4		636	0.6
IA	03/01 – 02/02	3	[1]	543	0.6
MA[2]	07/01 – 06/02	2	[1]	400	0.5
OR	01/01 – 12/01	3		600	0.5
HI	06/01 – 05/02	3	[1]	603	0.5
MO	07/01 – 06/02	4		846	0.5
WI	01/01 – 12/01	2		537	0.4

State	Policy period	TPD rate per 100,000 workers	PPD rate per 100,000 workers	TPD per 100 PPD claims
IN	07/01 – 06/02	1	286	0.3
KS	07/01 – 06/02	2 [1]	604	0.3
RI	01/01 – 12/01	1 [1]	356	0.3
SD	01/01 – 12/01	— [5]	314	—

[1] Based on fewer than 25 cases.
[2] Data provided by the appropriate local organization noted in the Appendix.
[3] Represents total incapacity.
[4] Represents partial disability.
[5] Based on fewer than three cases; value not displayed.
[6] Excluding California, Delaware, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Texas, and Wisconsin.
SOURCE: Annual Statistical Bulletin, 2007 Edition.

Table 3.9 shows the average cost of TPD claims and PPD claims for NCCI states at third report, ranked by total cost per TPD claim. Idaho, Arizona, Delaware, Oregon, and Pennsylvania all showed average costs per claim in excess of $2.0 million for the policy periods shown. On the other end, Rhode Island, Hawaii, New Hampshire, and Michigan reported total costs per TPD claim of less than $300,000. It is interesting that California has a very high incidence of TPD relative to all claims and to employment, but its cost per TPD claim is quite low at about $400,000 in policy year 2001.

The indemnity benefit for TPD in Washington is set by statute, with the monthly payment varying according to the worker's wage and dependency status. For injury year 2001–2002, the average cost per TPD award was $315,259.[135] Medical aid costs averaged $62,277 and indemnity was $252,982. This would put Washington well below the "countrywide" average in medical costs and slightly above average in indemnity.[136]

[135] As a "reverse offset" state, Washington benefits are reduced for those workers who receive Social Security Disability insurance payments. In addition, Washington uses a relatively high discount rate to value future payments which also has the effect of reducing the present value of such commitments.

[136] The average cost per award must be actuarially determined, as the payments for a current award can continue for decades. While this is true for all states, since other jurisdictions rely more heavily on lump-sum settlements their basis for estimating average cost per TPD claim are based more on payments that have already been completed. Further, for long-term liabilities such as this, the total cost for a claim is the present value of future (estimated) payments. As such, the choice of the discount rate to be used will vary across jurisdictions, and can contribute very substantially to interstate differences in average cost calculations.

Table 3.9 Average Cost of Permanent Disability Claims
NCCI Third Report

State	Policy period	Total cost per case total permanent Indemnity	Medical	Total	Total cost per case permanent partial Indemnity	Medical	Total
ID	07/01 –- 06/02	740,883 [1]	2,210,581 [1]	2,951,464 [1]	36,748	37,988	74,736
AZ	03/01 – 02/02	171,993 [1]	2,634,585 [1]	2,806,578 [1]	32,275	66,641	98,916
DE[2]	01/01 – 12/01	735,288 [1]	2,023,016 [1]	2,758,304 [1]	66,263	127,003	193,266
OR	01/01 – 12/01	305,600	2,300,485	2,606,085	23,318	35,876	59,194
PA[2]	01/01 – 12/01	933,276	1,125,701	2,058,977	104,565	68,258	172,824
AL	05/01 – 04/02	220,841	1,445,437	1,666,278	34,440	83,358	117,798
GA	07/01 – 06/02	315,465	1,023,665	1,339,130	53,280	47,697	100,977
AR	02/01 – 01/02	119,377 [1]	1,120,076 [1]	1,239,453 [1]	21,458	31,601	53,059
ME	06/01 – 05/02	478,496 [1]	733,788 [1]	1,212,284 [1]	99,982	84,957	184,939
KY	05/01 – 04/02	225,515	802,956	1,028,471	44,334	120,991	165,325
IN	07/01 – 06/02	142,728	833,797	976,525	18,114	25,050	43,164
UT	07/01 – 06/02	211,182 [1]	762,921 [1]	974,103 [1]	28,220	52,921	81,141
KS	07/01 – 06/02	107,964 [1]	832,964 [1]	940,928 [1]	21,103	22,796	43,899
MO	07/01 – 06/02	368,357	498,747	867,104	20,231	18,467	38,698
NV	01/01 – 12/01	370,385	490,000	860,385	37,750	28,584	66,334
CO	03/01 – 02/02	285,751	530,367	816,118	32,917	29,019	61,936
MT	01/01 – 12/01	195,898	589,486	785,384	35,835	65,893	101,728
CW[6]	average	234,840	535,857	770,697	35,735	39,188	74,923
VA	02/01 – 01/02	256,871	499,411	756,282	54,409	71,499	125,908
NC	01/01 – 12/01	281,508	470,005	751,513	58,620	39,552	98,172
NE	08/01 – 07/02	245,469 [1]	493,147 [1]	738,616 [1]	28,029	35,714	63,743
CT	08/01 – 07/02	333,528	365,110	698,638	49,920	36,731	86,651
FL	01/01 – 12/01	212,069	469,254	681,323	34,369	54,483	88,852
IL	04/01 – 03/02	263,725	393,706	657,431	33,361	22,630	55,991
MA[2]	07/01 – 06/02	473,239 [1]	178,751 [1]	651,990 [1]	49,752	21,896	71,648
TN	06/01 – 05/02	185,482	437,510	622,992	37,096	40,366	77,462
OK	06/01 – 05/02	252,071	361,394	613,465	26,953	24,738	51,691
MD	04/01 – 03/02	347,282	264,760	612,042	44,960	48,141	93,101
TX	01/01 – 12/01	95,430	515,110	610,540	17,814	41,411	59,225
DC	02/01 – 01/02	339,514 [1]	213,456 [1]	552,970 [1]	64,906	37,167	102,073
NJ[2]	01/01 – 12/01	177,421	373,803	551,224	24,871	16,304	41,175
WI	01/01 – 12/01	217,657	286,212	503,869	23,746	32,539	56,285
MN[2]	01/01 – 12/01	212,860	275,162	488,022	43,831	46,720	90,551
VT	07/01 – 06/02	230,327 [1]	245,742 [1]	476,069 [1]	45,202	45,798	91,000
SC	05/00 – 04/01	160,965	271,063	432,028	36,033	26,906	62,939
NM	07/01 – 06/02	149,758 [1]	269,612 [1]	419,370 [1]	29,988	32,463	62,451
MS	09/01 – 08/02	109,312	289,772	399,084	38,784	49,052	87,836
CA[2]	01/01 – 12/01	175,116	223,214	398,330	35,620	38,634	74,254
LA	09/01 – 08/02	227,040	155,936	382,976	67,005	67,413	134,418
AK	04/01 – 03/02	136,037 [1]	215,209 [1]	351,246 [1]	51,242	90,067	141,309
IA	03/01 – 02/02	245,163 [1]	99,932 [1]	345,095 [1]	29,772	26,225	55,997
NY[2]	01/01 – 12/01	176,095	158,589	334,684	56,715	22,618	79,333
MI	04/01 – 03/02	170,842 [3]	123,501 [3]	294,343 [3]	98,405 [4]	62,486 [4]	160,891 [4]
NH	04/01 – 03/02	117,574 [1]	142,772 [1]	260,346 [1]	54,907	106,097	161,004

State	Policy period	Total cost per case total permanent: Indemnity	Medical	Total	Total cost per case permanent partial: Indemnity	Medical	Total
HI	06/01 – 05/02	147,570 [1]	85,498 [1]	233,068 [1]	35,534	27,469	63,003
RI	01/01 – 12/01	171,970 [1]	19,652 [1]	191,622 [1]	48,878	18,967	67,845
SD	01/01 – 12/01	— [5]	— [5]	— [5]	21,765	46,107	67,872

[1] Based on fewer than 25 cases.
[2] Data provided by the appropriate local organization noted in the Appendix.
[3] Based on fewer than three cases; value not displayed.
[4] Represents total incapacity.
[5] Represents partial disability.
[6] Excluding California, Delaware, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Texas, and Wisconsin.
SOURCE: Annual Statistical Bulletin, 2007 Edition.

Sorting out the manifold influences on the level of statutory benefits and average costs per claim are beyond the scope of the current study. In Washington, the average PPD award for injury year 2001–2002 was $10,535 plus an average of $20,458 in time-loss benefits and $20,451 in medical costs, for a total cost of $51,444 per case. Based on the data in Table 3.9, Washington is clearly a relatively low-cost state for PPD benefits since they are below the "countrywide" average for both medical and indemnity costs.

We believe the boundary between PPD and TPD may be one cause of the high measured incidence of TPD in Washington. This stems from the unique relationship between the statutory standards of disability determination in the two categories. Thus the high incidence of TPD may be partly a by-product of the limited flexibility inherent in the strict impairment standard for PPD and the more inclusive disability standard for TPD.

COMPARING WASHINGTON TO BRITISH COLUMBIA

Because of the significant structural differences between workers' compensation systems in Washington and NCCI states, we sought a more direct comparison that would help to characterize the level of TPD awards. We have selected British Columbia, Canada (B.C.) for our comparison with Washington for at least three reasons. First, both jurisdictions are in the same geographic region, with approximately the same population and with broadly similar economic bases. They are both strongly oriented to exporting to the Pacific Rim, and are engaged in a long-term transition from a largely extractive industry orientation to a new information-based economy. Second, several of the authors for this study have considerable familiarity with British Columbia, while the others are very familiar with Washington, hopefully facilitating comparisons between them.

But third, and most importantly, they are jurisdictions with similar workers' compensation systems, even though located on opposite sides of an international boundary. They are both exclusive public fund jurisdictions with limited self-insurance, although B.C. does not allow self-administration and only permits self-insurance for employers specified by statute. They both have relatively generous wage replacement benefits for injured workers and a reputation for fair and timely administration of those benefits. Neither jurisdiction allows compromise and release settlements. While there are always significant differences, the broad structure of workers' compensation in B.C. is comparable and certainly more similar to Washington than her nearby U.S. neighbors.

However, there are a number of difficulties with making direct comparisons between the published performance numbers from these similar systems. First, while Washington has a 3-day waiting period (with a 14-day retroactive trigger) before income replacement benefits begin for injured workers, British Columbia has no waiting period. Thus, it is necessary to adjust B.C. data by removing those claims with durations of less than four days. Of course, this is not an ideal solution because there still may be behavioral differences induced by the waiting period.

More technically, there are significant differences in the way that claims are counted. While it might seem straight forward to count the number of claims that are receiving benefits, there are many details that must be specified. For example, in B.C. the claims that are waiting for or undergoing vocational rehabilitation services are not included in the count of active time-loss claims. This reflects the financial accounting base of many workers' compensation statistics; they are paid from a different pot of money, so they are counted in a different way. So it was necessary to add back the vocational rehabilitation claims in B.C. to make the claims data more comparable to that of Washington. [137]

Another critical difference for which there is no easy adjustment is the process for assessing and reporting permanent disability. Washington uses a conventional (to U.S. audience) division between total permanent disability (TPD) claims and permanent partial disability (PPD) claims. Washington also distinguishes between "statutory" total permanent disability and "administrative" total permanent disability, according to whether the specific loss is listed in the statutory language of the workers' compensation law, or has been determined to be equivalent by

[137] We are very thankful to the staff of WorkSafeBC (and especially Maureen Charron) for performing these adjustments.

administrative or judicial process. B.C. does not maintain such distinctions, but refers to long-term disability (over six months) or short-term disability (LTD or STD). They also seek to rate the level of disability from 0 to 100 percent, without explicitly making a determination of whether the disability is total or partial. This allows for more flexible specification and compensation of disability, but makes comparisons across systems more difficult.

Another difficulty in making comparisons across systems is the different development patterns over time. Claims are not permanently "closed" in either jurisdiction, as they are in many other places in the U.S. A change in circumstances for the injured worker can restore, change, or terminate benefits in both jurisdictions. We have had access to the actuarial staff at L&I for purposes of this study, but have not had the same access in British Columbia. Thus, our comparisons are subject to some lack of precision as we try to compare oranges and tangerines. However, the point is that we are not comparing oranges to apples in this case.

Still, a tactical analytical choice must be made between waiting until claims are old enough that we can be reasonably sure of their ultimate outcome and reviewing claims that are "new" and therefore will rely on actuarial projections, rather than hard facts. The problem is that old claims developed and were compensated under old policies that may not reflect current practice, since the legal entitlement to workers' compensation benefits is usually set by the date of injury. We have chosen to focus on claims from 2001–2002, in an attempt to find a happy medium between these two extremes and to maintain consistency with the earlier material from NCCI states. But there is no guarantee that the different development patterns in British Columbia and Washington will not contribute to some obfuscation of the true differences between these jurisdictions.

Permanent Disability Compensation in British Columbia with Comparisons to Washington

In British Columbia a permanent disability—partial or total—is paid as a pension. The level of the monthly benefit in B.C. is a function of the assessed degree of disability and the injured worker's pre-injury earnings. By contrast, in Washington the worker's pre-injury wage does not affect the total amount of the benefit for a permanent partial disability, but the size of the monthly payment is set at the worker's TTD benefit rate. As a result, for the same degree of impairment lower wage earners receive smaller periodic payments than would higher paid workers, but they receive them for longer periods of time; and there is an interest rate adjustment made (at 8 percent per annum) to take account of the extended payout period. In both

jurisdictions small PPD awards are generally cashed out using present value tables. Plus, in certain unusual circumstances the worker in Washington may apply to be paid the PPD benefit in a lump sum, as is true in B.C.

In B.C. there is essentially no difference between the treatment of a permanent partial and a total permanent disability case except the amount of the benefit that is paid. A total permanent disability is simply a 100 percent permanent disability rating. The statute does not define total permanent disability and gives it little attention:

> (1) Subject to sections 34 and 35, if a permanent total disability results from a worker's injury, the Board must pay the worker compensation that is a periodic payment that equals 90% of the worker's average net earnings.
> (2) The compensation awarded under this section must not be less than $1,464.75 per month.[138]

The Board's claims manual provides only this guidance as to total permanent disability:

> "Some examples of permanent total disability are paraplegia, quadriplegia, hemiplegia and total or near total blindness. Combinations of permanent partial disabilities can also become permanent total disabilities such as bilateral amputations or arms and legs."[139]

Subsequent to a change in the law in British Columbia in 2002, a permanent (partial or total) disability pension ends when the worker reaches age 65. There are a few exceptions to this. If the Board is satisfied that retirement would have occurred beyond the age of 65, the pension need not be terminated at that age. If the worker is age 63 or above at the time of the injury, the worker is entitled to the pension benefit for up to 2 years from the date that the degree of disability is determined.

Washington may be unique in North America in allowing the pensioner to choose between receiving a full pension or taking a reduced periodic amount that assures that the pension will be paid to a designated beneficiary (eligible surviving spouse, child, or dependent) upon the worker's death. The pension is paid for the worker's lifetime in Washington.

Using the terminology developed above, Washington is a pure impairment approach state in cases of permanent partial disability. It uses a schedule which is very similar to the ones found in most states in the U.S. The schedule lists the dollar amount to be paid for the total loss, or total loss of use of the body part involved. Payments for partial losses (or the loss of use of) of a scheduled body part are based on an impairment rating using the most recent version of the

[138] Workers' Compensation Act (RSBC 1996) Chapter 492, Sec. 22.
[139] Sec. 37.00.

AMA Guides to the Evaluation of Permanent Impairment. The rating is related to the value of total loss (an amputation or comparable) in order to determine the benefit, with the payout schedule being the same as that described earlier.

Unscheduled ("unspecified") loss benefits (PPD) are also based entirely on the degree of impairment. The state has a category rating system somewhat similar to California's approach prior to the 2004 law change (SB 899). As an example, a permanent cervical impairment must be assigned to one of five categories. These five categories e.g., mild, moderate, etc., are based on a medical assessment and each category defines a specific quantitative rating ranging from 0 to 35 percent. That percentage is then multiplied by the legislatively determined dollar value of total body impairment. If an unscheduled body impairment does not appear in the category rating system, the AMA Guides are to be used to set the percentage of impairment.

In describing the existing British Columbia system for assessing the extent of permanent disability, it is instructive to begin with the approach used prior to the legislative changes in 2002 in B.C. Dissatisfaction with the workers' compensation program led the British Columbia government to commission a "core review" in 2002 that directly resulted in changes to the statute.[140] Strikingly for our purposes, the review notes that a major concern that prompted the call for a review was the growth in total permanent disability awards, which appeared to some to threaten the long-term financial viability of the system.

Both before the law change and since, the approach used by B.C. can be described as a bifurcated system, or a "dual" system as it is known there. Prior to the 2002 reforms a worker would be assessed for the degree of disability in two ways. Once the worker reached maximum medical improvement ("medically plateaued" in B.C. terminology) a rating was made of the permanent functional impairment (PFI) by a medical professional. This is the same as the model used by Washington and other impairment approach states. Further, in both jurisdictions the state or the province uses its own medical rating guide to quantify the degree of permanent disability, although this is supplemented with other guides as needed.

Prior to 2002 every worker who received a PFI evaluation was also rated for loss of earning capacity (LOE). This assessment sought to determine the loss of earning capacity that the permanent impairment would likely cause the injured worker. At a minimum the degree of

[140] Core Services Review of the Workers' Compensation Board, retrieved from http://www.labour.gov.bc.ca/pubs/pdf/WinterReport-Complete.pdf

disability would be the rating given based on the PFI assessment. If the LOE evaluation found a higher level of disability than the PFI rating, the LOE rating would be used to set the pension.

If the LOE served as the basis for the pension, the rating was automatically reassessed two years after the original assessment, or the date of the decision resulting from the appeal process. Thereafter, the LOE pension was not automatically reviewed but could be reassessed at the discretion of the Board. Many of these claims, at least by the standards of B.C., did result in disputes. Just as is the case in many of the states in the U.S. that employ a loss of wage earning capacity approach to the assessment of the degree of disability, there is considerable room for discretion or judgment in forecasting any future earnings capacity impact and this helped contribute to controversy.

The core review found that the LOE was the *de facto* approach to pension in B.C. and the functional impairment approach was simply the guaranteed minimum benefit. As these awards were larger than those using the PFI rating they required large increases for reserves for these LOE pensions. The review found that much of that was due to LOE pensions that awarded a 100 percent permanent disability rating (total permanent disability) to cases where there was a much lower rating given for the worker's permanent functional impairment. The core review found that the large disparity between the impairment and the LOE ratings occurred "…where the worker was determined to be unemployable." In 1990, 17 percent of LOE awards were rated as 100 percent while in 2000 over 36 percent of the LOE awards were rated at 100 percent.

The key legislative change recommended by the core review and adopted in the 2002 amendments to the statute did not eliminate the bifurcated (dual) approach. However, it eliminated the practice of always assessing both a PFI and an LOE rating. Instead, it made clear that the LOE rating was only to be used in very exceptional cases, so that the PFI evaluation was to be the sole basis for the pension award in almost all permanent disability evaluations. No longer would a five percent impairment result in a total permanent disability pension, except in the most unusual of cases. Despite the fact that claims from 2002 are not yet fully mature, it is clear that there has been a huge reduction in the number of LOE pension awards. It remains to be seen how this will play out in the future.

Several factors cause the current application of the law to be somewhat less than a full scale shift from a bifurcated approach to a strict impairment approach. First, the Board's Claims Manual states that the Permanent Disability Evaluation Schedule (PDES) is a set of "guide-

rules" and not "fixed" standards. The Board officer in the Disability Awards section is free to apply "other variables" in arriving at the final award. However, these other variables relate to the physical or psychological impairment, and they expressly do not relate to social or economic factors. The actual or projected loss of earnings because of the work-caused disability is not a variable which can be considered by the Board officer.[141]

Yet another reason that the 2002 amendments deviate from a strict impairment approach is that the PDES values are now supposed to reflect the earnings capacity losses that can be expected as a result of specific impairments, and not be based strictly on medical values. How well this will work remains to be seen. Doctors would still rate the disability using the PDES or another guide, but the guide itself would be a reflection of the linkage between specific impairments and economic losses. Strikingly, this is very close to the 2004 law change in California (SB 899) which requires that the permanent partial disability benefit be modified to reflect empirically determined earnings losses associated with specific types of impairments.

One last factor renders the B.C. approach to be other than a strict impairment method. The law provides that an age adaptability factor be used, such that the permanent disability benefit is to be increased for each year that the worker is older than 45 years at the time of the disability award. Specifically, for each year older than 45 the worker would receive a 1 percent adjustment as shown in the following example. For a worker aged 55 at the time the award is made, with a 50 percent disability rating, the benefit would be increased to 55 percent (50% + (10% × 50) = 55 percent.

As is true in Washington, B.C. has both scheduled and non-scheduled awards. The PDES includes the spine and psychological impairments (not commonly included as scheduled in most states). For all non-scheduled conditions, some consideration is to be given to scheduled injuries or illnesses that may be analogous, as well as to the medical evaluation, the circumstances of the worker, the medical opinion of the Board or non-board doctors, and to schedules used in other jurisdictions.[142]

As we observe above there are many features of the two systems that are shared and others that are different. In our view no difference is more important than the flexibility of options that exist in B.C. that are not present in Washington. Two of those stand out. First,

[141] See Appendix 3.1 for a full description of this process from the vocational rehabilitation perspective.
[142] Sec. 39.50.

despite the limits imposed by the 2002 amendments, the B.C. Board can make adjustments in the permanent partial disability rating so as not to be locked in by the PDES rating. These adjustments can recognize very special circumstances, and adjust the disability rating and the benefit as it perceives necessary. Secondly, total permanent disability awards are not an all or nothing outcome in B.C. since a highly rated permanent partial disability pension can serve as a substitute for a total permanent award (a 100 percent disability rating) albeit with a lower level of benefits. It should be noted however, that the discretion available to the Board in B.C.'s system would be more difficult to administer if it operated in a litigious environment, as exists in many of the states of the U.S.

Direct Comparison of B.C. and Washington

We begin our comparison with the number of long-term (or permanent) disability claims in the workers' compensation system in British Columbia. Table 3.10 shows the number and level of permanent functional impairment (PFI) claims by year of injury since 1990 for British Columbia. These figures do not correspond with published figures for B.C. because of the adjustments discussed above to make them more comparable to Washington. They also have not been actuarially adjusted for prospective development; thus the figures for the last four or five years would not be reliable indicators of the ultimate claim counts, even in the absence of the huge policy change in 2002.

However, the point is that there are a lot of relatively minor permanent impairments and not very many major impairments. Since 1990, the average permanent functional impairment rating was only 5.8 percent. Out of a total of 3,000 to 3,500 permanent functional impairment awards per injury year, approximately 75 percent of them are for awards of less than 10 percent PFI impairment. Only about 1 to 1.5 percent of PFI awards are for 100 percent disability. Even if we lower the major (total permanent) impairment standard to 50 percent, the number is still less than 5 percent of all PFI awards, or fewer than 150 claims per year.

About 12 to 15 percent of PFI claims also received loss of earnings awards (LOE) to supplement the PFI award in those cases where it was determined that the impairment rating did not adequately reflect the economic impact of the disability. Table 3.11 reports the number and level of LOE pensions that were awarded for injury years 1990 through 2002. Over the entire period, the average LOE rating was 10.9 percent. Again, it is obvious that the last few years are

not yet mature. However, the conclusion is that there have typically been another 200 to 250 total (100 percent) permanent disability claims in B.C. each year arising from this administrative determination of the impact of the disability on lifetime earnings expectations. Once again, lowering the threshold of major impairment to 50 percent LOE disability rating would raise that number to a range of 350 to 400 claims per year.

Table 3.10 Number of Claims by PFI Rating and Accident Year for British Columbia*

PFI Rating	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
.02–2.5%	1,142	1,206	1,228	1,278	1,163	1,023	908	970	930	961	973	790	700	812	801	834	620	119
2.5–5%	758	811	818	827	780	655	665	717	756	745	739	666	515	574	540	475	323	38
5–10%	711	774	760	752	702	733	707	861	831	825	819	744	723	787	828	746	433	52
10–15%	278	317	284	305	304	294	312	378	369	362	363	344	326	366	392	325	161	12
15–20%	156	155	131	158	169	139	151	177	177	182	185	155	165	155	165	149	77	3
20–25%	77	73	75	68	57	77	73	87	78	62	90	49	78	79	79	65	19	1
25–30%	31	31	42	44	36	45	32	36	55	32	33	35	43	43	38	35	15	
30–40%	49	37	43	48	58	65	42	55	61	40	42	39	39	51	37	31	8	
40–50%	19	21	30	18	33	29	26	37	32	27	38	31	22	37	23	10	3	
50–60%	20	9	22	12	20	24	21	19	25	18	22	24	18	30	23	10	5	
60–75%	14	9	12	15	15	23	16	21	12	19	16	14	13	13	17	8	1	
75–99%	10	9	5	9	4	11	8	11	13	11	9	6	12	12	4	4		
100%	15	21	24	28	30	38	29	39	21	11	21	22	16	16	13	3	3	1
Total	3,280	3,473	3,474	3,562	3,371	3,156	2,990	3,408	3,360	3,295	3,350	2,919	2,670	2,975	2,960	2,695	1,668	226

*Adjusted for comparability with Washington State.
SOURCE: Compiled by WorkSafeBC

Table 3.11 Number of Claims by LOE Rating and Accident Year for British Columbia*

%LOE Ratings	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
0.01–10%	18	14	9	16	14	8	6	10	13	15	11	6	1
10–20%	33	43	38	48	42	35	25	43	44	49	44	38	14
20–30%	42	41	43	40	49	45	41	59	60	49	49	45	8
30–40%	49	47	45	46	49	54	61	49	63	36	58	40	23
40–50%	64	52	61	59	47	48	52	62	59	68	55	38	22
50–60%	47	61	57	56	51	57	51	63	48	51	63	33	22
60–70%	51	42	57	50	42	46	38	51	50	46	43	43	13
70–80%	39	44	35	31	31	27	32	33	41	30	26	12	9
80–90%	8	10	19	19	25	15	25	17	18	8	14	8	3
90–99.99%	2	1	2	1	2	2	3	1	3	2	3	1	2
100%	211	215	235	223	204	231	211	238	246	185	180	107	44
Total	575	576	602	591	556	568	545	628	645	539	546	371	161

*Adjusted for comparability with Washington State.
SOURCE: Compiled by WorkSafeBC

No one receives an LOE pension unless they qualify for a PFI award, so this does not increase the total number of permanent disability awards in British Columbia. However, considering these figures together on a case-by-case basis is appropriate to estimate the number of "total and permanent" disability awards, since the LOE pensions are added to the PFI pensions. So, our best estimate is that in the British Columbia workers' compensation system, there were approximately 3,000 to 3,500 permanent functional impairments compensated each year, of which 500 to 550 were major disability awards (over 50 percent disability) and 250 to 300 were total (100 percent) and permanent disability claims. As we will see shortly, this is substantially fewer than in Washington.

Table 3.12 provides a direct comparison of the incidence of permanent disability claims in British Columbia and Washington. Employment is reported at the maximum estimate for Washington (based on average of 1,600 hours per year) and at the minimum estimate (based on 1,920 hours per year). Using the maximum employment estimate, which we regard as the most realistic, the state fund in Washington covers just about the same level of employment as the fund in British Columbia.[143] We have chosen to use calendar accident year 2001 statistics for B.C. because of the major policy changes in 2002. (See Appendix 3.1 for a discussion of the way these changes have been implemented.)

Table 3.12 Permanent Disability Claim Incidence, Washington and British Columbia Compared

	British Columbia, 2001		Washington, 2001–2002 State fund	Washington, 2001–2002 Self-insured
Employment	1,753,413	Maximum	1,792,430	743,686
		Minimum	1,493,692	619,738
Time-loss claims (>3 days lost)	44,914		30,886	16,058
Rate per 100,000 Employees	2,562		1,723	2,159
Total permanent disability claims (>50% in B.C.)	450		1,173	351
Total permanent disability rate per 100,000 employees	26		65	47

SOURCE: Compiled by the authors.

[143] It is worth noting that B.C. also estimates employment level, but they collect data on the payroll and then estimate number of employees using average wages for the industry. This would result in over or under estimates of specific establishment employment according to whether their wages were more or less than the industry average.

Even deducting the time-loss claims of less than four days' duration (to compensate for no waiting period in B.C.) there were significantly more time-loss claims in B.C. than for the Washington state fund. When expressed as a rate of time-loss claims per 100,000 employees, British Columbia is 49 percent higher than the Washington state fund and 19 percent higher than Washington self-insured employers. We do not know to what extent this may reflect the inadequacy of our adjustment mechanism (simply dropping the claims with less than four days lost time in B.C.). It seems likely that a waiting period would serve to inhibit claims, generally speaking. If a worker is slightly injured and stays home for a couple of days following medical treatment for a work-related injury, there is little incentive to pursue a workers' compensation claim, especially if the medical costs will be covered by employer-paid health insurance.

It is also necessary to be aware of the differences between the disability measures reported by the two systems. We will report measures for each system that are broadly comparable, but use different nomenclature and different administrative processes. For British Columbia, we will report the number of permanent functional impairment (PFI) awards and the number of loss of earnings (LOE) awards; and also the estimated number of those that involve more than 50 percent disability. This amounts to assuming that a total permanent disability (TPD) award in Washington could be triggered by a worker with the equivalent of a 50 percent impairment rating in B.C.

For calendar accident year 2001, B.C. recorded 2,919 permanent functional impairment claims through the end of 2007 for a rate of 166 per 100,000 employees. Approximately 75 of the B.C. claims were for PFI ratings at 50 percent impairment or above. In addition, they experienced 371 LOE pensions from accident year 2001 to date, of which approximately 204 were rated at greater than 50 percent loss of earnings capacity. Since these loss of earnings figures are not yet fully mature, we project that there will ultimately be another 170 LOE awards based upon experience from prior years. Deducting the small overlap between categories, our estimate of "total" permanent disability claims (over 50 percent disability) in British Columbia would be a maximum of 450 claims for calendar accident year 2001. This would yield an incidence rate of 26 "total" permanent disability claims per 100,000 employees.

For total permanent disability claims, it is estimated that the Washington state fund will ultimately realize about 1,173 TPD claims for fiscal accident year 2001–2002, while the self-insured employers are expected to record 351 TPD claims at ultimate development. This would

give rates of 65 TPD claims per 100,000 employees for the state fund and 47 TPD claims per 100,000 employees for self-insured employers. In both cases we are using the maximum estimated state employment for the base. If we used the minimum estimated state employment level these rates would be increased by about 25 percent. Therefore, using the 50 percent rated impairment level to estimate the equivalent of total permanent disability claims in British Columbia would yield a rate of 26 claims per 100,000 employees. So, the incidence is 2.5 times as high for the Washington state fund and two times as high for Washington self-insurers.

This estimate is more directly comparable than the NCCI statistics, as it is not subject to measurement distortion due to compromise and release, or other system characteristics not present in Washington. Thus, both comparison with other U.S. jurisdictions through NCCI statistics and a more carefully controlled comparison with a similar workers' compensation jurisdiction have led to the conclusion that there is a very high incidence of total permanent disability awards in the state of Washington.

Time-Loss Duration of Claims

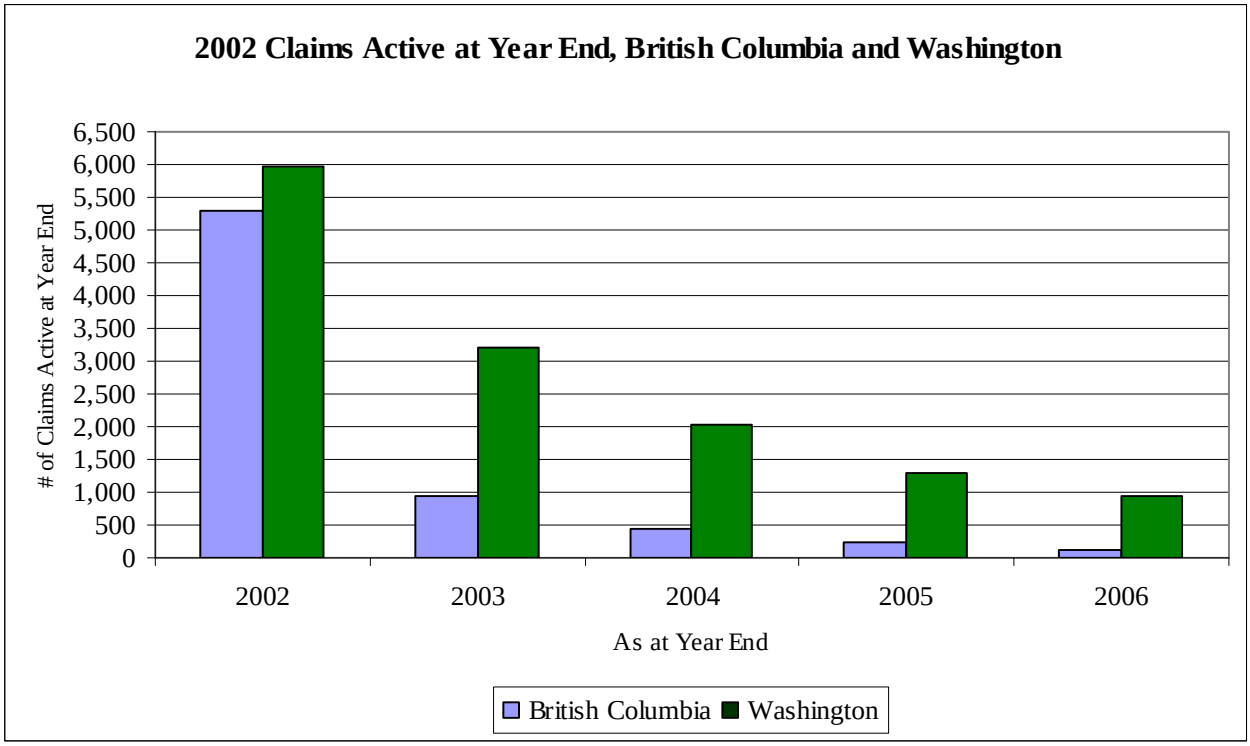
Given the high incidence of total permanent disability awards in Washington and the long durations (described in chapter 2) before a pension determination is made in Washington, it would be very meaningful to compare durations of disability claims in Washington and British Columbia as well. Figure 3.1 directly compares the number of 2002 calendar accident year workers' compensation claims still active (meaning some indemnity payment was made in the last quarter of the calendar year) at the end of each year through 2006 for Washington and British Columbia.

British Columbia has slightly fewer active claims at the end of the initial or injury year, despite the higher incidence of time-loss claims discussed earlier. But the number of active time-loss claims falls off dramatically over the second through fifth years. From a little over 5,000 active claims with injury dates in 2002 at the end of 2002, the inventory of active 2002 claims falls to under 1,000 by the end of the second year and under 500 by the end of the third year.

In contrast, Washington with 6,000 active claims from 2002 at the end of the accident year, still has over 3,000 active at the end of the second year, and 2,000 active at the end of the third year. Thus, claims in Washington are much more likely to have extended time-loss durations. These data are roughly consistent with what was presented earlier in Tables 2.8 and 2.9. Long time-loss claims are very likely to end up as total permanent disability pensions, so

these extended durations are definitely an issue. As reported earlier, about 10 percent of Washington claims remain active at the end of the second year, and 6 to 6.5 percent at the end of the third year; and the likelihood of pension rises each year. So, compared to British Columbia, Washington has many more claims remaining in active status and much longer average durations of time-loss payments. This, in turn, leads to a much higher incidence of TPD pensions.

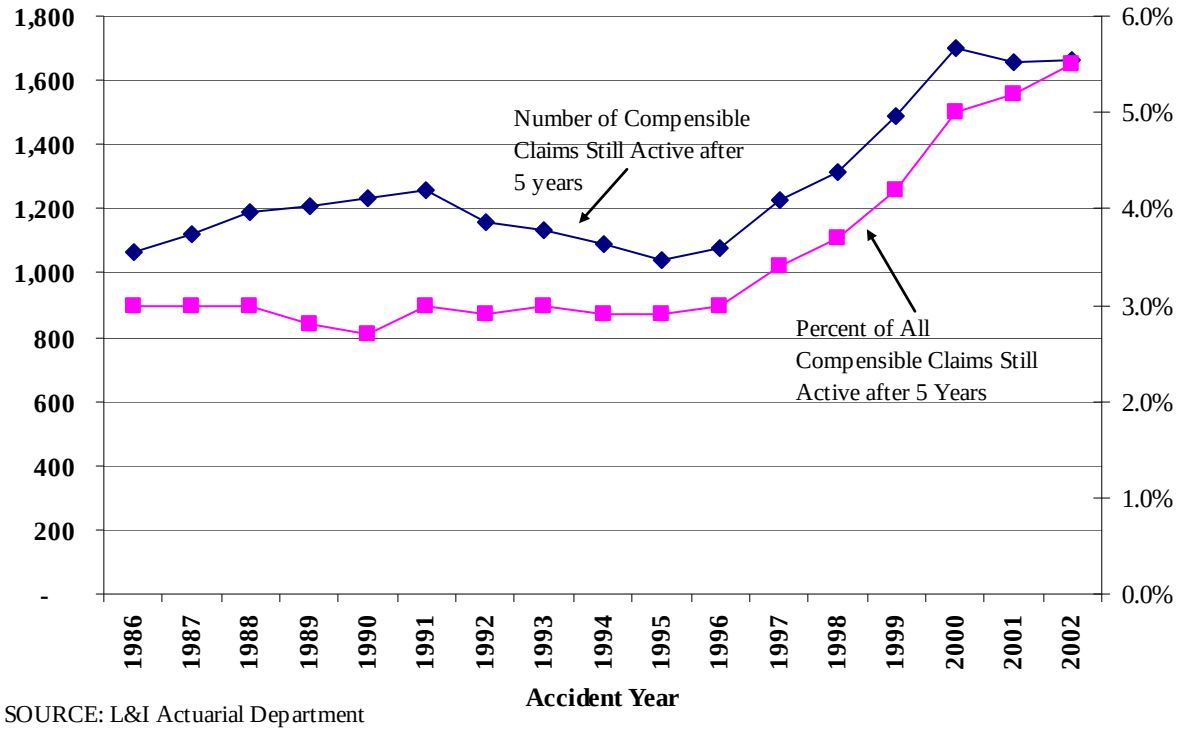
Figure 3.1



SOURCE: WorkSafeBC and Washington L&I

Figure 3.2 shows that the number of long-duration claims has actually increased in the last decade in Washington. Both the number of claims still active after five years, and the percent of all compensable claims that are active after five years have risen since the mid 90s in Washington. In fact, since the mid 90s, the percent of all compensable claims that were still active after five years had nearly doubled, from just under 3.0 percent to about 5.5 percent.

Figure 3.2 Five-Year-Old Active Claims



SOURCE: L&I Actuarial Department

Based on our earlier analysis, we know that the longer the duration of a temporary disability claim, the higher the probability that a pension award will follow. So an increase in the number of claims still active after five years will lead to more pensions in the future.

Conclusion

Washington has a very high incidence of total permanent disability claims in the workers' compensation system; two to three times as high as any other jurisdiction we have examined here. The Washington rate is high relative to the employment base, relative to the total number of workers' compensation claims, and relative to the number of permanent partial disability awards. This high incidence of TPD awards is built upon a foundation of very long-duration TTD claims, which has been growing very significantly over the past decade. The "upsurge" in pension awards was the result of an administrative effort to reduce durations and close more claims beginning in the late 1990s. But the raw material for this growth was the very large inventory of long-term active time-loss claims in the Washington system. This remains a problem today.

Appendix 3.1 Pension Determination and Vocational Rehabilitation in British Columbia

Vocational rehabilitation (VR) has always had at its heart the rehabilitation and return to work of injured workers. At the Workers' Compensation Board (WCB) of British Columbia (B.C.), now WorkSafeBC, this has historically meant providing vocational rehabilitation as near the beginning of a claim as feasible in order to facilitate return to work (RTW). If RTW is not immediately possible, services are provided in order to prevent an eventual loss of earnings (LOE) for the injured worker. The latter was driven from a belief that work is an important factor in everyone's life and that no one benefits emotionally from being dependent on an insurance company, no matter how well meaning that insurance company may be.

Nevertheless, while there were vocational rehabilitation activities for people who were not going to sustain an LOE, the majority of the effort went into developing vocational rehabilitation plans that had the effect of eliminating or reducing the LOE pension. This focus is what primarily distinguished VR at WorkSafeBC from general vocational rehabilitation conducted elsewhere, and gave VR a "bad reputation" among some interest groups in B.C.

Based on a Core Review[144] of the workers' compensation system conducted in 2002, the government of British Columbia amended the Workers' Compensation Act. Of particular interest to this discussion are the changes to Section 23. This amendment changed a system of assessing and awarding pensions to workers with permanent disabilities that had been in place since the 1970s. This was known as the "dual system" and involved consideration of the impact of both the permanent functional impairment (PFI) and the potential loss of earnings (LOE) when considering a permanent disability pension for the individual injured worker. The PFI involved determining the residual physical abilities post injury and the LOE involved assessing the economic loss the individual would sustain as a result of the PFI. It is important to note that a LOE could not be considered without a PFI being assessed first.

The LOE evaluation was determined through an Employability Assessment conducted by a Vocational Rehabilitation Consultant (VRC). This assessment contained recommendations to a Claims Adjudicator Disability Awards (CADA) who then made the final pension decision, subject to appeal. These reports were often contentious and fraught with difficulty due primarily to the subjective nature of many of the components of the overall assessment. The Core Review

[144] Core Services Review of the Workers' Compensation Board, retrieved from http://www.labour.gov.bc.ca/pubs/pdf/WinterReport-Complete.pdf

identified these problems and made recommendations that reduced the dependency on the dual pension evaluation system. In the new Section 23, primary emphasis is placed on the PFI component of the disability assessment and it indicates that the amount of a person's pension should be based primarily on that factor.[145]

Section 23(1) states:

> Subject to subsections (3) to (3.2) and sections 34 and 35, if a permanent partial disability results from a worker's injury, the Board must
> (a) estimate the impairment of earning capacity from the nature and degree of the injury, and
> (b) pay the worker compensation that is a periodic payment that equals 90% of the Board's estimate of the loss of average net earnings resulting from the impairment.[146]

This is very similar to the previous system. In order to do (a) and (b) the level of impairment must first be assessed, the impact on earnings considered, and a financial award made. Whether this award is called a PFI or LOE seems immaterial as the result should be compensation for "the loss of average net earnings resulting from the impairment."

The Rehabilitation Services and Claims Manual (RSCM), which is the guide to compensation practice at WorkSafeBC, at Volume II, item 40 states with respect to the WCB Act Section 23(3):

> Section 23(3) is a discretionary provision that establishes rules for compensating a worker for a permanent partial disability in exceptional circumstances. Section 23(3) is only applied where the test set out under section 23(3) and (3.1) is met. This test requires that the Board determine whether the combined effect of a worker's occupation at the time of injury and a worker's disability resulting from the injury is so exceptional that an amount determined under section 23(1) does not appropriately compensate the worker for the injury. Occupation is broadly defined as a collection of jobs or employments that are characterized by a similarity of skills.[147]

This policy statement outlines the criteria for meeting the test outlined in 23(3), specifically the "so exceptional" criterion and the definition of an occupation. The application of these criteria

---

[145] This is somewhat analogous to the move among U.S. jurisdictions toward what is called "objective" disability determination through the increasing reliance on the AMA Guides, which increases the role of impairment assessment in permanent disability awards.

[146] Workers Compensation Act, retrieved from http://www.qp.gov.bc.ca/statreg/stat/W/96492_01.htm#section23

[147] Rehabilitation Services and Claims Manual II, retrieved from http://www.worksafebc.com/publications/policy_manuals/Rehabilitation_Services_and_Claims_Manual/volume_II/assets/pdf/rscm_ii_06.pdf

seems to have had a drastic impact on the number of loss of earnings awards since implementation in the middle of 2002.

As dramatic as these changes have been, VRCs at WorkSafeBC still function largely within the same paradigm as before. The new legislation does not alter the phases of VR, so by itself does not signal a change in VR direction. Where the change occurs is when one uses a broader definition of occupation as suggested in the new policy.

The RSCM item No. 40.00 defines 'skills' as the "learned application of knowledge and abilities."[148] This is a relatively simple understanding of the term, but the National Occupational Classification System[149] (NOC) is not so simplistic in its use. In fact, the NOC divides skills into Skill Level and Skill Type. Skill Type is based on the type of work performed, but it also reflects the field of training or experience that is normally required for entry into the occupation. This includes the educational area of study required, as well as the industry of employment in cases where experience within an internal job ladder is required for entry. These categories are intended to indicate easily understood segments of the world of work.

Skill Level is primarily based on the nature of education and training required to work in an occupation. This criterion also reflects the experience required for entry, and the complexity of the responsibilities involved in the work, compared with other occupations.[150] How then is an economic loss determined? WorkSafeBC uses the term 'significant loss of earnings' and then states:

> The sole fact that the worker may experience a loss of earnings as a result of a work injury is not sufficient to meet the test set out in section 23(3.1) of the Act and does not mean that the worker is entitled to an award under section 23(3).[151]

Section 23(3.1) simply states that the economic loss must be "so exceptional" that an award under 23(1) is insufficient. Therefore, if an award under 23(1) accurately reflects the workers actual economic loss, not just an award for the loss of function or impairment itself, then all would be fine.

---

[148] RSCM retrieved from http://www.worksafebc.com/publications/policy_manuals/rehabilitation_services_and_claims_manual/default.asp

[149] The NOC is Canada's job classification system similar to the Dictionary of Occupation Titles (DOT) used in the USA.

[150] Retrieved from http://www23.hrdc-drhc.gc.ca/2001/e/tutorial/sklevel.shtml

[151] Best Practices Information Sheet retrieved from http://www.worksafebc.com/regulation_and_policy/practice_directives/compensation_practices/best_practice_information_sheets/assets/pdf/permanent_disability_benefits.pdf

The problem is that with a broad enough definition of occupation, it is possible to deny almost everyone access to consideration under 23(3.1). Previously the awarding of a PFI would result in a referral to a VRC for a consideration of the possibility of a LOE. The VRC, in the Employability Assessment would consider many factors, but primarily if the person could work with this level of impairment. It was possible to have a 100 percent LOE recommendation based on a 5 percent PFI award if the person could not go back to their pre-accident employment and no other solutions could be found. Further, this assessment had to be based on suitable and reasonably available jobs in the worker's general location.

Under the current system it is possible to have an assessment of viable transferable skills, and deny a worker any consideration for an LOE. In reality this means they will be compensated at 5 percent rather than 100 percent. The change in assessing potential LOE pensions has greatly reduced the workload of VRCs in the system and allowed them to focus their efforts on earlier interventions and RTW efforts, which is showing great returns. However, the corresponding decrease in LOE pensions has caused consternation amongst organized Labor and other groups representing injured workers, especially since the new policy was put out for public discussion and consultation in July, 2007.

4 Claim Review Findings

INTRODUCTION

The purpose of this study is to determine the reasons for the significant growth in the number of total permanent disability awards, and to project what growth the Department of Labor and Industries can anticipate in the future. In this chapter we consider the workers' compensation system in two time periods, at the very early stages of the rise in pensions, and five years later, when pension incidence was much higher.

We accomplish this goal by reviewing in detail a stratified sample of 903 state fund and self-insured claims. A total of 497 of these claims were pensioned in the two observation years, and another 406 time-loss claims from those same years were used as comparison claims. The comparison claims had a high probability of pension award because of their similarity to pension claims but they had not been granted pensions within five years of the observation year (either 1997 or 2002). This chapter explains the methods used and the results of the claim review, as well as descriptive statistics for the study and comparison groups. A multivariate model using data collected from the Claim Review is also reported.

Necessity and Requirements of the Claim Review

The objective of the claim review is three-fold. First, we aim to identify the influence of key claim characteristics that are not available through analysis of existing administrative data. For example, information on education of the injured worker is not collected by the department in any systematic way, but is available for most of the claims we reviewed. Information recorded from the claims review was matched to other available electronic data on the claim to provide a very rich quantitative analysis.

Second, we seek to provide some insight into the characteristics of claims with a view to how claims or claim processing may have changed over a relatively short period of time, perhaps in a way to cause the increase in pensions. By combining our statistical analysis with knowledge of claim trends and claim management experience, we can add to the overall understanding of the factors causing the increase in pensions.

Third, the claims review enabled the program assessment team to evaluate the perceived impact of various factors on pension outcomes. Our statistical testing helps establish which of

these might be causally related to the pension increase, and should therefore be included in a predictive model of the probability of pension award.

After developing our research plan, we had to locate experienced and knowledgeable claim reviewers. It was our aim to find retired and experienced claims adjudicators; these were located largely by word of mouth. Fortunately, we located five (5) retired L&I claims adjudicators who were able to assist us. Each claim reviewer had over 15 years' experience in claims adjudication and had reached at least Workers' Compensation Adjudicator 3 status during his/her career at L&I. Some of our claim reviewers had experience in both state fund and self-insurance, and some had been Pension Adjudicators. Their insights and perspectives were invaluable.

Second, because claim reviews require access to and use of personally identifiable information, including health information for research purposes, we were required under Federal and State laws to obtain a review from the Washington State Institutional Review Board (WSIRB), as well as the researchers' respective institutional review boards. The claim review could not begin until we developed our research protocol and obtained approval from the WSIRB. This process normally takes researchers a few months to complete, but the short time frame available to us placed a great deal of pressure on the process. We were very fortunate to secure rapid reviews from all involved boards, and we are grateful to various staff who helped to expedite the process.

Because adjudicators are accustomed to reviewing all salient aspects of the claim, we had to make some adjustments in stressing that we were <u>abstracting</u> claims. Even with abstracting for several key characteristics of claims, each claim took over two (2) hours to complete initially. Because these are very complex claims, with long and involved histories, the time for review was much longer than originally anticipated. Many claim files had more than 300 pages of supporting documents that were often difficult to sort through to find the information requested. This would not have been feasible without the experienced claim abstracters with extensive L&I experience. Some adjustments to the process reduced the average review time to 1.5 hours per claim.

In addition, the claim review necessitated a great deal of administrative and data support. The review was conducted on site at the Department of Labor and Industries, requiring that most computer or data difficulties encountered had to be resolved through L&I. L&I staff were always

very responsive to our needs and concerns, but some processes (such as requests for access to sensitive information) took several days to accomplish. Without the excellent support of experienced L&I personnel this part of the project would not have been possible.

METHODS

Choice of Study and Comparison Groups

Our method for analysis of the increase in pensions was to choose observations at two different time periods, with one early and the other late in the rise; compare the total permanent disability claims awarded in those two time periods; then select a comparison population from time-loss claims in each of those time periods. This way it would be possible to compare the characteristics of claims that were awarded pensions in the two time periods, and also compare pension claims to non-pension claims in the two periods. With this strategy it should be possible to maximize the likelihood of identifying significant changes between the periods. If there was a difference between pension claims in the two periods, we could check the non-pension claims to determine whether the observed change was specific to pension determination, or something that pertained to the larger workers' compensation environment, or even the broader economy.

Our choice of the two time frames, calendar years 1997 and 2002, was influenced not only by the trends in pensioned claims but also by the availability of data that would support this type of analysis. The study of total permanent disability in Washington State is somewhat constrained by the availability of adequate data. Because data on time loss paid by quarter had been archived for the years prior to 1997, we were unable to use any year before 1997 as our baseline for pension recipients. By choosing 1997, we were able to find a group of claims that had similar time-loss experience but had not yet received a total permanent disability award. We realize that by choosing 1997 we are close to the beginning of potential changes in claims and pension adjudication that may have led to the rise in pensions, but we are confident that the choice of 1997 still allows for some significant "before and after" comparisons between the two time periods. The 1997 pension awards were adjudicated as injury or illness claims well before 1997, so they represent the types of claims management and claims trends of the period before the increase in the state fund pension incidence rate.

The sample of 1997 pensions was selected as claims having a total permanent disability (TPD) award made between January 1 and December 31, 1997. We limited the selection of TPD

claims to those having original claim received dates on or after January 1, 1987. This was done in order to accommodate the fact that many crucial elements of the electronic storage of claims data were unavailable or of very poor quality prior to 1987. While this method limits the analysis to claims with 11 years or less of time loss, this threshold still represents roughly 70 percent of all claims that receive TPD awards.

Our sample consisted of approximately 30 percent of the TPD claims that met the criteria. This provides a statistical estimate reliability of around 5 to 7 percent at the 95 percent confidence level in representing all TPD claims. In other words, we should be able to detect a difference between sample cohorts of around 5 to 7 percent with a high degree of statistical confidence. A similar sample selection of TPD claims was performed for the 2002 claims, limiting the group to those with claim received dates on or after January 1, 1992, to keep the sample as identical as possible to the 1997 sample. Pension cases were selected at random within each time frame and TPD category, including self-insured claims.

Obtaining a suitable comparison group was difficult. Ideally we sought a group of claims that had a high probability of TPD by virtue of their characteristics, but had not received a TPD award at the time of our observation year. Thus, comparing the characteristics of pension claims and these comparison non-pension claims would offer insight into the changes in pension probability between our two observation dates.

It had been suggested to us that we should use permanent partial disability (PPD) claims as a comparison group, but PPD claims are notoriously difficult to work with, because of the many influences that are introduced by the routine disputation over such claims in most workers' compensation jurisdictions. In addition, we were concerned about possible interaction between PPD awards and TPD awards in Washington (see chapter 2 discussion).

We performed a propensity score analysis of the factors potentially associated with pension claims that were readily available from the L&I data warehouse. Propensity score analysis is a technique used to identify those factors that are correlated with a given outcome. In this case, we were looking for claim characteristics that lead to a pension, e.g., similar demographic features. Ultimately the selection of claims for the comparison group was made using only two predictive factors: time loss paid to date, and age of the worker at injury. We estimate that these two factors were associated with approximately 33 percent of the variance in pension probability.

We selected comparison claims for review based on a randomized nearest-neighbor matching algorithm. Thus, claims having paid time loss in 1997 that were not pensioned by December 31, 2002, were eligible if they had a time-loss/age-at-injury profile that matched one of the 1997 pension claims. And claims having paid time loss in 2002 that were not pensioned by December 31, 2007, were included in the comparison group if they had a time loss/age profile that matched one of the 2002 pension claims. Again, claims were selected at random if they met the above criteria.

It should be noted that the process for selection of self-insured claims was conducted the same way, but the data on time loss among the 1997 self-insured claims were very incomplete. We believe that we have a representative selection of self-insured claims for review, but we are not fully confident in the quality of the time-loss data among the self-insured. Our analysis of self-insured claims is also limited by the relatively small sample numbers.

After the selection of claims for review, five reviewers worked full time for several months to review 903 claims (See Table 4.0). Of these, 228 were 1997 pension claims and 269 were 2002 pension claims, while 238 were 1997 comparison time-loss claims and 168 were 2002 comparison time-loss claims. Because of the time required to abstract information from claim files, we had to cut our 2002 comparison sample for state fund claims short of the goal. Approximately 26 percent (231 claims) of the claims reviewed were self-insured claims and 74 percent (672 claims) were state fund claims.

Table 4.0 Claim Review Sample Distribution

	1997 pension claims	2002 pension claims	1997 comparison time-loss claims	2002 comparison time-loss claims	Total
State fund	162	210	188	112	672
Self-insured	66	59	50	56	231
Total	228	269	238	168	903

Claim review sample of pension claims was drawn at random from L&I files. Comparison time-loss claims were matched to pension claims using propensity score.

Since we used a matching method to select time-loss claims with a high probability of pension, we encountered further methodological challenges in that several of the 1997 time-loss comparison claims received pension awards after our cut-off date of December 31, 2002. In other words, our matching algorithm worked too well. We were faced with an analytical dilemma. If we chose only those claims that had never been pensioned, we would be introducing a bias between the earlier and the later sample of time-loss claims because the latter might not have had enough time to reach full maturity and possible pension status. If we kept the ultimately

pensioned claims in the sample, we ran the risk of corrupting the comparison group with claims that look more like the pension study group.

We decided that it was better to keep the two samples as similar as possible, as two snapshots in time. We could not know which, or how many, of the 2002 time-loss claims also would have received pensions after 2007. Therefore, we chose to retain in the sample the 40 claims (17 percent) from the 1997 comparison group that received pensions after 2002. This keeps the two samples most comparable. We are assuming that a similar percentage of the 2002 comparison time-loss claims will be pensioned between 2008 and 2012.

Choice of Abstract Elements

The L&I data warehouse was the source for about half of the needed information on claims without conducting a file review. The choice of information abstracted from the claims files was based on data unavailable in the data warehouse, as well as other factors coming to light in the interviews we conducted and our preliminary analysis of the Washington TPD (pension) system. By conducting a file review we were able to collect detailed information on characteristics of the worker that were not available through the usual reports of injury. For example, because most workers in these serious disability claims had some vocational assessment, we were able to collect information on worker education, which is a key variable in labor market outcomes.

We were also able to collect additional information on injury and treatment characteristics. Of greatest interest in this selection is the number of back and other musculoskeletal injuries and illnesses. Also important to the analysis is the percent of cases with psychiatric or psychological treatment, as well as opioid use. Our reviewers were able to go beyond the information contained in the data warehouse (which was reported in Chapter 2). The claim review also documented the number and outcomes of various independent medical examinations which were not available in the data warehouse for earlier years.

Our preliminary research suggested that the nature of independent medical evaluations may have had some effect on eventual pensioning of claims. By collecting more information on the medical review, we could determine whether or not significant changes in evaluations were evident. Most of the analysis we performed was at a high level (focusing on the total number of IMEs), but a more detailed analysis could be conducted if warranted.

The claim review also tracked vocational rehabilitation and return-to-work efforts. Earlier claim file information on vocational rehabilitation was somewhat inconsistent, leading us to use the claim reviews to collect more information on the process. Return-to-work efforts were tracked, as well as whether or not return to employment with the employer at injury had occurred, and whether or not job accomodations or light-duty restrictions were used to assist return to work.

Appeals were also believed to have a significant effect on the pensioning of claims. Our claim review collected information about up to six appeals, including outcomes as ordered by BIIA. Claim reviewers were also instructed to identify other reasons for pensioning that could result from administrative delays, barriers in the labor market, and so on. We recognize that these determinations are subjective, and may be dependent on whether or not the original claim adjudicators recorded the appropriate information in the file. Nevertheless, we are confident that with our very experienced reviewers, we were able to identify key administrative issues with the claims.

A full list of the data elements collected from the claim review, and their definitions is available in Appendix Table 4.1. A full list of the supplemental data made available from the Data Warehouse is presented in Appendix Table 4.2. These data were matched to the review data by claim ID, checked for a match on last name, and then these and other personal identifying elements were removed from the dataset as required by the Washington State Institutional Review Board.

Sample Weighting

We believe that we have a time-loss comparison group that represents cases likely to be pensioned, based on time-loss experience and age of the injured worker, but the uneven sample size of groups presented another issue for analysis. To resolve the potential for bias among sample groups, we constructed sample weights using a stratification of year, liability (state fund or self-insured), pension status, and time-loss category. Sample weights were constructed from the ratio of the population to our sample size for each group and finite population controls were applied in STATA software for survey analysis.

DESCRIPTIVE STATISTICS OF CLAIMS

As a part of the process of collecting our comparison time-loss claims, we conducted a "propensity scoring analysis" using factors such as time loss, age of worker, whether or not opioids or psychological issues were involved in the claim, and others that had been suggested. Through L&I, we secured a sample of nearly 9,000 state fund time-loss claims that had been received from 1987 through 1997 and where some time loss was paid in calendar year 1997. Aproximately 16 percent of these claims had received pension awards by the end of 1997. The results from our propensity scoring model are shown on Table 4.1, which indicates that duration of time loss and the age of the worker at injury are very significant predictors of the likelihood of a claim becoming a pension. In addition, the use of opioids, psychological issues, prior receipt of PPD benefits, previous surgery, reopened claim, male gender, and agricultural industry were all significantly associated with the probability of receiving a pension. Only the factor of a prior claim for workers' compensation benefits was not a significant predictor of pensions.

It is worth noting that this is the only place in this chapter where we compare the characteristics of pension claims to the population of all time-loss claims. We will examine some of these factors in more detail as we present the results for the claim review samples, but the comparison is between pensioned claims and other serious injury claims that have been selected for their similarity to the pension claims. As indicated earlier, the main focus of our analysis is on the differentiation of 1997 and 2002 pension claims. We will consider some of these factors again when we present our predictive model of pension claims (chapter 5).

Table 4.1 Propensity Score Analysis

Variable	Coefficient (odds ratio)	Standard error	Z	Prob > Z
1 year time loss	.240	.073	3.29	.001
2 years time loss	.652	.076	8.59	.000
3 years time loss	.940	.082	11.47	.000
4 years time loss	1.179	.091	13.00	.000
5 years time loss	1.514	.099	15.27	.000
6 years time loss	1.669	.121	13.82	.000
7 years time loss	1.626	.143	11.36	.000
8 years time loss	1.530	.190	8.05	.000
9 years time loss	1.774	.189	9.41	.000
Age at injury	.055	.002	25.50	.000
Opioids	.306	.045	6.81	.000
Psych	.380	.045	8.41	.000
Ag sector	.232	.076	3.07	.002
PPD	-.969	.042	-23.06	.000
Male	.221	.045	4.96	.000
Surgery	.135	.025	5.42	.000
Reopened	.392	.051	7.65	.000
Prior claim	.009	.005	1.72	.086
Constant	-3.841	.124	-31.06	.000

Log likelihood = -2574.07
Pseudo R^2 = .330
n = 8,834

We present our results in a series of tables which present the values for the four sub-samples of the claim review; 1997 pensions, 2002 pensions, 1997 comparison time-loss claims, and 2002 comparison time-loss claims. By testing 2002 pension values against 1997 pension values, we are asking which factors changed significantly from before the increase (or early on) to the time of the increase, and might have predictive value. A significant difference between 1997 and 2002 pension characteristics indicates that this factor may have predictive value and should be considered in a model to predict future pension probability.

In addition, we tested 1997 comparison time-loss claims against 2002 comparison time-loss claims to determine whether the changes observed among the pension claims were unique to the pension population, or represented more general changes among the serious disability claims in the Washington L&I system. For that reason we will generally present two sets of statistical hypothesis tests for each table. The first will test the hypothesis that the values for 1997 and 2002 pensions are the same. The second will test the hypothesis that the values for 1997 and 2002 comparison time-loss claims are the same. Suppose we reject the first hypothesis, and conclude that variables associated with pensions in 2002 were different from those in 1997 on some dimension. We still need to establish that this was not true for all serious disability claims to indicate that this factor might be causally related to the increase in pensions.

Since we are reporting on a sample of claims, we use statistical inference to establish that the differences in sample values are likely to represent true differences among the populations. Samples are subject to a range of uncertainty, depending upon the actual variance and the size of the sample. The reason for reporting the statistical tests is to enable the reader to determine how much credence to put in a particular finding. Is a reported difference likely a true population difference, or is it just due to the vagaries of sampling? Researchers use probability statements to express the confidence that can be put in a particular sample statistic. Thus, you will see that a specific difference is "significant at the 95 percent confidence level" as indicated by a single asterisk (*). This means that we can be 95 percent certain that this is a true difference between the groups in the population. On the other hand, it also means that there is a 5 percent chance that this result could be due to the "luck of the draw" as the sample was selected and does not represent a true difference in the population. Similarly, two asterisks (**) indicate statistical significance at the 99 percent confidence level, and three asterisks (***) indicate statistical significance at the 99.9 percent confidence level. We also report the probability of observing the given difference directly as prob > F, which indicates the likelihood of such a difference occurring if the two population means are in fact the same.

In policy-relevant research work, it is important to distinguish between an effect that is statistically significant and one that is "important." An important effect is one that is deserving of attention by a program administrator or policymaker because it has relevance for the performance of the system. That is a different dimension than a test of statistical significance.

It may also be important to know whether the experience of state fund pension claims is similar to that of self-insured employers. They are handled differently from the start (as time-loss claims), since self-insured claims are not administered by the Department of Labor & Industries. This continues to some degree in the pension determination process, as the Self Insurance Department of L&I has its own Pension Adjudicators to evaluate pension claims from self-insured employers. However, all employers and all workers are operating under the same statute, and should experience similar results.

Because our self-insured sample is rather small (a total of only 231 claims), and the sub-samples are even smaller, this will limit the analysis of self-insured claims. With such small samples, it is difficult to establish statistically significant findings. But there will be a few instances where we will present results for self-insured pension and comparison claims because

the results are of particular interest. These will usually be presented in separate tables with the same general structure as described above.

Injury Characteristics

Statistics from pension awards in 1997 and 2002 indicate very few differences between the pensioned claims with regard to nature of injury and body part affected from the injury. The time-loss comparison category showed a higher percentage of claims in 1997 that were back claims compared to 2002, but among the state fund claims with TPD pensions, there was no difference (Table 4.2). Among the self-insured claims, 38 percent of the 1997 pension claims were back cases, compared to 17 percent in 2002, and this difference was statistically significant (Table 4.3). We can say that there were significantly more back claims among pension and time-loss self-insured claims that we reviewed from 1997 than for the 2002 claims. So a greater number of back claims cannot be the cause of the increase in pensions, since there were fewer back injuries among the self-insured sector and no significant increase among state fund claims.

Table 4.2 Back Claims in 1997 and 2002
State Fund Claims

Back Injury	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	32.1%	32.9%	35.1%	29.5%
No	66.9%	66.1%	64.9%	70.5%
n	162	210	188	112

H_0: Back injuries are as likely in 1997 as in 2002 among pension claims.
F (1,370) = .06, prob > F = .801

H_0: Back injuries are as likely in 1997 as in 2002 among comparison time-loss claims.
F (1,298) = 7.16**, prob > F = .008

Table 4.3 Back Claims in 1997 and 2002
Self-Insured Claims

Back Injury	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	37.9%	16.9%	18.0%	10.7%
No	62.1%	83.1%	82.0%	89.3%
n	66	59	50	56

H_0: Back injuries are as likely in 1997 as in 2002 among pension claims.
F (1,123) = 25.80***, prob > F = .000

H_0: Back injuries are as likely in 1997 as in 2002 among comparison time-loss claims.
F (1,104) = 6.06*, prob > F = .016

Table 4.4 shows the number of allowed conditions among our samples of serious disability claims in Washington. It indicates that the average number of conditions has not changed significantly, although showing a 17 percent increase among pension claims and a 19 percent decrease among comparison time-loss claims from 1997 to 2002. So, if the number of

allowed conditions represents the degree of impairment, or disability severity of the injury, it is possible that 2002 pension claims were more serious, but this could not be proven with our sample.

Table 4.4 Number of Allowed Conditions, 1997 and 2002

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Average number of allowed conditions	1.90	2.23	2.08	1.69
n	228	269	238	168

H_0: Number of allowed conditions was the same in 1997 and 2002 among pension claims.
F (1,495) = 2.96, prob > F = .086

H_0: Number of allowed conditions was the same in 1997 and 2002 among comparison time-loss claims.
F (1,404) = 3.68, prob > F = .056

Table 4.5 indicates that the average number of hospital admissions per claim was much lower in 2002 than in 1997, for both pension claims and comparison time-loss claims. This would seem to point toward less serious injuries in 2002, under the assumption that medical

Table 4.5 Total Hospital Admissions, 1997 and 2002*
State Fund Claims

Number of hospital admissions	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	.642	.252	.542	.107
Standard error	.064	.020	.034	.012

H_0: Number of hospital admissions was the same in 1997 and 2002 for pension claims.
F (1,370) = 33.71***, prob > F = .000

H_0: Number of hospital admissions was the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 144.36***, prob > F = .000
*Through end of sample year.

treatment patterns were the same. However, that is probably not a viable assumption. Table 4.6 shows that there was a higher rate of cases with five or more surgical procedures performed among the 1997 pension claims compared to 2002, and this difference was statistically significant at the 95 percent confidence level. This was also true among our comparison time-loss claims, so

Table 4.6 Number of Surgical Procedures, 1997 and 2002
State Fund Claims

Mean number of procedures	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	.294	.178	.323	.071
Percent with 5 or more surgical procedures	10.5%	4.2%	8.5%	1.6%
n	228	269	238	168

H_0: Number of surgical procedures for pension claims is the same in 1997 and 2002.
F (1,329) = 5.16*, prob > F = .024

H_0: Number of surgical procedures for comparison time-loss claims is the same in 1997 and 2002.
F (1,404) = 14.27***, prob > F = .000

presumably it represents a change in medical practices rather than a general change in the nature or severity of compensable injuries. It is interesting to note that there was also a lower percentage of claims with five or more surgical procedures among the 2002 pensioned claims than among the 1997.

Table 4.7 shows medical aid payments to our sample claims. In each case the measure was taken at the end of the sample year, so the payments should be comparable except for price changes. We have also added the inflation adjusted number to make the 1997 and 2002 levels more comparable. We used the "Medical Care" index from the general cost of living index (CPI-U) to adjust these prices to 2007 levels.

Table 4.7 Total Medical Aid Paid*
State Fund Claims

Medical aid paid	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	$41,540	$55,021	$49,981	$37,399
Standard error	1,872.7	1,767.8	1,534.7	1,138.6
In constant (2007) dollars	$62,185	$67,621	$74,822	$45,963

H_0: Total medical aid was the same in 1997 and 2002 for pension claims.
F (1,370) = 27.40***, prob > F = .000

H_0: Total medical aid was the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 43.36***, prob > F = .000
*Through end of sample year.

It is very interesting to observe that the average cost of medical aid increased very significantly between 1997 and 2002 for pension claims (up 32.5 percent), while the average medical aid cost actually declined for comparison time-loss claims (down 25.2 percent). This is not due to increased development of the 1997 claims, since the measurement is taken at the same point relative to the pension decision. After adjustment for medical cost inflation, the increase for medical aid in pension claims is 8.7 percent in real terms.

Table 4.8 reports the level of time-loss benefits paid to pension and comparison group claims in 1997 and 2002. Once again, time-loss benefits are measured as paid through the end of the sample year, so there is no problem of comparability between cohorts. Nominal time-loss benefits paid to pension claims increased by an average of 23 percent between 1997 and 2002. After adjustment for inflation (using CPI-U), the increase was 9.8 percent. Among comparison time-loss claims there was a 23 percent decrease in average total time-loss benefits paid between the 1997 and 2002 samples. This result was also highly statistically significant. We are puzzled by the fact that time-loss benefits were so much higher in 1997 for our comparison group. One would expect that if pension decisions are being made earlier, the average amount of time-loss benefits would have declined accordingly. But the difference seems much larger than expected. We do not have an explanation for this outcome.

Table 4.8 Time-Loss Benefits Paid, 1997 and 2002*
State Fund Claims

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Aggregate time-loss benefits paid	$66,775	$82,199	$106,435	$81,597
Standard error	1,930.0	2,155.6	2,120.2	2,009.6
In constant (2007) dollars	$86,273	$94,693	$137,514	$95,152

H_0: Time-loss benefits paid were the same for pension claims awarded in 1997 and 2002.
F (1,370) = 28.42***, prob > F = .000

H_0: Time-loss benefits paid were the same for comparison time-loss claims in 1997 and 2002.
F (1,298) = 72.29***, prob > F = .000
*Through to end of sample year.

How are these differences manifested in the length of time-loss benefits paid? Table 4.9 shows the estimated time-loss days paid through the end of the sample year for each claim. Using the aggregate time-loss benefits paid and the weekly compensation rate, it is possible to estimate the length of time-loss payments. These measures should be comparable across the injury cohorts, except for any possible distortions caused by sampling variability. The table shows that there was a small increase (4.2 percent) in average days of paid time loss between 1997 pension and 2002 pension claims. This is not a statistically significant difference given the sampling variability of these measures. The same is true for the average days of paid time loss for 1997 and 2002 comparison time-loss claims. The table shows a small increase (7.2 percent) but this is not statistically significant.

Table 4.9 Estimated Time-Loss Days Paid*
State Fund Claims

Estimated time-loss days paid	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	1,625.1	1,693.8	1,063.9	1,140.7
Standard error	44.43	26.87	38.06	20.62

H_0: Estimated time-loss days paid were the same in 1997 and 2002 for pension claims.
F (1,370) = 1.75, prob > F = .187

H_0: Estimated time-loss days paid were the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 3.15, prob > F = .077
*Through to end of sample year.

So it does not appear that the injuries pensioned in 2002 were more serious, at least from the perspective of the number of allowed conditions, the number of surgical procedures, medical aid costs, or paid time-loss days. Thus we doubt that the rise in pension awards could be due to more serious or more disabling injuries in 2002 than in 1997.

Worker Characteristics

Generally speaking, older workers are less likely to be injured, but those who have been injured on the job are less likely to return to work. We considered age both at injury and at pension award. Among the 1997 pension group, the mean age at injury was 47.4. Among the 2002 pension group, the mean age at injury was 49. This relatively small difference between the two years was significant at the 99 percent confidence level (Table 4.10). This difference was confirmed by the median age statistics. The mid-point of the age distribution among those receiving pensions in 2002 was 3.5 years older than in 1997. Among comparison time-loss claims it was 4.0 years older. Age at the time of pensioning was also significantly different between the two years, but in the opposite direction. Workers receiving state fund pensions in 2002 were more than one year younger than in 1997 (Table 4.11). This reflects the more rapid pension decisions that were characteristic of the system by 2002 as discussed in chapter 2.

Table 4.10 Age at Injury, 1997 and 2002
State Fund Claims

Age in years	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	47.4	49.0	44.4	46.8
Median	48.5	52.0	44.0	48.0
n	162	210	188	112

H_0: Mean age at injury, 1997 pensions equals 2002 pensions.
F (1,370) equals 7.67***, prob > F = .006

H_0: Mean age at injury, 1997 time-loss comparison claims equals 2002 time-loss comparison claims.
F (1,298) = 35.63***, prob > F = .000

Table 4.11 Mean Age at Pension Award, 1997 and 2002

	State Fund		Self-Insured	
	1997 pensions	2002 pensions	1997 pensions	2002 pensions
Age in years	57.9	56.7	56.0	54.3
n	162	210	66	59

H_0: Mean age at pension award is the same in 1997 and 2002 for state fund claims.
F (1,370) = 4.21*, prob > F = 0.41

H_0: Mean age at pension award is the same in 1997 and 2002 for self-insured claims.
F (1,123) = 4.08*, prob > F = .046

The mean age for the time-loss comparison group also increased, from 44.4 in 1997 to 46.8 in 2002. These claims were selected for their high probability of pensioning based on time loss and worker age, so it is not surprising that they would show similar trends in these variables, and our sampling method may explain differences between data presented in this chapter and the administrative data presented in chapter 2. However, because of the age composition of the Washington State work force (with younger workers more likely to be moving into the state) as well as the data presented here, we do not believe that age is a large factor in explaining the rise in pensions, but it may be one of many factors to consider when estimating the probability of pensioning.

Table 4.11 also shows that age at pension award was lower in 2002 than in 1997 for workers from the self-insured sector. This difference is statistically significant, but Table 4.12 indicates that these workers were not actually younger at the time of injury (48.9 years in 2002 versus 49.1 years in 1997). So once again the shorter elapsed time from injury to pension award could be responsible.

Table 4.12 Age at Injury, 1997 and 2002
Self-Insured Claims

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Age in years	49.1	48.9	43.9	46.5
n	66	59	50	56

H_0: Age at injury of 1997 pensions equals that of 2002 pensions.
F (1,123) = .40, prob > F = .842

H_0: Age at injury of 1997 time-loss comparison claims equals 2002 time-loss comparison claims.
F (1,103) = 8.39**, prob > F = .005

In general, men were more likely than women to receive a pension, which may have more to do with the sort of work in which men are employed and injured. There were some insignificant differences in gender composition, with slightly more women having a state funded TPD in 2002 as compared to 1997 (Table 4.13). Among the self-insured, the trend was reversed; women comprised a larger percentage of the TPD claims in 1997 than in 2002 (Table 4.14). This difference was significant at the 95 percent confidence level**.**

Table 4.13 Gender of Workers, 1997 and 2002
State Fund Claims

Gender	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Female	22.8%	25.7%	33.0%	32.1%
Male	77.2%	74.3%	67.0%	67.9%
n	162	210	188	112

H_0: Gender for 1997 state fund pension claims equals gender for 2002 state fund pension claims.
F (1,370) = 1.11, prob > F = .292

H_0: Gender for 1997 state fund time-loss comparison claims equals that for 2002 comparison claims.
F (1,298) = 0.16, prob > F = .694

Table 4.14 Gender of Workers, 1997 and 2002
Self-Insured Claims

Gender	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Female	42.4%	32.2%	60.0%	50.0%
Male	57.6%	67.8%	40.0%	50.0%
n	66	59	50	56

H_0: Gender of 1997 pension recipients equals gender of 2002 pension recipients.
F (1,123) = 5.10*, prob > F = .026

H_0: Gender of 1997 comparison claims equals gender of 2002 comparison claims.
F (1,104) = 5.90*, prob > F = .017

Among the other worker characteristics that did not test out, there was no statistically significant difference in the proportion of workers who were obese (not shown), although this had been suggested as a possible causative factor in the pension increase. The proportion with a body mass index (BMI) greater than 30 was slightly greater among 2002 pensions than among 1997 pensions, while the reverse was true for comparison time-loss claims. Similarly, the need

for an interpreter or other indications of significant language problems was not associated with an increase in the number of pensions between 1997 and 2002 (not shown). The number of dependents also showed no trends, but there was a significant drop in the percentage of married workers who received pensions between the years of 1997 and 2002, for both the state fund and the self-insured claims (Table 4.15). This was much less true for the comparison time-loss claims. We do not have a ready explanation for why this should be true in either instance.

Table 4.15 Proportion Married, 1997 and 2002

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
State fund	70.4%	64.3%	62.2%	65.2%
n	162	210	188	112
Self-insured	72.7%	57.6%	64.0%	50.0%
n	66	59	50	56

H_0: Proportion married is the same in 2002 as 1997 for state fund pension claims.
F (1,370) = 4.19*, prob > F = .041

H_0: Proportion married is the same in 2002 as 1997 for state fund comparison claims.
F (1,298) = 1.84, prob > F = .176

H_0: Proportion married is the same in 2002 as 1997 for self-insured pension claims.
F (1,123) = 11.81***, prob > F = .001

H_0: Proportion married is the same in 2002 as 1997 for self-insured comparison claims.
F (1,104) = 11.85***, prob > F = .001

Table 4.16 reports the estimated pre-injury monthly earnings for the workers in our sample. These are estimated by L&I actuaries from the earnings implied by time-loss benefit rates.[152] Estimated monthly earnings are reported both in "current" dollars and "constant 2007" dollars. Current dollars represents the estimated earnings at the time of injury, while constant 2007 dollars adjusts that figure to 2007, using the CPI-U cost of living index. Estimated pre-injury monthly earnings for pension recipients increased by 17.1 percent over the 5 years, or 3.2 percent annually. Injured comparison workers saw estimated earnings increases of 16.2 percent, or 3.0 percent annually. After adjustment for the cost of living, only a very small increase in "real" pre-injury monthly earnings over the five years is apparent; 4.4 percent for pension recipients and 3.6 percent for comparison cases. In both 1997 and 2002 the estimated monthly earnings of pension recipients are slightly higher than the comparison time-loss claimants, although not significantly.

[152] Estimates are subject to error in individual cases based upon number of dependents, benefit inflation adjustment, and other considerations.

Table 4.16 Estimated Pre-Injury Monthly Earnings, 1997 and 2002
State Fund Claims

Estimated monthly earnings	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	$2,160	$2,529	$2,123	$2,467
Standard error	50.10	43.95	32.15	46.55
In constant (2007) dollars	$2,791	$2,913	$2,743	$2,842

H_0: Monthly earnings before injury were the same in 1997 and 2002 for pension claims.
F (1,370) = 30.53***, prob > F = .000

H_0: Monthly earnings before injury were the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 37.05***, prob > F = .000

The initial monthly compensation rate for state fund claims is reported in Table 4.17. Naturally, the story is very similar to that for pre-injury earnings, since the monthly compensation rate is based upon the earnings level. However, it is interesting to note that the unadjusted compensation rate showed higher growth from 1997 to 2002 among the comparison time-loss claims (22 percent) than among the pension claims (13 percent). However, in both years, the earnings of comparison workers were slightly lower than those of pension recipients.

Table 4.17 Initial Monthly Compensation Rate
State Fund Claims

Estimated initial monthly compensation rate	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	$1,086	$1,230	$944	$1,153
Standard error	26.67	20.83	13.19	20.92
In constant (2007) dollars	$1,403	$1,417	$1,220	$1,328

H_0: Initial monthly compensation rate for pensions was the same in 1997 and 2002.
F (1,370) = 18.04***, prob > F = .000

H_0: Initial monthly compensation rate for comparison time-loss claims was the same in 1997 and 2002.
F (1,298) = 71.45***, prob > F = .000

Education is a very important factor in securing employment and return to work after injury, but the Department of Labor and Industries does not collect this information directly. The information was available through our claim review because nearly all workers receiving TPD pensions and many of the comparison workers went through a vocational assessment process. We collected information on whether or not workers had less than a high school education, high school graduate or GED, some college, or had graduated from college.

A large percentage of workers (47 percent) with total permanent disability awards have less than a high school education. (Table 4.18). We found that there was a slight, but not statistically significant, increase in the percentage of state fund pension cases having less than a high school education, from 44 percent in 1997 to 50 percent in 2002. However, among the comparison group there was a significant drop in the percentage of cases having less than a high

school education, from 43 percent in 1997 to 35 percent in 2002. So while the proportion of high school dropouts among pension recipients has not significantly declined, the average pension recipient went from roughly the same level as similar time-loss workers to considerably more disadvantaged. Thus we feel that education level is a significant factor in the pension increase as disadvantaged workers have fewer employment options and are therefore more likely to qualify for a total permanent disability pension.

Table 4.18 Education Level of Workers, 1997 and 2002
State Fund Claims

Less than high school graduate	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	44.4%	50.0%	43.1%	35.5%
No	55.6%	50.0%	56.9%	64.5%
n	153	196	181	124

H_0: Percent with less than high school education is equal in 1997 and 2002 for state fund pension claims.
F (1,370) = 3.15, prob > F = .77

H_0: Percent with less than high school education is equal in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 18.57***, prob > F = .000

The industry of the injured worker can also have significant impacts on return to work. The profile of our randomly selected group of state fund TPD cases shows a fairly stable industry mix: that is, not much seems to have changed between 1997 and 2002 (Table 4.19). There were slightly more agricultural workers receiving pensions in 2002 than in 1997, but this was not a statistically significant change and certainly not enough to suggest it is a cause of the increase in pension incidence.

What is particularly noteworthy is that the manufacturing sector accounts for substantially fewer pension claims than comparison time-loss claims in 2002. Perhaps this is due to the impact of the recession that began in 2001. The proportion of pension claims from the services sector increased substantially from 1997 to 2002, but basically in line with the increase among comparison time-loss claims. Because of the general impression that agriculture and construction account for more than their share of workers' compensation claims, we provide statistical tests for those industries, and will test them again in the multivariate work offered later. However, it does not appear that changes in sector of employment account for the rise in pensions.

Table 4.19 Selected Industry of Employment at Injury, 1997 and 2002
State Fund Claims

Sector	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Agriculture	9.9%	11.0%	11.7%	4.5%
Construction	21.6%	21.4%	24.5%	22.3%
Manufacturing	8.6%	10.0%	6.4%	17.0%
Services	21.0%	28.1%	21.8%	25.0%
n	162	210	188	112

H_0: Proportion of state fund pension claims from agricultural sector was the same in 1997 and 2002.
F (1,370) = .310, prob > F = .580

H_0: Proportion of state fund comparison claims from agricultural sector was the same in 1997 and 2002.
F (1,298) = 35.54***, prob > F = .000

H_0: Proportion of state fund pension claims from construction sector was the same in 1997 and 2002.
F (1,370) = .00, prob > F = .947

H_0: Proportion of state fund pension claims from construction sector was the same in 1997 and 2002.
F (1,298) = 1.26, prob > F = .263

Table 4.20 shows the distribution of serious disability claims from the Puget Sound area and the rest of the state of Washington. The proportion of pension claims from Puget Sound has declined slightly (by about 11 percent) while the proportion of comparison time-loss claims has not changed significantly (about 1 percent). Of course, this proportion is among a larger number of pension claims overall, but it does not appear that claims from Puget Sound account for the rise in pensions.

Table 4.20 Region of Claim Origin, 1997 and 2002
State Fund Claims

Percent of claims from:	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Puget Sound	58.6%	52.3%	49.5%	48.4%
Rest of WA	41.4%	47.7%	50.5%	51.6%
N	219	263	215	184

H_0: The proportion of pension claims from Puget Sound region is the same in 1997 and 2002.
F (1,370) = 4.51*, prob > F = .034

H_0: The proportion of comparison claims from Puget Sound region is the same in 1997 and 2002.
F (1,298) = 1.05, prob > F = .306

However, Table 4.21 displays the location of claims in a different way. This table uses the definition of economically distressed counties from the Washington Employment Security Department. Counties determined as economically distressed are Adams, Benton, Chelan, Clallam, Columbia, Cowlitz, Douglas, Ferry, Franklin, Grant, Grays Harbor, Jefferson, Kittitas, Klickitat, Lewis, Mason, Okanogan, Pacific, Pend Oreille, Skagit, Skamania, Stevens, Wahkiakum, Walla Walla, and Yakima. These 25 counties produced nearly 26 percent of

pension claims in 1997 and 41 percent in 2002, while the proportion of comparison time-loss claims fell from 41.5 percent to 37.5 percent. This highly significant result tells us that economically distressed areas became substantially more likely to produce pension claims; and that economic conditions or changes in them are likely to be related to claim activity. We believe it is very likely that changes in economic conditions contributed to the increase in pensions.

Table 4.21 Claims from Economically Distressed Areas, 1997 and 2002
State Fund Claims

Economically distressed?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	25.9%	41.0%	41.5%	37.5%
No	74.1%	59.0%	58.5%	62.5%
n	162	210	188	112

H_0: The proportion of pension claims from economically distressed counties is the same in 1997 and 2002.
F (1,370) = 26.63***, prob > F = .000

H_0: The proportion of comparison time-loss claims from economically distressed counties is the same in 1997 and 2002.
F (1,298) = 3.26, prob > F = .072

Medical Treatment and Psychological Impairment

One possible explanation for the rise in pension incidence is the changing medical treatment injured workers receive. This section details medical treatment, medical examinations, and psychological or psychiatric treatment. We showed earlier that there were actually fewer back injuries among our time-loss claims, and among self-insured pension claims, but not among state fund pension claims. We also found no statistically significant reduction in the number of surgical procedures performed among the pension and comparison groups in our sample. So it is not the extent, but the specific type of treatment that will be examined here.

As discussed in chapter 2, opioid use appears to have increased considerably over time. Our review of claims indicates that opioid use is very prevalent among the long-term disabled cases. Almost 40 percent of the state fund claims we reviewed had opioid use of two or more prescriptions of seven or more days each. Such opioid use increased from 30 percent of pensioned claims in 1997 to 45 percent of pensioned claims in 2002, while opioid use in the time-loss category actually decreased slightly over those same years (Table 4.22). However, it is the 1997 pension claims that stand out for having the lowest incidence of opioid use; the other three groups seem to be in the same general range. Our claim reviewers also noted that opioids were sometimes provided to patients who had a history of narcotic abuse. Given the mixed

evidence, we feel that opioid use may well have contributed to the increase in pensions, but it is nearly impossible to separate cause from effect in this instance.

Table 4.22 Opioid Involvement, 1997 and 2002
State Fund Claims

Opioids involved	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	29.9%	45.5%	53.1%	46.4%
No	70.1%	54.5%	46.9%	53.6%
n	134	198	143	112

H_0: Opioid involvement in pension claims was the same in 1997 as in 2002.
F (1,370) = 14.65***, prob > F = .000

H_0: Opioid involvement in comparison time-loss claims was the same in 1997 as in 2002.
F (1,298) = 6.74**, prob > F = .001

Yet another possible contributor to the incidence of pensions is the ability of pain clinics to help patients deal with chronic pain. Presumably, pain clinics would reduce the incidence of pensions by enabling injured workers to return to work after they are able to manage their pain effectively. The use of pain clinics to help workers manage pain increased but not significantly among pension claims from 1997 to 2002. About 27 percent of pensioned workers from 2002 had received pain clinic treatment (Table 4.23). More recent 2002 time-loss claims indicate a much lower rate of pain clinic use, standing at about 10 percent. We conclude that pain clinics were probably not a significant factor in the pension increase.

Table 4.23 Pain Clinic Used, 1997 and 2002
State Fund Claims

Was pain clinic used?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	22.8%	27.6%	27.7%	9.8%
No	77.2%	72.4%	72.3%	90.2%
n	162	210	188	112

H_0: Proportion of pension claims using pain clinics was the same in 1997 and 2002.
F (1,370) = 3.03, prob > F = .082

H_0: Proportion of comparison time-loss claims using pain clinics was the same in 1997 and 2002.
F (1,298) = 109.06***, prob > F = .000

Perhaps psychological or psychiatric conditions are more prevalent, or more likely to be accepted as disabling conditions, giving rise to an increased pension incidence. There appears to be a prevalent belief among those familiar with the Washington workers' compensation system that this is true. Because of the measurement difficulties, we examined this in several ways to supplement the analysis of data warehouse data that was provided in chapter 2 (See Table 2.11). First, we had our claim reviewers record whether any psychological conditions were indicated in

the claim file. Of all the state fund pension claims reviewed, they found that 36 percent of the claims involved some psychological or psychiatric issues. But we did not not find statistically significant differences across pension cohorts as we did for the time-loss comparison groups (Table 4.24). So while pension claims showed a non-significant increase in the incidence of psychological issues, comparison time-loss claims showed a significant decrease in psychological involvement.

Table 4.24 Psychological Issues in Claim, 1997 and 2002
State Fund Claims

Psychological issues in claim	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	33.9%	38.1%	39.4%	17.9%
No	66.1%	61.9%	60.6%	88.1%
n	151	213	177	116

H_0: Psychological issues among pension claims were as likely in 1997 as in 2002.
F (1,370) = 1.83, prob > F = .177

H_0: Psychological issues among comparison claims were as likely in 1997 as in 2002.
F (1,298) = 118.20***, prob > F = .000

While we are surprised at the percentage of claims with psych involvement, we accept that injured workers may have difficulty adjusting to a new lifestyle that a significant disabling injury can bring. We also were able to pull from the state fund data warehouse information on whether or not any psychological treatment or assessment was paid on the claim. Of the claims we reviewed, 36.6 percent had some psych payments which could have included evaluations. The percentage of state fund pension claims with psych payments increased from 35 percent in 1997 to 41 percent in 2002, but the increase in pension claims with psych payments was not statistically significant at the 95 percent confidence level (Table 4.25). Comparison time-loss claims again showed a significant decline.

Table 4.25 Proportion with Psych Payments, 1997 and 2002
State Fund Claims

State fund payment for psych treatment?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	35.2%	41.4%	42.6%	19.6%
No	64.8%	58.6%	57.4%	80.4%
n	162	210	188	112

H_0: Proportion of pension claims that showed payment for psychological or psychiatric treatment was the same in 1997 and 2002.
F (1,370) = 1.83, prob > F = .177

H_0: Proportion of comparison time-loss claims that showed payment for psychological or psychiatric treatment was the same in 1997 and 2002.
F (1,298) = 118.20***, prob > F = .000

We also examined whether or not independent medical examinations involved a psychiatric evaluation. Approximately 47 percent of all claims with IMEs had been referred for a psych evaluation, occurring more frequently in 1997 than in 2002, but once again this was not a statistically significant difference (Table 4.26). This last finding resonates with our claim reviewers' observations that psych issues seemed to present problems in resolving claims, especially in the earlier time period, with repeated referrals to vocational counselling or independent medical examinations. It was evident that adjudicators were having difficulty resolving claims with psychological or psychiatric indications. The rates do suggest that this is somewhat less of a problem for the 2002 claims.

Table 4.26 IME Included Psych Evaluation, 1997 and 2002
State Fund Claims

Did IME include psych evaluation?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	55.6%	50.5%	51.1%	27.8%
No	44.4%	49.5%	48.9%	72.2%
n	162	214	188	126

H_0: Proportion of pension claims with IMEs for psychological or psychiatric issues was the same in 1997 and 2002.
F (1,370) = 1.67, prob > F = .197

H_0: Proportion of comparison time-loss claims with IMEs for psychological or psychiatric issues was the same in 1997 and 2002.
F (1,298) = 140.81***, prob > F = .000

Claims Management

We reviewed the management of claims during our claim review to seek evidence of changes in procedure that might help to explain the rise in pensions. Our experienced claim reviewers were asked to offer their summary judgment as to whether there had been any "adjudicative delays" in the processing of individual claims. These adjudicative delays were those judged to have been unnecessary if the administrative machinery had functioned smoothly. Table 4.27 reports that they found evidence of such delays among a sizable minority of these serious disability claims. Pension claims from 1997 showed nearly 40 percent with adjudicative delays; declining to just under 30 percent for 2002 pension claims. Among comparison time-loss claims the decline was from about 30 percent to about 20 percent. This seems to be indicative of an improvement in the efficiency of processing claims, at least as judged by our experienced observers.

Table 4.27 Adjudicative Delays, 1997 and 2002
State Fund Claims

Adjudicative delays	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	39.6%	28.5%	31.7%	21.6%
No	60.4%	71.5%	68.3%	78.4%

H_0: Same proportion of pension claims show adjudicative delays in 1997 and 2002 for pension claims.
F (1,359) = 12.52*, prob > F = .001

H_0: Same proportion of pension claims show adjudicative delays in 1997 and 2002 for comparison time-loss claims.
F (1,289) = 24.95***, prob > F = .000

This is reflected also in Table 4.28, which reports the number of days spent in assessment of various types. Pension claims from 1997 had an average of over 500 days in assessment, with a decline to 435 for 2002 pension claims. Comparison time-loss claims showed an even bigger change; declining from over 650 days in 1997 to about 330 in 2002. Both differences are statistically significant. Since these differences could be due to the additional aging of 1997 claims within the system, we sought additional information on the claims management procedures that had been employed.

Table 4.28 Time Spent in Assessment
State Fund Claims

Days spent in assessment	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean days	508.5	435.0	653.4	331.6
Standard error	31.92	11.93	15.46	10.26

H_0: Time spent in assessment was the same in 1997 and 2002 for pension claims.
F (1,343) = 4.64*, prob > F = .032

H_0: Time spent in assessment was the same in 1997 and 2002 for comparison time-loss claims.
F (1,258) = 300.53***, prob > F = .000

The use of independent medical examinations (IMEs) may also provide clues on case management. The number of IMEs was significantly lower in 2002 than in 1997. Table 4.29 indicates that the decline was particularly significant among comparison time-loss claims; declining by about one-third compared to about one-seventh for pension claims, but both results are highly statistically significant. Again, we take this as an indication of increasing efficiency in claims management at L&I.

Table 4.29 Number of Independent Medical Exams
State Fund Claims

Number of IMEs	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	3.51	2.92	4.68	3.06
Standard error	.102	.055	.076	.072

H_0: Number of IMEs was the same in 1997 and 2002 for pension claims.
F (1,361) = 25.49***, prob > F = .000

H_0: Number of IMEs was the same in 1997 and 2002 for comparison time-loss claims.
F (1,290) = 239.36***, prob > F = .000

However, the outcomes of the claims in terms of PPD ratings do not suggest that IME outcomes changed significantly over the time period. Rather, it seems that earlier IME referrals were possibly used in an attempt to resolve the claim when a claim adjudicator was unsure what to do. Our claim reviewers noted this among the 1997 time-loss claims and felt it supported the changing adjudication patterns they noticed among the pension claims. The 2002 time-loss claims do not seem to suffer from the same problems of multiple and contentious IMEs, which may bode well for the future.

The same general pattern is evident in Table 4.30, which reports the proportion of sample claims with multiple referrals for vocational rehabilitation services. Over 60 percent of 1997 pension claims had multiple VR referrals, declining to 54 percent among 2002 pension claims. For comparison time-loss claims the decline was more pronounced; from over 80 percent to 65 percent. Again, both differences are statistically significant.

Table 4.30 Multiple Vocational Rehabilitation Referrals
State Fund Claims

Proportion of claims with multiple VR referrals	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	61.7%	53.8%	80.8%	65.2%
No	38.3%	46.2%	19.2%	34.8%

H_0: Proportion with multiple VR referrals was the same in 1997 and 2002 for pension claims.
F (1,370) = 6.35*, prob > F = .012

H_0: Proportion with multiple VR referrals was the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 62.56***, prob >F = .000

However, there was not an increase in what might be regarded as claims management futility, those claims where a referral is made for “early VR” action, but the evaluation shows that the individual is “not likely to benefit” from VR. Our claim reviewers took this as an indication that the CM was “parking” the case to await further developments. Table 4.31 shows

that there is a good deal of such activity in both 1997 and 2002, but not any significant change for either pension or comparison time-loss claims.

Table 4.31 Number of Early VR Actions with "Not Likely to Benefit" Outcomes
State Fund Claims

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	1.38	1.41	1.62	1.52
Standard error	.06	.04	.04	.04

H_0: Number of early VR actions with "Not Likely to Benefit" Outcomes was the same in 1997 and 2002 for pension cases.
F (1,139) = 0.18, prob > F = .675

H_0: Number of early VR actions with "Not Likely to Benefit" Outcomes was the same in 1997 and 2002 for comparison time-loss cases.
F (1,136) = 3.52, prob > F = .063

Preexisting conditions, however, seem to be an increasing problem. We note that 92 percent of 2002 state fund pensions that we reviewed had preexisting conditions (Table 4.32), and the increase from 88 percent in 1997 is statistically significant. Meanwhile the proportion of comparison time-loss claims saw a significant decline in the proportion with preexisting conditions. The very high levels for all four groups may argue against this variable as a good discriminator among them, however.

Table 4.32 Preexisting Conditions, 1997 and 2002
State Fund Claims

Preexisting condition	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	87.8%	92.5%	83.4%	76.9%
No	12.2%	7.5%	16.6%	23.1%
n	196	252	169	117

H_0: Same proportion of pensions with preexisting conditions, 1997 and 2002.
F (1,370) = 27.58***, prob > F = .000

H_0: Same proportion of time-loss comparison claims with preexisting conditions in 1997 and 2002.
F (1,298) = 5.56*, prob > F = .019

Prior workers' compensation claims were also higher among the 2002 pension category, with 89 percent of pension claims having a prior claim, compared to 83 percent among the 1997 pension claims, but this difference was not statistically significant (Table 4.33). While the proportion of pension awards with prior claims was increasing, the proportion among comparison time-loss claims was declining slightly (85 percent to 83 percent). It should be noted that there are substantially fewer claims included here than in the previous table, presumably reflecting greater difficulty in determining whether the claimant had a prior workers' compensation claim.

Table 4.33 Prior Claims among Pension Awards, 1997 and 2002
State Fund Claims

Prior Claim	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	83.3%	89.3%	85.2%	82.7%
No	16.7%	10.7%	14.8%	17.3%
n	132	197	122	81

H_0: Same proportion of pensions with prior claims in 1997 and 2002.
F (1,370) = 1.07, prob > F = .301

H_0: Same proportion of time-loss comparison claims with prior claims in 1997 and 2002.
F (1,298) = 34.60***, prob > F = .000

Prior claims with the same condition accounted for 47 percent of 2002 state fund pension claims, compared to 44 percent in 1997 (Table 4.34). This was also not statistically different, but the pattern among the time-loss claims was interesting. In 1997, 35.6 percent of the time-loss claims we reviewed had prior claims with the same condition, compared with 53.7 percent of time-loss claims in 2002. This was significant at the 95 percent confidence level, but we do not know what to make of this. It is puzzling that there should have been such a large increase among time-loss claims, but not pension claims.

Table 4.34 Prior Claims with Same Condition, 1997 and 2002
State Fund Claims

Prior claim with same condition	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	43.6%	47.2%	35.6%	53.7%
No	56.4%	52.8%	64.4%	46.3%
n	91	157	92	63

H_0: Proportion of pensions with prior awards for the same condition was the same in 1997 and 2002.
F (1,302) = 0.0, prob > F = .958

H_0: Proportion of comparison time-loss claims with prior awards for the same condition is the same in 1997 and 2002.
F (1,298) = 15.75***, prob > F = .000

Most notable was the percentage of state fund cases with a prior PPD. The proportion of pension awards with a prior PPD award increased from 33 percent in 1997 to 41 percent in 2002 (Table 4.35). Similarly, the proportion of comparison time-loss claims with prior PPD awards increased from 20 percent to 34 percent over the same time period. Both of these differences are statistically significant. These results may indicate changing standards of claim adjudication.

Table 4.35 Prior Claims with PPD Award, 1997 and 2002
State Fund Claims

Prior PPD	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	33.3%	40.6%	19.5%	33.9%
No	66.7%	59.4%	80.5%	66.1%
n	75	85	82	62

H_0: Same proportion of pension claims had prior PPD award in 1997 and 2002.
F (1,302) = 8.69**, prob > F = .004

H_0: Same proportion of time-loss comparison claims had prior PPD award in 1997 and 2002.
F (1,248) = 19.27***, prob > F = .000

As expected, the self-insured sector reports a higher proportion of cases with preexisting conditions, presumably reflecting the desire to qualify as a second-injury fund reimbursable claim. Table 4.36 shows the prevalence of prior claims from the self-insured sector in 1997 and 2002. While the sample size is small and the numbers subject to more sampling variability, it is clear that a great majority of self-insured serious disability cases have prior claims. However, the proportion with prior workers' compensation claims actually declined between 1997 and 2002 for pension claims, while it increased among comparison time-loss claims, although this was not statistically significant.

Table 4.36 Prior Claims from Self-Insured Sector, 1997 and 2002

Prior claim filed?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	93.9%	84.7%	78.0%	83.9%
No	6.1%	15.3%	22.0%	16.1%
n	66	59	50	56

H_0: Percent of self-insured pension claims with prior claims was the same in 1997 and 2002.
F (1,123) = 10.70**, prob > F = .001

H_0: Percent of self-insured comparison claims with prior claims was the same in 1997 and 2002.
F (1,104) = 3.24, prob > F = .075

The adjudication decisions that are being made may also be lasting longer. Table 4.37 shows that the proportion of reopenings is down significantly among both pension claims and comparison time-loss claims from 1997 to 2002. However, we should be careful about over-interpreting this result since it is clearly affected by the age of the claim. As 2002 claims continue to mature in the system, it is likely that the number of reopenings will rise in the future.

Table 4.37 Reopenings among State Fund Claims

Was the claim a reopening?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	10.5%	7.1%	22.3%	4.5%
No	89.5%	92.9%	77.7%	95.5%
n	162	210	188	112

H_0: Proportion of reopenings among state fund pension claims was the same in 1997 and 2002.
F (1,370) = 3.16, prob > F = .076

H_0: Proportion of reopenings among state fund comparison time-loss claims was the same in 1997 and 2002.
F (1,298) = 147.25***, prob > F = .000

Vocational Rehabilitation

This section examines the total number of vocational rehabilitation actions, number of early intervention actions and ability to work assessments, and percentage of claims having ever had a vocational plan. First, we note that there are few differences between analysis groups with respect to total number of vocational rehabilitation actions. In 1997 there were 3.28 vocational actions on each pension claim that showed VR activity, compared with 3.13 in the later group (Table 4.38). The time-loss groups had more intensive VR activity, at least as indicated by the number of activities, in both 1997 (at 4.86 average) and in 2002 (at 4.49 average).

Table 4.38 Number of VR Activities Where VR Was Used, 1997 and 2002 State Fund Claims

Estimated mean number of VR actions	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	3.28	3.13	4.86	4.49
Standard error	.053	.098	.064	.088
n	156	199	188	111

H_0: Number of VR actions for state fund pensions is the same in 1997 and 2002.
F (1,353) = 1.82, prob > F = .178

H_0: Number of VR actions for state fund comparison time-loss claims is the same in 1997 and 2002.
F (1,297) = 11.99***, prob > F = .001

Presumably this reflects attempts to get these seriously injured workers back to work, but the differences between 1997 and 2002 are statistically significant only for comparison claims.

Table 4.39 indicates that this pattern was slightly different among self-insured claims. While the difference between 1997 and 2002 pension claims was not significant, it is interesting that the level of VR activity was lower. In 2002 the typical self-insured pension claim had less than two VR actions while the typical state fund pension claim had more than three VR actions. The difference was even more striking among the comparison time-loss claims. The self-insured

showed a similar decline in the number of VR actions from 1997 to 2002, but demonstrated less than half as many actions in both years.

Table 4.39 Number of VR Activities, 1997 and 2002
Self-Insured Claims

Estimated mean number of VR actions	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	2.06	1.87	2.28	1.96
Standard error	.088	.064	.086	.058
n	66	59	50	56

H_0: Number of VR actions for self-insured pensions is the same in 1997 and 2002.
F (1,116) = 3.10, prob > F = .081

H_0: Number of VR actions for self-insured comparisons is the same in 1997 and 2002.
F (1,101) = 9.37**, prob > F = .003

The average number of "early" vocational referrals (referring to Early Intervention or Ability to Work Assessments) was also not significantly different by analysis group. Among the 1997 TPD cohort, 2.07 early vocational interventions were made on average compared with 2.03 in the 2002 group (Table 4.53). Comparison time-loss claims were again higher with 2.83 early VR referrals in 1997 and 2.72 in 2002. None of these differences are statistically significant and we presume are not related to the rise in pensions.

Table 4.40 Early VR Referrals*, 1997 and 2002
State Fund Claims

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Early VR actions	317	402	526	302
Claims	153	198	186	111
Early actions/claim	2.07	2.03	2.83	2.72
% of all VR actions	61.9%	64.5%	57.6%	60.6%

*Early VR referral means either the Early Intervention Program or Ability to Work Assessment.

H_0: Same number of early VR referrals in 1997 and 2002 for pension claims.
F (1,349) = 0.34, prob > F = .558

H_0: Same number of early VR referrals in 1997 and 2002 for comparison time-loss claims.
F (1,295) = 2.22, prob > F = .137

However, the time to <u>first</u> vocational rehabilitation referral fell significantly from 1997 to 2002, albeit still at an average of over one year from injury date. Among the state fund pension claims, the average time to first vocational referral dropped from 599 days in 1997 to 423 in 2002 and this difference was significant at the 99 percent confidence level (Table 4.41). So it is clear that claims that will eventually end up as pensions are getting to VR considerably earlier than they used to. This is also true for comparison time-loss claims as shown in Table 4.31.

Table 4.41 Time to First VR Referral, 1997 and 2002 Among State Fund Pension Claims

Mean number of days to first VR referral	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean (in days)	598.7	423.0	513.8	376.0
Standard error	40.34	17.25	19.38	11.34
n	162	210	188	112

H_0: Time to first VR referral was the same in 1997 and 2002 for state fund pension claims.
F (1,352) = 16.03***, prob > F = .000

H_0: Time to first VR referral was the same in 1997 and 2002 for state fund comparison time-loss claims.
F (1,297) = 37.35***, prob > F = .000

Furthermore, the amount of time spent in vocational rehabilitation has changed, at least among time-loss claims. Table 4.42 indicates that among pension claims that received some vocational rehabilitation services, the average days from the start of vocational services to the end was 1,305 days for 1997 pension claims and 1,227 days for 2002 pension claims. This is not a significant difference, but represents over three years of elapsed time in VR for both groups. Among the comparison time-loss claims, the 1997 cohort shows nearly double that (or nearly 6.5 years) even though their experience was supposed to be cut off (or truncated) at the end of 2002 to preserve comparability with the 2002 cohort. This certainly seems to corroborate the story about repeated, though largely unproductive, referrals to VR in the 1997 time frame.

Table 4.42 Truncated Time in VR Treatments, 1997 and 2002 State Fund Claims

Days from VR start to end (truncated at five years)	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean in days	1304.8	1227.2	2361.5	1419.2
Standard error	59.01	27.61	37.54	31.58
n	154	19	187	111

H_0: Length of VR treatment is the same for pension claims in 1997 and 2002.
F (1,349) = 1.42, prob > F = .234

H_0: Length of VR treatment is the same for comparison time-loss claims in 1997 and 2002.
F (1,196) = 368.91***, prob > F = .000

We also analyzed the furthest VR stage reached by each of the workers with some vocational rehabilitation action. The outcomes were divided into eight possible choices with the following rank: 1) medically unstable, 2) further services not appropriate for reasons other than medical instability, 3) further VR services appropriate, 4) able to work, 5) plan in development, 6) plan developed or approved, 7) plan completed, and 8) returned to work. Vocational rehabilitation outcomes in Table 4.43 indicate a higher percentage of workers in the 2002 TPD

group received a "further services not appropriate" outcome, with nearly 80 percent being declared either "medically unstable" or "otherwise unable to benefit" from VR.

Table 4.43 Vocational Rehabilitation Outcomes, 1997 and 2002 State Fund Claims

VR outcome	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Medically unstable	36.5%	26.6%	22.9%	23.8%
Not likely to benefit	35.1%	53.3%	10.1%	15.6%
Further services appropriate	4.7%	1.0%	7.3%	3.3%
Able to work	15.5%	16.6%	49.7%	25.4%
VR plan developed or approved	3.4%	1.5%	3.9%	18.0%
Return to work	4.7%	1.0%	6.1%	12.3%
n	148	199	179	122

Pension claims from 1997 were more likely to have been found "medically unstable" and less often "not likely to benefit" when compared to 2002 pensions. A similar proportion was found "able to work" in both years, but there was a huge difference in those claims which were deemed "further services appropriate" with nearly five times as many in 1997 as in 2002. This is reflected in the "VR plan developed or approved" statistic with more than twice as many reaching this level in 1997.

There were fewer differences among the 1997 and 2002 comparison time-loss claims. However, there were less than half as many where the outcome was "further services appropriate" or "able to work" in 2002. In addition, the 2002 time-loss claims were more than four times as likely to have a "VR plan developed or approved." This is a clear indication that vocational rehabilitation services were more effectively focused on return to work in the later period. It is also noteworthy that while the proportion receiving a VR plan was similar for pension claims and comparison claims in 1997, the figure for 2002 comparison time-loss claims is more than ten times as high as the 2002 pension claims. We believe this indicates a more efficient targeting of vocational rehabilitation services on those who may be able to benefit.

In summary, we do not think that VR activity contributed to the increase in pensions. VR in the 1997 time frame may have served as a way to avoid referral for pension evaluation, and therefore discharge from VR may have put a larger number of claims into the pension adjudication queue. It is interesting to note that roughly one in six pension cases from both 1997 and 2002 had an earlier "able to work" determination. Unfortunately, we are not able to sort out

how many were not able to find work versus those who suffered reversals in their recovery. But vocational rehabilitation services, per se, did not cause the rise in pensions.

Return-to-Work Experience

This empirical investigation is focused on pension and comparison time-loss claims awarded by L&I in two specific years, 1997 and 2002. Of course, the workers are living, breathing human beings and their situations change through time. However, we are interested in evaluating the question of whether there was any return to work before the time of pension award. We know that these injured workers are several years past the date of injury at the time of pension award. One of the indicators we are interested in is the percentage of pension claims and comparison time-loss claims in which the worker attempted a return to work at some point; and our claim reviewers attempted to discern this fact from the claim record. Of course, it is clear (at least for the pension claims) that they did not ultimately succeed in returning to work; and we do not know for how long the worker may have been successfully back at work. We only know the outcome was a pension award for total permanent disability.

Table 4.44 shows the return-to-work attempts for pension and comparison cases for 1997 and 2002 state fund claims. Note that the proportion that ever returned to work declined significantly between these two years, for both pension claims and the comparison time-loss claims. In both cases the difference is statistically significant. It is also interesting that in 1997 time-loss comparison claims had a higher return-to-work rate than pensions, but in 2002 pension claims had the slightly higher rate.

Table 4.44 Return to Work Experience, 1997 and 2002 State Fund Claims

Any return to work?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	58.1%	49.8%	65.9%	45.2%
No	41.9%	50.2%	34.1%	54.8%
n	155	207	176	104

H_0: Proportion with some return to work is the same for 1997 and 2002, state fund pension claims.
F (1,360) = 6.59*, prob > F = .011

H_0: Proportion with some return to work is the same for 1997 and 2002 state fund comparison time-loss claims.
F (1,278) = 82.65***, prob > F = .000

Table 4.45 repeats this analysis for self-insured claims. In this instance, there is not an appreciable change in the proportion of pensioned workers that made an attempt at return to work. There appears to be a slight drop in the rate for time-loss claims, but it is not statistically significant. We know that these workers were not employed at the time of observation (1997 or

2002), since they were either on pension or drawing time-loss benefits, so their efforts to return to work in the past did not result in permanent reemployment. However, the fact that an attempt was made is an important indicator of claims management performance, injured worker motivation, and employer willingness to accommodate injured workers.

Table 4.45 Return to Work, 1997 and 2002
Self-Insured Claims

Any return to work?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	58.1%	60.3%	77.6%	70.4%
No	41.9%	39.7%	22.4%	29.6%
n	62	58	49	54

H_0: Proportion with some return to work is the same for 1997 and 2002 self-insured pension claims.
F (1,118) = .23, prob > F = .630

H_0: Proportion with some return to work is the same for 1997 and 2002 self-insured comparison time-loss claims.
F (l,101) = 3.84, prob > F = .053

The rate of return to work with the employer at injury among those who made an attempt to return to work further indicates the willingness and capability of employers to retain their injured workers, even though ultimately these workers may have failed to sustain the return to work. Table 4.46 shows the rate of return to work at the employer at injury among those who made an attempt. In this case, the return-to-work rate was significantly higher in 2002 than in 1997, for both pension claims and time-loss claims. Again, this seems to reflect more effective targeting of L&I resources and a more accepting attitude among employers. However, this is not apparent in our reviewers' judgments of accommodation efforts for disabled workers by their employers.

Table 4.46 RTW at Employer at Injury for Those with RTW, 1997 and 2002
State Fund Claims

Return to work at employer at injury?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	84.3%	91.3%	66.4%	77.8%
No	15.7%	8.7%	33.6%	22.2%
n	89	103	113	45

H_0: RTW at employer at injury was the same in 1997 and 2002 for state fund pension claims.
F (1,201) = 4.61*, prob > F = .033

H_0: RTW at employer at injury was the same in 1997 and 2002 for state fund comparison time-loss claims.
F (1,230) = 18.64***, prob > F = .000

Table 4.47 shows a slight decline in the proportion of pension cases that demonstrated efforts at accommodation, in the judgment of our claim reviewers. This is not a significant

difference for pension claims, but the larger decline in the proportion accommodated among comparison time-loss claims is significant.

Table 4.47 Accommodation, 1997 and 2002
State Fund Claims

Accommodated	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	19.3%	14.2%	29.7%	13.1%
No	80.7%	85.8%	70.3%	86.9%

H_0: Accommodation was as prevalent in 2002 as in 1997 for pension claims.
F (1,194) = 2.24, prob > F = .136

H_0: Accommodation was as prevalent in 2002 as in 1997 for time-loss comparison claims.
F (1,150) = 42.03***, prob > F = .000

The same pattern is evident in Table 4.48, which reports the incidence of light-duty jobs provided to our sample of workers' compensation claimants. There was no significant difference in the proportion of pension claims with light duty provided between 1997 and 2002; but comparison time-loss claims showed a significant decline.

Table 4.48 Light Duty Provided
State Fund Claims

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Proportion of claims with light duty provided	34.8%	35.1%	42.7%	33.9%
Standard error	.035	.020	.021	.021

H_0: The proportion with light duty provided was the same in 1997 and 2002 for pension claims.
F (1,224) = 0.01, prob > F = .942

H_0: The proportion with light duty provided was the same in 1997 and 2002 for comparison time-loss claims
F (1,163) = 8.95**, prob > F = .003

We are somewhat at a loss to explain these results for return to work. However, several potential explanatory factors can be offered. First, economic forces may have played a role in re-employment success for injured workers in Washington. Also, the administrative efforts to reduce time-loss durations may have affected the return-to-work focus. It is also possible that the additional years of experience for the 1997 claims have led to these results. We are not prepared to conclude that there has been any diminution in return-to-work efforts, nor that this has played a significant role in the rise in pensions.

Disputation in the L&I System

Table 4.49 reports the proportion of pension and comparison group time-loss claims that were contested by employers in 1997 and 2002 in state fund claims. This refers to protests or appeals of claim allowance, and not to a protest of the actual pension award. While the increase

is modest and not significant for pension claims (from 11.7 to 15.2 percent), it is significant for comparison group claims (from 13.3 to 23.2 percent).

Table 4.49 Contested by Employer Claims, 1997 and 2002
State Fund Claims

Claim contested by employer?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	11.7%	15.2%	13.3%	23.2%
No	88.3%	84.8%	86.7%	76.8%
n	156	211	182	125

H_0: Employers are contesting the same proportion of state fund pension claims in 2002 as they did in 1997.
F (1,370) = 2.70, prob > F = .101

H_0: Employers are contesting the same proportion of comparison group claims in 1997 and 2002.
F (1,298) = 32.55***, prob > F = .000

Table 4.50 shows that the increase in contested claims is even more striking among self-insured pension claims. This is an increase for pension claims from about 10 percent to 34 percent in just five years. It is also revealing that there was only a very modest increase in the proportion of comparison time-loss claims contested by employers (from 6.0 to 7.1 percent). Looking at the overall comparison of 1997 and 2002, this is a large increase, and this result indicates a more contentious workers' compensation system.

Table 4.50 Contested Claims, 1997 and 2002
Self-Insured Claims

Claim contested by employer?	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Yes	10.6%	34.1%	6.4%	7.1%
No	89.4%	65.9%	93.6%	92.9%
N	66	59	50	56

H_0: Proportion of pension claims contested by employer was the same in 1997 and 2002.
F (1,123) = 18.09***, prob > F = .000

H_0: Proportion of comparison claims contested by employer was the same in 1997 and 2002.
F (1,104) = 0.31, prob > F = .578

Table 4.51 shows the distribution of BIIA appeals among the sample claims. The rate of appeals was determined by our claim reviewers based upon the separate dates of filing as recorded in the administrative file. As shown in the table, between 60 percent and 75 percent of these claims do not show any BIIA filings. It appears from the table that the frequency of BIIA appeals has increased for pension claims and declined for comparison time-loss claims between 1997 and 2002.

Table 4.51 Number of BIIA Appeals*

	1997 pensions	2002 pensions	1997 time loss	2002 time loss
None	70.6%	60.2%	67.2%	75.6%
1	24.1%	32.7%	20.6%	19.6%
2	3.5%	6.0%	8.4%	4.2%
3 or more	1.8%	1.1%	3.8%	0.6%
N	228	269	238	168

*Number of BIIA appeals is derived from the separate dates of filing as determined by our claim reviewers.

This result is confirmed in Table 4.52 which reports the total number of appeals divided by the sample size. This table therefore represents the average number of appeals per claim among the pension claims and comparison time-loss claims. The average number of appeals increased slightly from 1997 to 2002 pension claims, but this difference was not statistically significant. The average number of appeals among comparison group claims declined very significantly between 1997 and 2002.

Table 4.52 Appeals to BIIA*
State Fund Claims

Number of appeals	1997 pensions	2002 pensions	1997 time loss	2002 time loss
Mean	.376	.448	.601	.330
Standard error	.037	.022	.031	.020
N	228	269	238	168

H_0: Average number of appeals per claim was the same in 1997 and 2002 for pension claims.
F (1,370) = 2.75, prob > F = .098

H_0: Average number of appeals per claim was the same in 1997 and 2002 for comparison time-loss claims.
F (1,298) = 53.56***, prob > F = .000
*Number of BIIA appeals is derived from the separate dates of filing as determined by our claim reviewers.

REVIEWER OBSERVATIONS OF CLAIMS

Our five experienced, retired claim adjudicators reviewed over 900 state fund and self-insured claims. In the process of the review, several important observations were noted by claim reviewers that may otherwise be missed by a purely quantitiative analysis. This section captures some of their important observations from the review. Claim reviewers were frequently asked about the quality of the claims and met periodically with researchers to share their views of different or similar characteristics of claims across years, and pension and liability status. Claim reviewers were asked specifically to note any oddities in the claims, comment on any systemic or efficiency issues L&I faces in processing claims, differences between pension and time-loss claims, and differences in pension claims across years (1997 and 2002 pension award dates). We regard these observations as a powerful complement to the quantitative analysis presented heretofore.

Observations across Pension Years

Claim reviewers frequently noted the very large number of multiple vocational rehabilitation referrals and the seeming overuse of independent medical examinations. In their view, the claim adjudicator often did not know what to do about the claim and simply referred it out for another assessment. More often than not, such claims returned with a "not likely to benefit" or "medically unstable" outcome when it was fairly clear that would be the outcome from the beginning. This was generally perceived to be a bigger problem among the 1997 claims.

Vocational rehabilitation among the 1997 set of time-loss claims often seemed to begin too quickly, sometimes immediately after surgery and at inappropriate times. For example, several times injured workers over the age of 70 were referred for further vocational services, eventually resulting in a not likely to benefit outcome. These problems may be due to slow or lack of proper information provided to the claim adjudicator, or they may be due to poor adjudicator decisions. Claim reviewers expressed concern that claim adjudicators often requested several Ability to Work Assessments when there had already been a decision made. Claim reviewers did not perceive any difference between the two years with regard to vocational rehabilitation referral patterns. It was felt that discretionary vocational rehabilitation seemed to work better but it was only used sparingly. It could have been used more often especially with the 1997 cohort of claims.

Claim reviewers also noted that there were not many differences across the years with respect to the use of independent medical examinations, but that the 2002 pension claims seemed to have better documentation. Also a very prevalent problem was psychological issues, often as a preexisting condition or personality disorder (as opposed to psychiatric conditions of which there were also many). Depression, with preexisting conditions and low levels of education, seemed to be an emerging pattern among semi-retired injured workers. Claim reviewers felt that many of these claims would have resulted in TPD no matter what the Department of Labor & Industries did. Both years demonstrated a cycle of preexisting conditions such as MS or diabetes with post-injury worsening of systems (combined effects), particularly with back and knee injuries, osteoarthritis and heart conditions. The ability of the injured worker to recover was diminished, increasing strain and drawing the time-loss claim out. Often what held up the state fund claims in the later group was the presence of psychological or psychiatric conditions. When the claim adjudicator did not know what to do, especially with psych, it was referred for yet another

outside independent medical examination or vocational rehabilitation assessment rather than an internal occupational nurse or medical consultant. Reviewers noted that self-insured employers use occupational nurse case managers much more (but sometimes in a heavy-handed way.)

Claim reviewers noted that the 2002 pension claims were generally pensioned more quickly than the 1997 claims. While generally faster in pensioning claims, it was observed that the 2002 claims had fewer vocational rehabilitation plans. There was often slow recovery, and many cases where L&I "bought" the pension due to significant time loss and inactivity on the claim.

Other Observations of Factors Affecting Pensioning

Claim reviewers believed that BIIA orders on self-insurance second–injury fund pensions provided a big incentive over what the award would have been had the second-injury fund payment not been board ordered. In the later set of pension cases, the Department failed to contest what it would have with an earlier set of claims exhibiting similar issues, indicating accommodation to the BIIA decisions.

Another observation was that more injured workers were being granted SSDI in 2002 than in 1997. When this occurs, it is difficult to argue that an injured worker is not eligible for pension, and generally the ability and/or motivation to return to work is greatly diminished. From the claim review perspective it was difficult to tell whether this was due to a change in eligibility requirements or worsening severity.

Claim reviewers expressed some surprise at the larger than expected number of older age pension and noncooperative claims, especially among the 2002 pension and 1997 time-loss groups. The older the worker, the more health problems (diabetes, etc.). Noncooperation on the claim "dragged out the time loss." Others noted that the combination of pychological issues and attorney involvement would be interesting to pursue, as well as the interaction between vocational rehabilitation and post-injury exacerbation of symptoms, especially in the management of pain. Claim reviewers felt there was a "fear factor" associated with vocational rehabilitation and pain management that the department should address pro-actively rather than passively allowing litigation and dispute. Self-insured claim managers often appeared to have a more aggressive or assertive approach to addressing fears of return to work, but claim reviewers were not sure whether this always resulted in a positive outcome.

Another surprise to the claim reviewers was the large number of injured workers who had less than a high school education. This seemed to be a growing problem over the time between the 1997 and 2002 claims. Those with a high school or college education are much more likely to be found able to work. Self-insured injured workers were also more likely to have a high school or college education, and thus more likely to be able to return to work after injury.

While archived self-insured claim information is limited, the differences between state fund and self-insured claims were notable in vocational services. Self-insured claim managers are much less likely to use outside vocational rehabilitation specialists to achieve outcomes on the claim. On the other hand, self-insured companies are much larger and located in more urban areas and perhaps better able to provide return-to-work opportunities themselves than are smaller, state fund insured employers. It was also difficult to draw conclusions between state fund and self-insured use of independent medical examinations due to limitations in file information. However, self-insured claims managers appeared to use multiple independent examinations in order to obtain a preponderance of medical opinions more often than did state fund claim managers.

Time-loss claims in 2002 seemed to have fewer surgeries and this was also verified by the data analysis. It was the claim reviewers' opinion that attitudes about abilities may have changed. In some cases claim reviewers expressed surprise that later claims did not have surgeries, while in 1997 providers seemed to "jump at surgery." Surgery claims were also more likely to prescribe addictive opioid drugs. In some cases it was felt opioids were provided to individuals who appeared to have a history of narcotic drug abuse or alcohol abuse

Claims pensioned in 2002 seemed to have more "out of state, out of mind" problems, with large voids in time between different claim adjudicators managing the claim and different standards for out-of-state medical providers. The total percentage of pension claims with out-of-state residences is unknown, due to the practice of paying pensions to legal representatives, who forward payments to pension recipients.

Observations Regarding Information Available to Conduct Claim Reviews

Of particular interest to researchers and policymakers is the quality and availability of data. The Department of Labor & Industries data systems provide a wealth of information often not available from other state workers' compensation agencies. In general, the Department

probably has too much information on somewhat less important fields and not enough on other very important fields.

First, gaining timely information on each claim is challenging in itself. Our experienced claim reviewers were fairly insistent about having access to microfiche for each claim. Without it, there was no way to efficiently gain a comprehensive view of the claim. Imaged data was also useful, but the system's operation is slow in the latter half of the day, such that it is very difficult to get a clear and complete view of what is going on with the claim in a timely fashion. Use of the imaged documents also involves a time-consuming process of scrolling through electronic documents.

The imaging system for self-insurance does not provide an ability to index or separate types of documents received. Self-insurers submit copies of up-to-date claim information to the department in bulk. If the department claim reviewer is specifically looking for an independent medical examination report or vocational report, all images must be scanned to find the needed documents. This imaging issue in itself is worth noting because we often asked ourselves "If we as researchers could not get a complete electronic view of the claim, how could claim adjudicators expect to make well-informed and timely decisions on a claim?" It should not take more than a day for a claim adjudicator to receive a complete file and more than three to four hours for an experienced claim adjudicator to gain knowledge of the case. The lack of consistency in reporting and retrieiving good quality information on key variables was very frustrating.

Second, while the data contains a wealth of information necessary for managing claims, there are some extremely important fields that are lacking and would not be hard to capture. For example, education of the worker is an extraordinarily important field for predicting labor market outcomes (and by extension time loss and pension outcomes) but it is not captured by the Department of Labor & Industries in any systematic way. Similarly, county of residence may carry more weight on labor market outcomes than county of injury.

Third, data—especially on older claims—is clearly lacking about self-insured claims. Information on vocational rehabilitation services or retraining information is usually not available. Information on time loss paid to date is often inaccurate or incomplete. These problems stem from inconsistent or unclear enforcement or communication with self-insured carriers as to what should be required, and poor attention to loading self-insured data in the

department's data systems. More recent claims seem to be improving in data quality, but are still lacking in reliability.

We are aware that self-insured employers or their TPAs have their own data systems, but we did not attempt to obtain information on those systems due to concerns about representativeness and about the time it would take to achieve approval from institutional review boards to gather such data. We are also aware of a request by the Washington State Legislature for the Department to review self-insurance issues, and so will leave this comment as a reinforcement of any request for data that would support that effort.

Conclusion

Claim reviewers noted that there was either inexperience or inability of claim adjudicators to see a pension coming and get action on the claim. We recognize that this is much easier in retrospect and without the confusing volume of diverse claims that must be handled every day. Reviewer observations suggest many factors potentially involved in any changes in system performance: changing medical management; inappropriate use of vocational rehabilitation and independent medical examinations; changing educational levels, possibly related to immigrants' education; passivity toward previously contestable issues; and general attitudes toward disability. The combination of factors affecting pension decisions and inability to obtain data in a fast and reliable way on complex claims may explain some of the difficulty of claim adjudicators to anticipate pension outcomes. In the opinion of our claim reviewers, claim adjudicators frequently missed the early signs of an eventual TPD: an injured worker's outlook that he or she cannot return to any work, as well as lawyers or providers who encourage this view; no specific expectation for return to work; inconsistent work patterns in the past; conflicting medical evidence and opinions; unsuccessful vocational outcomes early in the claim; and poor labor market conditions to name a few.

MULTIVARIATE ANALYSIS OF CLAIM REVIEW DATA

Now we want to look at all these variables (or as many as practical) simultaneously. The value of this multivariate approach is that it allows for interactions and intercorrelations among the variables. For example, older workers would be expected to have more preexisting conditions than younger workers when they file a workers' compensation claim. So it is important to try and

separate the effects of age and preexisting conditions on the likelihood of pension. Within some statistical limits, that is possible with multivariate analysis.

For the sake of easy interpretation, we will present these multivariate results in two linear probability models, where the dependent or outcome variable is the probability of receiving a total and permanent disability pension award from L&I. This will be estimated similarly for both sampled years (1997 and 2002) as a function of various claim, treatment, and injured worker characteristics. The estimates that we report measure the difference between our samples of pension claims and the comparison time-loss claims that did not receive a pension award; so they really represent the differential between injuries and illnesses that obtained pensions versus those that did not. It is also important to understand that this is not the same as comparing pension claims to all time-loss claims, as we did earlier in the propensity score exercise). The degree of variation among these claims has been artificially restricted by the process of matching pension claims to similar time-loss claims.

We present the analysis of the 1997 and 2002 pension cohorts separately to highlight the differences between them and to establish what has changed in the interim. These models relate primarily to characteristics of the injured worker or his/her claim. Thus the variance that is explained by these models does not represent changes in the workers' compensation system per se, but their manifestation through the outcomes for individual workers.

In addition to the coefficients of the regression equations, which measure the contribution of the particular variable to the probability of a pension award, we also test the statistical significance of each coefficient. In each case the test of statistical significance is a test of the null hypothesis that the particular coefficient is actually zero; that is, there is no association between that characteristic and the likelihood of pension. While we will report the statistical significance of each coefficient, we will discuss some notable point estimates even where they are not significant. Because of the relatively small samples (particularly after cases with missing data are excluded) we will be generous in utilizing these unique multivariate results.

Thus, we will describe the impact of a preexisting condition as an increase in the probability of pension award, given that there is a subsequent injury and workers' compensation claim. But this increase in probability of pension will be estimated holding other factors included in the model constant. So there will be a separate estimates for each year of the rise in pension

probability with increasing age, holding constant other factors, including the possibility of a preexisting condition.

Analysis of 1997 Claim Review Sample

Tables 4.53 (for 1997) and 4.54 (for 2002) report the variables used in the linear probability regression model, their estimated linear regression coefficients, uncorrected t statistics, and the probability of that t statistic if the null hypothesis of no effect is correct. It is worth noting that these t statistics may cause us to overstate the significance of our findings slightly because of heteroskedasticity (correlation of predicted values and error terms), but this is only a problem where statistical significance is dubious. Where the t statistic is large, a small bias is not a problem, particularly for descriptive regressions like ours. (See Wooldridge, 2006, Chapter 8.) We will employ a theoretically more correct model when predicting pension probabilities in chapter 5.

Table 4.53 Linear Probability Estimate of the Probability of Pension Award, 1997

Independent Variable Pension	Coef.	Std. Err.	t	P>|t|
Accommodation	.06025	.0677771	0.89	0.375
Est mo wage	-.0000797	.0000316	-2.52	0.012
Age at inj	.0068526	.0026951	2.54	0.012
Male	.1341468	.0665075	2.02	0.045
Contested	-.0053731	.0822396	-0.07	0.948
Legal rep	.2220763	.0579602	3.83	0.000
Number proc	.0176003	.0135281	1.30	0.194
Number voc	-.0647672	.0142497	-4.55	0.000
Opioid invol	-.0500005	.0652769	-0.77	0.444
Pain clinic	.1162993	.0740168	1.57	0.117
ppd payments	-.34124	.0577429	-5.91	0.000
Preexisting	.119488	.0598357	2.00	0.047
Prior claims	.0059639	.0068936	0.87	0.388
Reopened	-.0575322	.0693516	-0.83	0.408
Psych invol	.0070401	.0565335	0.12	0.901
Married	.1344316	.0549005	2.45	0.015
Number IMES	-.012429	.0124248	-1.00	0.318
Less than high school	.1299457	.0553741	2.35	0.020
Construction	.0003757	.0743074	0.01	0.996
Agriculture	-.0749571	.0899662	-0.83	0.406
Econ distress	-.0367112	.0593755	-0.62	0.537
Self-insured	-.1891048	.0741716	-2.55	0.011
constant	.4295314	.1835038	2.34	0.020

Summary Statistics

Source	SS	df	MS
Model	25.6228703	22	1.16467592
Residual	42.3126135	256	.165283647
Total	67.9354839	278	.244372244

Number of obs = 279
F(22, 256) = 7.05
Prob > F = 0.0000
R-squared = 0.3772
Adj R-squared = 0.3236
Root MSE = .40655

* Pension claims measured against comparison time-loss claims that were selected to match the characteristics of the pension claims using a propensity scoring model.

The advantage of estimating this model on the claim review sample is that we are able to incorporate some summary judgments made by our claim reviewers that pertain to the claim, the claim processing, or the worker's behavior. Rather than being limited to "official" variables that are available from the L&I data warehouse, we were able to go further and form judgments about the particular situation faced by the injured worker. This can be illustrated in the accommodation variable that we included in our linear probability estimates.

The first variable in our model is "accommodation," or the determination by our claim reviewers that there was some type of job accommodation provided to assist the injured worker in a return to work. The dependent variable for the linear probability regression presented in

Table 4.53 is the dichotomous variable “pension granted” yes or no. So the interpretation of the regression coefficient where the independent variable is a dichotomous (yes or no) variable as in the case of accommodation is very simple. The coefficient is an estimate of the average impact of an accommodation offer by the employer on the probability of pension award. In this case, the estimated coefficient of 0.06 indicates that a worker is six percent more likely to receive a pension if his/her employer showed some effort at accommodating the disability. However, this coefficient is not statistically different from zero, as shown in the P>t column, so we conclude that employer accommodation as evaluated by our reviewers, does not have a material effect on pension probability in Washington, holding other factors constant.

It is important to state that this finding does not mean that accommodation is unimportant, or that it creates more pensions. It may be that we measured accommodation poorly; it may be that there were too few claims that got accommodation to estimate the effect successfully; or it may be that the effect of accommodation was similar for pension and comparison claims; or it may be that some other independent variable (or variables) is closely correlated with accommodation, rendering it more difficult to identify the independent effect of either variable or its statistical significance. All the finding tells us is that there was not a statistically significant difference between pension claims and comparison time-loss claims in the impact of accommodation as perceived by our claim reviewers.

The next variable (“est mo wage”) is the actuarial estimate of the monthly wage of the injured worker before injury. This is a continuous variable, which means that it has a different impact depending upon the level. The regression coefficient represents the average effect of wage at the mean value for the population. This variable is not a direct measure of monthly earnings, but an imputation of the monthly wage based upon time-loss payments and the apparent duration of time-loss disability. Since these injuries occurred several years earlier, they may not represent contemporary wage levels. The mean for this variable is $2,422 per month. The regression coefficient indicates that for every $100 gain in estimated monthly earnings, the probability of pension declines by about 0.8 percent. Further, this coefficient is highly significant so we can be quite confident that the relationship is negative. However, it is obviously not a large effect as even a difference of $1,000 in estimated monthly earnings would mean only an 8 percent difference in probability of pension. So this finding means that lower wage workers are

more likely to receive a pension, holding other factors constant, but that the effect was fairly small.

"Age at injury" is another interesting variable. It is well established in the literature that older workers are less likely to be injured, but that they have longer periods of recovery and disability when they are injured. Our estimate is that for each additional year of age, the probability of pension rises by 0.7 percent. This is also a small increase, but it isappears to be statistically significant at the 5-percent level. Thus a worker who was 60 years old at injury is 7 percent more likely (10 times 0.7 percent) to receive a pension than one who was 50 years of age at injury. Being "male" rather than female increases the probability of pension by 13.4 percent, which is another highly significant result. Presumably this reflects the occupational distribution by gender, and the resultant exposure to serious injury, rather than some specific behavioral or claim processing difference among genders.

The fact that the claim was "contested" by the employer does not appear to significantly affect the likelihood of pension. The presence of "early voc" (VR services, Early Intervention or Ability to Work Assessment) is also not statistically significant in our regression estimate. We suspect that this may be due to the sorting of claims to find those where an early intervention may be useful.

"Language difficulty" represents the situation where the worker requested an interpreter at some point, or where the claim reviewer finds other evidence of language difficulty in the claim file. A little more than seven percent of the sample was judged to have language difficulty by our claim reviewers. Language difficulty showed a positive impact on pension probability of about 10 percent, but due to the small number of such workers and a high standard error, it was not statistically significant.

A variable with very high statistical significance is "legal representation." If a worker had legal representation, she or he was 22.2 percent more likely to secure a pension in 1997; and over 70 percent of our seriously injured worker sample had legal representation. This is one of the largest impacts of any variable in our multivariate model for 1997 claims.

The "number of medical procedures" is another variable that we were able to gather because of our direct review of claim files, but it was not statistically significant. We took this variable to represent the degree of medical complication and nearly 45 percent of the sample had

more than one medical procedure performed, but the number of procedures did not distinguish pension claims from the rest.

The number of vocational rehabilitation actions ("number voc") was highly negatively related to the probability of pension. Our coefficient indicates that each VR action reduced the probability of pension by 6.5 percent. This may not be surprising since the purpose of VR is to return injured workers to work, thereby forestalling a TPD pension. However, the coefficient indicates that VR is having a significant impact in reducing the number of TPD pensions in Washington. The mean number of VR actions in the sample was 3.4 with a range of from 1 to 15. Fully 40 percent of the sample had more than three VR actions. Presumably this matches our earlier finding that VR referrals were frequently used as a way to "park" a claim to see what developed. It is also true that these multiple referrals may have reflected the CM's aim to be certain that VR would not benefit the worker before he/she recommended going to a permanent pension solution.

At least 38 percent of our sample of serious injuries showed two or more prescriptions of opioids for more than seven days each. It has been shown that opioid use is associated with a longer duration of disability (see chapter 2), but opioid use ("opioid invol") was not significantly related to the probability of pension in our 1997 sample. Neither was receiving the services of a "pain clinic." although the estimated effect was larger. For those injured workers showing use of a pain clinic, there was an 11 percent higher likelihood of pension. Again it is necessary to reiterate that this does not mean that these are not important factors in determining the outcome of individual claims; but simply that the difference between claims that receive pensions and those that do not is not statistically different from zero based upon our sample evidence. Opioid use may well be correlated both with pension award and with extended time-loss claims as shown earlier.

Almost half (49.5 percent) of the workers in our samples had received a PPD award somewhere in the life of their claim. The variable "ppd payments" which indicates a payment for PPD was associated with a 34.1 percent reduction in the probability of receiving a pension in the 1997 sample. This was one of the most significant variables in our linear probability estimate and it is also very large in magnitude. We showed earlier in the chapter that there had been a significant increase in the number of prior PPD awards among both pension claims and

comparison time-loss claims between 1997 and 2002. But we find here that receipt of PPD payments is also important in predicting there will not be a subsequent pension award.

Another highly significant result is for "preexisting" condition, which was determined to be the case for over 80 percent of the injured workers in our sample. A preexisting condition raised the likelihood of a pension outcome by 114.9 percent on the average among 1997 recipients. This is also a very large effect, which was found earlier to have increased among pension claims, but decreased among comparison time-loss claims between 1997 and 2002.

There was a large majority (84 percent) of claims where there was a "prior claim" but this variable was not associated with a pension outcomes. This variable may have been dominated by the "ppd payments" variable reporting actual payments for permanent partial disability. In a linear regression analysis, the variable with the "better fit" will be identified as the significant one. Among these seriously injured workers, it appears that a previous PPD serves as a better (negative) predictor of future pension than any prior workers' compensation claim.

The same is true with the "reopened" claim variable. We thought this variable would represent the drawn out and difficult type of claim that frequently results in a total permanent or permanent partial award. However, only about 11 percent of the claims in our sample had closed and then reopened before receiving a pension, and this was not correlated with final pension outcome.

Our claim reviewers also were able to make an overall judgment as to whether there was any evidence of psychological issues in a claim ("psych invol"). In almost 35 percent of these serious injury claims, they did find evidence of some psychological or psychiatric issues. However, Table 4.53 does not indicate strong association between psychological issues and a pension outcome. The coefficient indicates that "psychological invol" produced a negligible (0.7 percent) impact on the chance of pension, and this was not significantly different from zero. The results for psychological variables earlier in the chapter were also equivocal, with no significant difference between 1997 and 2002 in pension claims, but there was a significant decline in psych treatment for comparison claims.

The relationship of marital status to pension is much clearer, however. The coefficient for "married" shows that married individuals were 13.4 percent more likely to receive a pension award, and this is highly significant. It is conventional to assume this effect has to do with greater family responsibilities and therefore more pressure on receiving continuous wage and

salary earnings, or the workers' compensation replacement for such earnings, when one is injured.

The number of Independent Medical Examinations ("Number IMEs") was not significantly related to pension probability. Only 30 percent of our samples did not have at least one IME, and the average was 2.0 per claim. So we believe that this variable may be more difficult to assess in terms of impact on pension outcomes. If nearly everyone has an IME, it is not likely that it will prove to be a discriminating characteristic. A more detailed and careful analysis is needed to determine the impact of multiple IMEs on the likelihood of pension.

We saw earlier that lack of education is very detrimental to labor market success and hence leads to an increased likelihood of pension. Those injured workers with less than a high school education were 13.0 percent more likely to receive a pension than others in 1997. We presume that this is a measure of labor market disadvantage which represents the inability to secure a job.

Table 4.53 reports that employment in the construction industry is apparently not associated with pension probability in 1997, holding all other factors constant. Workers in agriculture were less likely than others to receive pensions (by 7.5 percent) in 1997, but this was not a statistically significant finding. Other industry variables also did not perform well in earlier test regressions, so they were dropped from the final specification.

Location in an economically distressed area ("econ distress") also did not pass our test of statistical significance in the probability of pension regression for 1997. This variable performed well in distinguishing between 1997 and 2002 pensions earlier, so we believe it likely is a causative factor despite the finding here. It was associated on average with a 3.7 percent lower probability of pension in 1997, which will contrast with our findings for 2002.

Our samples, with about 26 percent self-insured claims, demonstrated a large negative effect of self-insurance on the probability of pension. On the average, workers from self-insured employers were 18.9 percent less likely to receive a pension in 1997 than workers with state fund insured employers controlling for all other variables in the regression. This difference is highly statistically significant. The interesting question is what causes this difference. Is there a systematic difference in the way claims are managed before they reach the pension referral stage, or perhaps differences in the labor force employed by the self-insured? Or is it due to better

performance of disability management tasks to prevent injuries from turning into permanent disabilities? Unfortunately, our data cannot answer these questions.

This exercise is revealing for several reasons. First, it has sorted the variables that were examined earlier in the chapter in a new and more revealing way. We were able to test variables in a multivariate model that removes incidental correlation between causative variables and assigns the causation to the variable that fits best. This estimate explains approximately 33 percent of the variation in the probability of pension among 544 of the 1997 claims in our sample. This is about average for a cross-sectional sample, particularly of workers' compensation claims. But we must remember that comparison time-loss claims were selected on the basis of the closeness of their match to pension claims; so we had an artificially reduced amount of variance in our sample to begin with. As mentioned earlier, a significant number of 1997 comparison time-loss claims had, in fact, gone on to receive pensions between 2002 and 2007. So these pension claims and comparison claims were very similar indeed.

Analysis of 2002 Claim Review Sample

We will analyze the 2002 claim review sample separately in order to focus on the differences between our two observations and to maximize the comparability with the earlier bivariate results. We will present the linear probability estimates of the characteristics associated with receipt of pension for the 2002 cohort, and we will discuss differences between 1997 and 2002 as we proceed. Table 4.54 reports the linear probability regression coefficients, standard errors, and t-statistics for the 2002 sample.

Table 4.54 Linear Probability Estimate of the Probability of Pension Award, 2002

Independent Variable Pension	Coef.	Std. Err.	t	P>|t|
Accommodation	.065792	.0553335	1.19	0.236
Est mo wage	-.0000257	.0000158	-1.62	0.106
Age at inj	-.0002595	.0021829	- 0.12	0.905
Male	.0903474	.0467964	1.93	0.055
Contested	-.0353535	.0537424	-0.66	0.511
Legal rep	.1491798	.0451162	3.31	0.001
Number proc	.0063927	.0125648	-0.51	0.611
Number voc	-.0333775	.0139669	-2.39	0.018
Opioid invol	.0254983	.0470174	0.54	0.588
Pain clinic	.0015747	.0550173	0.03	0.977
ppd payments	-.2221868	.043753	-5.08	0.000
Preexisting	.4140948	.0491911	8.42	0.000
Prior claims	-.0077937	.0041586	-0.187	0.062
Reopened	.1192789	.0747088	1.60	0.112
Psych invol	.0974608	.0452916	2.15	0.032
Married	.0660302	.0409349	1.61	0.108
Number IMES	-.0074927	.0120391	-0.62	0.534
Less than high school	.0380145	.0411828	0.92	0.357
Construction	.0669434	.0548192	1.22	0.223
Agriculture	.1641622	.072567	2.26	0.025
Econ distress	.0628234	.0427625	1.47	0.143
Self-insured	-.1824614	.0617725	-2.95	0.003
constant	.4787156	.1463294	3.27	0.001

Summary Statistics

Source	SS	df	MS
Model	24.235958	22	1.10163445
Residual	22.8797137	245	.093386586
Total	47.1156716	267	.17646319

Number of obs = 268
F(22, 245) = 11.80
Prob > F = 0.0000
R-squared = 0.5144
Adj R-squared = 0.4708
Root MSE = .30559

* Pension claims measured against comparison time-loss claims that were selected to match the characteristics of the pension claims using a propensity scoring model.

The accommodation variable indicates that employer accommodation is associated with about 6.6 percent greater chance of pension, but this estimated coefficient is not statistically different from zero due to elevated variance. This is essentially the same result as was found for 1997. As before, we do not interpret this coefficient as indicating that accommodation is counter-productive, but rather that accommodation may be associated with other characteristics of the worker or the employer that make a pension more likely.

The estimated monthly wage is also not significant by conventional statistical standards (5 percent chance of error) for 2002, but is indicated as slightly negative. This is a change from the 1997 results as the coefficient is only about one-third the size that was reported earlier. This

seems to indicate that higher wage earners are slightly less likely to qualify for pensions, given other characteristics, but that this effect may be less important in 2002 than it was in 1997.

Age of the worker at injury is not related to the probability of pension in our 2002 sample. This is also different from the 1997 findings and presumably represents a real change in the Washington system. Whereas each additional year of age in 1997 increased the probability of pension by 0.7 percent, this relationship is not demonstrated in 2002.

Injured workers who are male were 9.0 percent more likely to receive a pension in our 2002 sample, a result which just missed statistical significance at the 5 percent level. This is a decline from 13.4 percent in 1997. Again, we believe this reflects the nature of the injury or labor market prospects rather than a specific gender impact.

Claims contested by the employer were slightly (3.5 percent) less likely to wind up receiving a TPD pension, but this is a change from 1997 when the estimated effect was less than 0.5 percent. Those workers with legal representation were 14.9 percent more likely (and statistically significant) to receive a pension award in 2002. This is one of the larger effects found in this analysis but represents a reduction from 22.2 percent in 1997.

The number of medical procedures ("number proc") was not related to the likelihood of pension in 2002 or in 1997, but the number of VR activities was. Each instance of VR treatment activity in 2002 reduced the probability of pension by 3.3 percent, which was statistically significant, and indicates a meaningful impact of VR in reducing pension incidence.

Opioid use is not significantly related to pension probability, with the estimated coefficient indicating that such use was associated with a 2.5 percent increase in likelihood. This is a reduction from the 1997 estimated level of 5.0 percent, but neither result was statistically significant.

Use of pain clinics did not show any effect in 2002, which is a big change from 1997 when the utilization of a pain clinic was associated with an increase of 11.6 percent in the probability of pension. We presume that this represents a change in practice, perhaps reflecting experience with pain clinics as a treatment in the earlier period.

Prior receipt of payment for PPD had a powerful impact on the probability of pension in 2002. On average PPD receipt was associated with a lower likelihood of pension by 22.2 percent, a result which was highly statistically significant. However, this was a reduction from the even stronger impact of 34.1 percent in 1997.

On the other side, the presence of a preexisting condition increased the probability of pension by 41.4 percent in 2002, the largest estimated effect in this analysis. This is also a major change from 1997, when a preexisting condition only increased the probability of pension by 11.9 percent. We do not know what kind of behavioral change or system change may have led to this major shift in the impact of preexisting conditions.

Prior claims had a small, non-significant effect of 0.7 percent on pension probability in 2002. This result was not significant in either year. Reopened claims were 11.9 percent more likely to receive a pension in 2002, which is about double the estimate for 1997, but of the opposite sign. However, this result was not significant in either year due to high variance of the measure.

Confirming what many observers told us, the contribution of psychological disorders to pension award was significant. On average, the psychological component added a significant 9.7 percent to the probability of pension in 2002. No such effect was found in 1997, which likely indicates a change in the system.

Injured workers who were married were not significantly more likely to receive pensions in 2002, as they had been in 1997. The estimated coefficient for "married" showed a decline from 13.4 percent in 1997 to 6.6 percent in 2002. We do not have an explanation for why this should be so. The number of independent medical evaluations ("number IMES") did not show a significant impact on pension probability in either 1997 or 2002.

In 2002, the impact of educational disadvantage ("less than high school") was substantially smaller than in 1997. Having less than a high school education was associated with an increase of 3.8 percent in the likelihood of pension in 2002 (not significant) in contrast with 13.0 percent in 1997. This result seems counter-intuitive, but perhaps may be connected with the very substantial change in the impact of agriculture on pension probability between 1997 and 2002.

While construction was not significantly associated with pension probability in either year, the estimated effect was substantially higher at 6.7 percent in 2002. However, agriculture showed a big change. In 1997 employment in the agricultural sector was (not significantly) associated with a reduction of 7.5 percent in the probability of pension. But in 2002, agriculture showed a positive impact of 16.4 percent, and was statistically significant. This is one of the

largest swings between 1997 and 2002 and presumably represents a major change in Washington's workers' compensation population.

Counties that were in economic distress also increased in importance and changed signs. In 2002 residence in one of these counties had a positive point estimate of 6.3 percent impact on the probability of pension, compared to a negative impact of 3.6 percent in 1997. But neither coefficient was statistically significant.

The final variable in our analysis is self insurance ("self-insured"). In 2002, the fact that the employer was self-insured reduced the likelihood of pension by 18.3 percent. This is essentially no change from 1997, when the effect was 18.9 percent. Both results are highly significant.

Comparisons between 1997 and 2002

There are major differences between the two linear probability equations presented here that presumably indicate changes in Washington's workers' compensation system between 1997 and 2002. The largest changes in estimated coefficients were found in psychological conditions, agricultural employment, and preexisting conditions. We heard that the incidence of serious disability claims from the agricultural sector has escalated with the changes in labor supply in that sector. The contribution of these factors cannot be estimated directly from our results, but it could be sizable.

Other variables that showed rising influence on the likelihood of pensions in 2002 include opioid drug use, reopened claims, claims from economically distressed areas, and claims from the construction industry. These all seem to be consistent with what we heard from knowledgeable observers in Washington. In addition, the effect of the number of VR activities and prior PPD award both became less negative from 1997 to 2002.

Among those variables that declined in influence between 1997 and 2002 were gender, marital status, age at injury, and less than high school education. Thus the demographic characteristics of the injured worker seemed to be less important in 2002. In addition, the influence of pre-injury earnings, use of pain clinics, and legal representation were all less positive than they had been in 1997. Small declines were recorded for employer contested claims, prior claims, and the number of medical procedures. No change was seen in the effect of

employer accommodation, the number of independent medical examinations, or self-insured status of the employer.

Overall, our estimated equations explained 32 percent of the variance in 1997 and 47 percent in 2002. Furthermore, the Chow statistic indicates that the two equations are fundamentally different in structure. This has been demonstrated in our discussion of the independent variable coefficients in these two linear probability equations. It seems that both the characteristics of injured workers who claim pensions and the characteristics of the workers' compensation system within which they claim them changed between 1997 and 2002. We have sketched out some of the dimensions of those changes in this chapter with statistical analyses of matched samples of claims from 1997 and 2002.

We believe these analyses supplement the presentation and interpretation of administrative data in chapter 2, and improve our understanding of the increase in pension frequency that occurred in Washington over this time period. However, this claim review exercise has been disappointing overall. We have not generated the new insights that we expected, and the results are more equivocal than we anticipated. In the final analysis, changes in the functioning of a workers' compensation system may be too subtle to detect with the simple statistical measures available here.

Appendix Table 4.1 Data Elements from the Pension System Claim Review

Variable name	Description
reviewer	The reviewer of the claim
reviewdate	Date reviewed
claimid	Claim ID (Removed from de-identified file)
lastname	Last name of worker (Removed from de-identified file)
birthdate	Birth date of worker
otherimpinfo	Other comments to assist with review
injdate	Date of injury
date_rec	Date claim was received (was not filled out and removed)
injcause	Brief description of cause of injury from accident report
dep_inj	Number of dependents at the time of injury
dep_pens	Number of dependents at the time of pension
marital_pens	Marital status at the time of pension (at time of injury available through data warehouse)
county_res	County field number from L&I
interpret	If interpreter was used or language barrier noted, “Y” else “N”
contested	If employer contested the claim, “Y” else “N”
contest_reason	Text of why the employer contested the claim
diag	Text of Diagnoses (A=accepted D=denied T=temporary)
numproc	Total number of procedures
procdesc	Description of procedures performed
opioids	If opioids were prescribed for a chronic condition, then “Y” else “N” (discussion of chronic included definition of more than 2 prescriptions of more than 7 days each)
psych	If psych evaluation/ conditions were indicated, then “Y” else “N”
psychdate	Date psych was first noted
preexisting	If preexisting conditions were indicated, then “Y” else “N”
psychremarks	Text of psych remarks
peremarks	Text of preexisting condition remarks
priorclaims	If there were prior claims, then “Y” else “N”
priorsame	If there were prior claims in the same area, “Y” else “N”
postinj	If there were other medical/psych conditions that developed after the accepted conditions for the injury, then “Y” else “N”

Variable name	Description
prior_ppd	If prior claims had a PPD, then “Y” else “N”
evals	Text of IME evaluations
forensiccase	If the assessment was forensic, “Y” else “N”
forensicdate	Date of forensic evaluation
rtw	If there was any return to work, then “Y” else “N”
rtweoi	If there was any return to work, was it with the employer of inj then “Y” else “N”
monthsrtweoi	If any return to work, total months in return to work status
lightduty	If any light duty was provided, then “Y” else “N”
accom	If any job accommodation was provided, then “Y” else “N”
workhistory	Text of injured workers’ work history
education	Highest educational level obtained:
vocdates	Text of vocational rehabilitation actions
vocrtw	If voc was completed, did the injured worker return to work?
vocatw	Was there an able to work determination?
vocdispute	Was there a dispute over vocational rehabilitation?
vocdisputedate	Date of dispute over vocational rehabilitation
vocdisputeoutcome	Text outcome of dispute
legal	Did the injured worker have a legal representative?
appeals	Number of appeals
biiadate1	First appeal
whofiled1	Who filed first appeal (IW, ATTY, Employer, etc.)?
issue1	What was the issue (Med, PPD, TL, TPD)?
decision1	Decision reasoning
decdate1	Date of decision
outcome1	Outcome of decision
biiadate2	Second appeal
whofiled2	Who filed second appeal (IW, ATTY, Employer, etc.)?
issue2	What was the issue (Med, PPD, TL, TPD)?
decision2	Decision reasoning
decdate2	Date of decision
outcome2	Outcome of decision

Variable name	Description
biiadate3	Third appeal
whofiled3	Who filed third appeal (IW, ATTY, Employer, etc.)?
issue3	What was the issue (Med, PPD, TL, TPD)?
decision3	Decision reasoning
decdate3	Date of decision
outcome3	Outcome of decision
biiadate4	Fourth appeal
whofiled4	Who filed fourth appeal (IW, ATTY, Employer, etc.)?
issue4	What was the issue (Med, PPD, TL, TPD)?
decision4	Decision reasoning
decdate4	Date of decision
outcome4	Outcome of decision
biiadate5	Fifth appeal
whofiled5	Who filed fifth appeal (IW, ATTY, Employer, etc.)?
issue5	What was the issue (Med, PPD, TL, TPD)?
decision5	Decision reasoning
decdate5	Date of decision
outcome5	Outcome of decision
biiadate6 (*** Note: or could be last appeal)	Sixth (or last appeal)
whofiled6	Who filed sixth/last appeal (IW, ATTY, Employer, etc.)?
issue6	What was the issue (Med, PPD, TL, TPD)?
decision6	Decision reasoning
decdate6	Date of decision
outcome6	Outcome of decision
biianum1	Higher court case number
hcdecdate1	Higher court decision date
hcoutcome1	Higher court outcome
biianum2	Second case at higher court case number
hcdecdate2	Second case at higher court date
hcoutcome2	Second case at higher court outcome (e.g. remand)
adjudicativedelays	Did the reviewers feel there were adjudicative delays?

Variable name	Description
noncoop	Did the reviewers find there was noncooperation on the claim from the injured worker?
suspension	Did the reviewers note suspension on the claim?
labormarket	Did the reviewers feel there were significant labor market barriers?
spousedis	Did the reviewers find indication that a spouse or significant other was disabled also?
relief	Was there second injury fund relief on the claim?
reliefamount	What was the amount of the second injury fund relief?
otherimpinfo	Other misc entries
otherobs	Other misc entries
ssdi	From the misc entries, SSDI?
disability_conviction	From the misc entries, strong disability conviction?
drugalchuse	From the misc entries, drug and alcohol abuse?
obesity	From the misc entries, obesity a factor?
grade_school	From the misc entries, did IW have only grade school education?
iw_died	Did the injured worker die (could be unrelated cause)?
lengthdays	If a self-insured claim, what was the length of days on time loss?
timelossamount	If a self-insured claim, what was the time loss amount?
datelastpaid	If a self-insured claim, what was the last date time loss was paid?
cleaned	Data management field (ignore)
firstvoc	Date of first vocational rehabilitation
numvoc	Number of vocational rehabilitation actions (EI,AWA,PD,PI)
earlyvoc	Number of early voc actions (EI,AWA)
earlynlb	Number of early voc actions (EI,AWA) with not likely to benefit outcome
plandev	Did the injured worker reach the plan development stage? Y.N
dateplan	When was the date of the plan?
plancomp	Did the injured worker ever complete a plan?
lastvoc	What was the last date of voc activity?
outcome	Highest outcome achieved from voc: 1=further services not approp: medically unstable, 2= further services not approp: not likely to benefit, 3= eligible, 4= able to work, 5= plan development, 6= plan developed or approved, 7= plan completed, 8=return to work
firstimedate	Date of first independent medical evaluation

Variable name	Description
numberimes	Total number of IMEs
lastimedate	Last date of IME
psycheval	Did IME include psych evaluation
ime_outcome1	Outcome of IME (in terms of PPD rating)
ime_outcome2	Second PPD rating
ime_outcome3	Third PPD rating
mmi	Maximum medical improvement noted from IME

Appendix Table 4.2 Data Elements from the L&I Data Warehouse

Variable Name	Description
unique	unique identifier corresponding to claim ID
sample_year	whether year was 1997 or 2002
group	group A=1997 pension, B= 2002 pension, C= 1997 time loss, D= 2002 time loss
claim_id	Claim ID (Removed from de-identified file)
clmt_last_name	Worker's last name (Removed from de-identified file)
clmt_1st_name	Worker's first name (Removed from de-identified file)
clmt_birth_date	Worker's date of birth (Removed from de-identified file)
clmt_ssn	Social security number (Removed from de-identified file)
injry_date	Date of injury
injry_oiics_accdt_type_code	OIICS accident type code
oiics_accdt_type_code_desc	OIICS accident type description
injry_oiics_body_part_code	OIICS body part code
oiics_body_part_code_desc	OIICS body part description
injry_oiics_nat_code	OIICS nature code
oiics_nat_code_desc	OIICS nature description
injry_oiics_srce_code	OIICS source code
oiics_srce_code_desc	OIICS source description
clmt_hgt_qty	Height of worker in inches as self-reported by worker on most recent Report of Accident filed with L&I.
clmt_wgt_qty	Workers weight in pounds as self-reported by worker on most recent Report of Accident filed with L&I.
clm_recv_date	Date the claim was received
naics_code	NAICS (Industry) code
naics_code_description	NAICS (Industry) code description
number_of_imes	Number of IMEs
tl___lep_pd_thru_sample_year_end	Time loss and loss of earning power paid through sample year end
clm_1st_med_visit_date	First medical visit date as recorded in data warehouse
clmt_sex_code	Gender M=male, F=female
marital_status	Martial status S=single M=married D=divorced
current_county_code	County of injury code
county_desc	County of injury description

Variable Name	Description
multiple_voc_rfrls	Where there multiple voc referrals or not
vr_disputes	How many vocational rehabilitation disputes were there
age_at_pension_allowance	Age at pension allowance
time_in_assessment	Time in assessment
pens_alwn_date	Pension allowance date
pension_amount	Amount of pension award
actuary_mo_wage_amt	Actuary monthly wage amount (calculated)
psych_tx	Flag for psych treatment based on codes (see worksheet)
amt_pd_for_psych_tx	Amount paid for psych treatment
appeals	Number of appeals
employer_contested_claim	Did the employer contest the claim?
accident_year_employer_size	Size of the employer during the accident year
opioid_claim	Flag indicating that worker has received more than one opioid prescription with a total of more than a 120 days supply of H3A, H3U, or H3N therapeutic class drugs. Y equals yes, N equals No. (Prescriptions filled after Sample Year excluded)
pain_clinic_flag	Flag indicating that L&I paid for at least one Pain Clinic program or evaluation on the claim. (Pain Clinic admissions or evaluations after Sample Year excluded)
total_hospital_admissions	Number of unique Admit Dates from Hospital billings on a claim. Admission Dates after Sample Year excluded.
prauth_los_day_qty	Total number of days authorized, not actual days, for hospital inpatient stays on a claim--back to 1988. Days authorized after Sample Year excluded.
prior_claims	Number of claims filed by worker with same Social Security Number prior to current injury date.
prior_tx	
reopened_claim	Code indicating if claim was closed and reopened prior to being placed on pension. Y = reopened once, M = reopened more than once, N = not closed or reopened.
retro_flag	Flag indicating that employer was enrolled in Retrospective Rating Group program during the quarter the injury occurred.
surgical_procedures	Number of unique Surgery Dates from Hospital billings on a claim. Surgery Dates after Sample Year excluded
time_loss_pd_by_six_mths	
clm_sso_af_amt	Amount of Accident Fund money by which the worker's monthly compensation rate has been reduced due to offset of Social Security Benefits.
clm_base_mo_rate_amt	Derived field showing the initial monthly compensation rate (Accident Fund only) for a claim. Calculated by taking current compensation rate and dividing by all Cost of Living Increase percentages applied since the claim was filed.

Variable Name	Description
clmt_forgn_lang_code	Code indicating worker is not English speaking, or is more fluent in some other language.
allowed_conditions	Number of Unique ICD9 codes loaded into database and associated with a claim record with a Diag-Alwn-Code equal to “A” for accepted.
denied_conditions	Number of Unique ICD9 codes loaded into database and associated with a claim record with a Diag-Alwn-Code equal to “D” for denied
temporary_conditions	Number of Unique ICD9 codes loaded into database and associated with a claim record with a Diag-Alwn-Code equal to “T” for temporarily allowed.
ppd_flag	Flag indicating that the Clm-PPD-Award-Amt-Ptd field in the LINIIS database is greater that $5.
age_at_injury	Worker’s age in years at injury date, capped at 89 years for Human Subjects Research protection
liability	field indicating claim liability charged to state fund or self-insured employer.
medical_aid_pd_thru_ sample_year_	Medical aid paid through to end of sample year
estimated_tl_days_pd_thru_sample	Estimated time-loss days paid through to end of sample year
clm_dep_qty	Number of legally dependent children (current)
pension_awarded_after_ 2002	
actuary_tl_ptd_total	Derived field showing the combined total of all time-loss benefits and loss of earning power benefits paid to date on a claim.
clm_medical_aid_ptd_amt	Total amount of money expended from the Medical Aid Fund on a claim through the most recent update of the Report

5 Pension Predictive Model

INTRODUCTION

This section describes our model designed to predict total permanent disability pension (TPD) cases for the Washington State Department of Labor & Industries. As explained in chapter 1, this was a requirement of the contract with the Upjohn Institute. Rather than try to improve on current actuarial science, we chose to emphasize prediction of the probability that a given time-loss case would become a pension claim. To develop this model, we selected factors found to be correlated with pension awards from our previous analyses (reported in earlier chapters) and from other empirical studies. However, we limited ourselves to the data available from the L&I data warehouse to make the model potentially usable by L&I staff. After presentation of our model, we offer suggestions for further testing and improvement of the model.

The data used for model development included state fund claims (no self-insured claims) with long time-loss durations. We selected all claims with three or more years of time-loss payment by the end of each calendar year from 1997 until 2007. We did this with the expectation that approximately half of these cases would receive pensions, and we wanted to test our ability to identify pension claims based on factors that may signal TPD. Claims with fewer than three years' time loss are not included in this analysis. Claims for analysis were also limited to cases with less than 10 years of time loss due to data limitations in the data warehouse on claims prior to 1997.

The data included such factors as time-loss duration, gender, age at injury, county of injury, industry, PPD and Social Security offset status, number of appeals, timing of vocational rehabilitation and plan development, hospital admissions, surgical procedures, opioid prescriptions, neck and back conditions, psych treatment, and prior claim status. From these factors we constructed a model that could be used in predicting the likelihood of pension. The data provided by the department included information on whether or not each claim received a TPD award by six years after the end of the calendar year (for years 1997–2001).

We used this information to develop a model that could be applied to claims that are still open, including those in later years, up until December 31, 2007. Our model correctly predicts pension outcomes approximately 70 percent of the time based upon the available factors. Strictly

speaking, the predictive results that we present apply only to open claims that had between 3 and 10 years of time loss, but we believe the model could be extended to predict pension outcomes for other claims as well. Additional data and further model refinements may lead to higher levels of precision.

MODEL SPECIFICATION AND ESTIMATION

The model we choose to use in this section is a binomial logit model which is described in more detail in Appendix 5.1. For some variables, this model has results that are not fully consistent with those reported earlier, whether from L&I statistics used in chapter 2, or from our Claim Survey sample presented in chapter 4. This could be due to the structure of the model, the estimation method, differences in sample size, years selected, and sampling methods.

We do not regard this predictive model as a substitute for our earlier findings, nor for the actuarial predictions of future pensions that L&I generates. Rather, it is an exercise to test whether one can predict the probability that a serious workers' compensation case (with at least three years' time loss) will develop into a total permanent disability claim in a finite period.

Table 5.1 summarizes the findings from the logit model. The coefficients are presented in terms of the log of the odds ratios. Odds ratios are interpreted as the likelihood of an event occurring versus not occurring. A coefficient that is significantly greater than 1.0 statistically indicates that the factor contributes positively to TPD probability, while a ratio that is significantly under 1.0 indicates that it has a negative effect. So, the odds of a pension are greater, for instance, for workers from an economically distressed county than for those whose employment had been in counties with low unemployment rates. Further, the coefficient of 1.160 indicates that the point estimate of that effect would be 16 percent. An odds ratio that is not statistically significantly (indicated by the asterisks) different from 1 would indicate no effect. Since most of us are not used to dealing with odds ratios, we also offer a direct probability interpretation for the effect of some individual variables.

Table 5.1 Model of Total Permanent Disability (TPD) Cases, among Cases with Three or More Years of Time Loss, Washington State Industrial Insurance Fund, 1997–2001

	Odds Ratios	Std Error	Signif	Z	Pr>|z|	95% low	95% high
Years since injury	1.30073	0.013802	***	24.78	0.000	1.273958	1.328064
Age at injury	1.092177	0.002224	***	43.3	0.000	1.087827	1.096545
Male	1.182759	0.053163	***	3.73	0.000	1.083019	1.291683
Daily time-loss rate	1.009053	0.000831	***	10.95	0.000	1.007426	1.010683
Economically distressed area	1.159841	0.045672	***	3.77	0.000	1.073693	1.252902
Psych treatment	1.398046	0.055015	***	8.52	0.000	1.294273	1.510141
Accepted neck or back condition	1.301336	0.051455	***	6.66	0.000	1.204295	1.406196
Total hospitalizations	1.039014	0.017243	**	2.31	0.021	1.005762	1.073366
Opioids	1.208449	0.044559	***	5.13	0.000	1.124196	1.299015
Approved vocational plan	0.440064	0.017088	***	-21.14	0.000	0.407815	0.474862
Social Security offset	2.350718	0.088226	***	22.77	0.000	2.184005	2.530158
PPD within 3 years	0.831102	0.041939	***	-3.67	0.000	0.752837	0.917504
Agriculture	1.250807	0.081751	***	3.42	0.001	1.100416	1.42175
Construction	0.980947	0.044559		-0.42	0.672	0.897387	1.072286
Appealed	1.101185	0.04202	**	2.53	0.012	1.021831	1.186702
Prior claims	1.017587	0.045139		0.39	0.694	0.932854	1.110016
1998 dummy	0.984271	0.053429		-0.29	0.77	0.884929	1.094764
1999 dummy	1.040118	0.056995		0.72	0.473	0.934199	1.158046
2000 dummy	1.166894	0.066818	**	2.7	0.007	1.043015	1.305487
2001 dummy	1.342768	0.077835	***	5.08	0.0000	1.19856	1.504325

*indicates statistical significance at the 95% level.
**indicates statistical significance at the 99.% level.
***indicates statistical significance at the 99.9% level.

In this model, the most important determining factor in the prediction of the likelihood of pension is the length of time from the date of the injury. We measured the years since the injury among all claims as of the end of each calendar year to construct the variable “years since injury.” The results in Table 5.1 indicate that each year since the injury increases the odds of a pension by 30 percent, which was significant at the 99 percent confidence level. Table 5.2 lays out the probability of pension by number of years since the injury, holding all other variables in the regression constant at their means.

Table 5.2 Predicted Probabilities of TPD by Time-Loss Year among Claims with 3 to 10 Years of Time Loss

Years since injury	Predicted probability of TPD
3-4	32%
4-5	38%
5-6	42%
6-7	45%
7-8	47%
8-9	51%
9-10	55%

Age at injury was also a very significant factor. Each additional year beyond the mean is associated with a nine percent increase in the odds of pensioning, holding other factors constant. Translating this to predicted probabilities, a worker who is less than 30 years old and has between 3 and 10 years of time loss has a 15 percent predicted probability of pensioning, while a worker with the same characteristics, but between 60 and 65 years of age has a 78 percent predicted probability of TPD. Table 5.3 shows predicted probabilities of TPD for different age categories, holding other factors constant.

Table 5.3 Predicted Probabilities of TPD by Age among Claims with 3 to 10 Years of Time Loss

Age	Predicted probability of TPD
<30	15%
=30-40	29%
=40-49	47%
=50-59	67%
=60-65	78%
>65	89%

In this model gender is also associated with differences in pension rates. The logit regression coefficient indicates the odds of receiving a pension are 18 percent higher for males.

The estimated amount of time loss paid per day also influences the likelihood of pension slightly. For each dollar paid over the mean, there is an increase of .90 percent in the odds of TPD. For example, $50 over the estimated average daily amount paid in time-loss benefits is associated with an increase in pension odds of five percent. Refinements such as actual benefit

payments as well as controls for wage inflation would need to be incorporated into this model to make it more operational.

Claims from economically distressed areas had a 16 percent increased likelihood of TPD over those that are not from distressed areas. This reflects the impact of being in an economically distressed area controlling for other characteristics that might lead to pension. Claims with psychological treatment within the first three years of injury had a 40 percent increased chance of pension outcome over claims without psychological treatment. Accepted back and neck conditions (as defined by ICD-9 codes) were associated with a 30 percent increase in odds of pension over claims with conditions other than neck and back. These variables were all highly statistically significant (99.9 percent level).

We also included total hospital admissions as one limited control for severity of injury, and each hospitalization increased the odds of pension by about four percent. Because surgical procedures and opioid prescriptions were highly collinear (meaning they tended to occur together), we determined that opioids appeared to be a better predictor of pension than the number of surgical procedures and therefore chose to include opioids in the model.

Opioid claims are defined as those for which the worker has received more than one opioid prescription with a total of more than 120 days supply of H3A, H3U or H3N therapeutic class drugs. In this sample of workers with 3 to 10 years of time loss, the percentage found to be "opioid claims" increased from 38 percent in 1997 to 57 percent in 2007. Claims with opioid prescriptions showed a 21 percent greater likelihood of pensioning than claims without opioid prescriptions. Of course, it is difficult to determine whether the opioids are a causative or resultant factor, and we refer to chapter 2's discussion.

One indicator of whether or not a case will be closed or pensioned is whether or not the worker receives a vocational rehabilitation plan. A case with a vocational plan approved is 56 percent less likely to receive a pension than a case without such a plan, other things equal. Again, this factor serves as a signal of what is likely to affect the outcome of a claim, and does not say that VR treatment will reduce the likelihood of pension by 56 percent. But it does indicate that claims selected for VR referral that proceed to VR plan approval are much less likely to end up as pension claims.

Social Security offset provisions effectively apply benefit limits for injured workers who are entitled to time loss or pension benefits and whose benefits are combined with Social

Security payments. If a worker's benefits are offset due to Social Security payments, the worker is more than twice as likely to be pensioned. Presumably this is due to the disability status they have demonstrated already, which makes them very unlikely to return to work.

Receiving a permanent partial disability (PPD) award has a negative effect on the likelihood of pension, although almost all TPD cases also have a PPD rating as a result of assessments that have been made of the injured worker. Our model indicates that the receipt of PPD within the first three years of a claim lowers the probability of pension by 17 percent, holding other factors constant.

Industry is also an important factor. In this model we included agriculture and construction as two major industries tending to have seasonal effects and relatively high workers' compensation claim profiles. Individuals injured in agriculture and construction may have more serious injuries, lower levels of formal education, and more difficulty returning to work. Our model estimates that an agricultural worker was 25 percent more likely to receive a TPD than other workers, but that construction workers were not statistically different from other workers with regard to TPD benefit receipt.

Appeals can also signal TPD likelihood, as a case with appeals increases the TPD likelihood by 10 percent. While this is not a large effect, it was significant at the 95 percent confidence level. The existence of prior workers' compensation claims did not prove to be a significant factor explaining TPD rates. Table 5.1 indicates that there was no change in the odds of pension given a prior claim.

We included controls for different years in the analysis in an attempt to pick up some of the unexplained variance in those years and to test whether there was a specific effect on pension likelihood. With 1997 as the default year, years 1998–1999 were not significantly different from 1997, but 2000 and 2001 showed higher rates of TPD for claims having three or more years of time loss and controlling for other factors discussed above. This finding indicates that the likelihood of pension was 17 percent higher in 2000 and 34 percent higher in 2001 than in 1997, over and above any changes in the characteristics of claims from those cohorts. This is interpreted as a direct measure of the surge in pension awards among this population of claims.

MODEL'S PREDICTIVE ABILITY

The predictive ability of the model is examined as follows. First, we estimate the ability of the model to predict outcomes among cases already receiving a TPD. That is, what was the

predicted outcome from the estimators, and what actually happened? We have the six years following the initial three years of time loss to observe what happens with our sample of claims. Because the model provides a range of predicted probability between 0 and 1, we have to apply a decision rule to arrive at a pension/no pension indication. An examination of our model's pension probabilities shows an overlapping distribution between those that were actually pensioned and those that were not, but one that begins to separate around the 45 percent predicted pension probability level.

By choosing cases with more than a 45 percent chance of pensioning according to our pension prediction model, we were able to correctly identify more than 72 percent of the cases that would be pensioned in the next six years. We also looked at the cases that were incorrectly identified as having less than 45 percent pension probability, and found that we had misjudged 28 percent of them for the 1997 to 2001 period.

We examined the ability of the model to discern those cases not likely to be pensioned as well. Among cases that were not pensioned in the following six years, we were able to correctly identify over 74 percent of those cases using the 45 percent predicted probability cutoff point. This means that we incorrectly tagged 26 percent of those long duration time-loss cases as being potential TPDs.

Our model's predicted pension probability is somewhat lower than the ultimate probability of pension predicted by L&I Actuarial Services for claims three or more years old. But it is important to note that our pension probability model misses many of those likely to be identified by the actuarial models, especially claims older than 10 years. The actuarial models are using a different method, employing projections of ultimate counts based on the number of active claims and past claim closure rates rather than individual claim characteristics, and their numbers are not directly comparable to ours. In essence, actuarial methods use a macro or system approach, while our model uses a micro or individual approach. In addition, our model only explains a portion of the overall variation in pension rates. While we think our model could offer a valuable contribution toward understanding the individual factors affecting pension likelihood, our model is definitely not a substitute for what actuaries at L&I currently employ.

The value to the Department of Labor and Industries of this model is that it could be used to identify cases with a high probability of pension so that a claims management intervention could be applied earlier in the claim if necessary. This model—or a more developed variation of

it—could help the department to evaluate what future pension outcomes are likely to be, given the nature of claims currently in the system. We caution that the variance is larger than we would like it to be, but estimators and error rates appear to be fairly consistent in the 1997–2001 time period. The model does less well in predicting cases from 2003–2004, but then appears to improve after that point among the cases in our sample.

Data summarizing the model's predictive capabilities are presented in Table 5.4. This table shows the actual and model predicted outcomes of pensions by six years following each calendar year. For example, 40 percent of the claims with at least three years of time loss in our 1997 sample resulted in a TPD pension. Our model correctly predicted 68 percent of those and incorrectly predicted 32 percent for time-loss claims administered in 1997. The predictive power of the model seems to increase by the most recent administrative year available for the model (2001), and that may be due to data limitations on claim details for earlier years, or it may be due to some factors not identified for those years. By applying the model to later years of data we are

Table 5.4 All Cases—Model Prediction versus Actual, 1997 through 2007

Cases with 3–10 years time loss				Model predicted TPD		Model predicted no TPD			
	Actual Outcome			Actual		Actual			
Pension evaluation year	No TPD	TPD	% TPD	No TPD	TPD	No TPD	TPD	% TPD correctly predicted	% not correctly predicted
1997	2,197	1,494	0.405	483	1,020	1,714	474	0.683	0.317
1998	2,243	1,647	0.423	524	1,172	1,719	475	0.712	0.288
1999	2,128	1,658	0.438	549	1,220	1,579	438	0.736	0.264
2000	1,729	1,472	0.460	509	1,066	1,220	406	0.724	0.276
2001	1,644	1,494	0.476	482	1,115	1,162	379	0.746	0.254
2002	1,964	1,350	0.407	486	870	1,478	480	0.644	0.356
2003	2,290	1,129	0.330	613	679	1,677	450	0.601	0.399
2004	2,749	1,145	0.294	791	699	1,958	446	0.610	0.390
2005	3,279	1,067	0.246	1,136	702	2,143	365	0.658	0.342
2006	3,771	801	0.175	1,586	566	2,185	235	0.707	0.293
2007	4,253	108	0.025	2,002	79	2,251	29	0.731	0.269
Total	28,247	13,365	0.321	9,161	9,188	19,086	4,177	0.687	0.313
1997-2001	9,941	7,765	0.439	2,547	5,593	7,394	2,172	0.720	0.280
2002-2007	18,306	5,600	0.234	6,614	3,595	11,692	2,005	0.642	0.358

also able to identify a large proportion of the claims that are eventually pensioned based on characteristics of those claims. For example, our model correctly predicted TPD award for 79 of the 108 cases in 2007 (73 percent) that had more than three years of time loss and received a

TPD. Certainly there will be many more TPD cases to expect from the claims administered in 2007, but the model does a fairly good job of predicting those that actually were early pension decisions.

Going back to 2002 claims, our model predicts fewer of the cases that received TPD by December 31, 2007: we predicted 870 of the 1,494, (or 64 percent) of the sample cases from 2002 that actually received TPD by the end of 2007. Among those claims for which there was full information (1997–2001) our model correctly identified 72 percent of these outcomes based on characteristics of the claims and failed to predict 28 percent of them. The model applied to a later group of claims (2002–2007) correctly identified 64 percent of the actual outcomes and incorrectly identified 36 percent of them. This could be due to development of the claim or other factors that could not be identified or quantified, including a change in claims administration (See chapter 2).

Based on the model we presented, which used 1997–2001 estimators, we also applied the model to the set of open time-loss cases at the end of 2007. These results are presented in Table 5.5. The table shows the estimated number of claims with 3–10 years of time loss that were open as of December 31, 2007. Applying our model and the 45 percent probability decision rule, we identify 5,702 of the 13,164 open cases (43 percent) currently without TPD awards that we predict will receive TPD at some point based on characteristics such as time loss, age at injury, region, disability status, and the other variables shown in Table 5.4.

It is interesting to note that the marginal predicted probability of pension, in the aggregate, rises substantially from 1998 through 2001. Then it drops back down with 2002, before rising even more considerably through 2007. This generally parallels the surge in pension awards. So our model is predicting a rising incidence of pension claims based on the claim characteristics of open time-loss claims already in the pipeline. Of course, these estimates are only for the probability of pension awards among open time-loss claims, and they must be combined with pensions already awarded, reopened cases, etc., to estimate the completed pension cohort.

Table 5.5 Open Cases without TPD—Model Prediction 1997–2007

	Expected to be TPD	Expected to have no TPD	Open Claims	Model's expected rate among open claims
1997	51	141	192	0.2656
1998	63	182	245	0.2571
1999	97	222	319	0.3041
2000	140	225	365	0.3836
2001	200	262	462	0.4329
2002	243	437	680	0.3574
2003	355	613	968	0.3667
2004	555	847	1,402	0.3959
2005	844	1,149	1,993	0.4235
2006	1,288	1,432	2,720	0.4735
2007	1,866	1,952	3,818	0.4887
Total	5,702	7,462	13,164	0.4332
2002-2007	5151	6430	11581	0.4448

Based on the evaluation of predicted probabilities and examination of cases we were able to predict using the 45 percent cutoff rate, we expect to see a TPD rate comparable to 2001 for years 2002 through 2007. The rate rises toward the end of the period, possibly due to claim development, but also due to the characteristics of claims L&I is administering. This indicates that based on the characteristics of claims in the system, we expect pension rates to continue to remain relatively high compared to earlier years.

However, caution is advised in interpreting the results presented in Table 5.5. This is just a preliminary exploration of an untested model of the probability of pension. The rates our model suggests are below those predicted by L&I Actuarial Services for a number of reasons. First, our model is intended to predict likely outcomes for individual claims for a fixed period of time and does not attempt to predict ultimate counts. The model is only looking at TPD awards within six years after the calendar year for time-loss claims with more than three years of time loss. This is a more restricted set of claims than those included in the Actuarial Services forecasts.

Again, this model almost certainly underestimates the total number of claims that will eventually become TPD pensions. It should therefore not be construed to relate directly to the total aggregate number of future TPD cases, pension costs, or future premium rates. While we caution against comparing our model, or its predictions, with established actuarial models, our

intent is to complement the work done by the actuaries. We seek to provide a model that could potentially improve claim management operations by early identification of individual cases likely to result in a TPD. Further development of this model may help with actuarial prediction of total pension counts, but the model requires additional refinement and incorporation of ultimate counts for each of the micro variables identified. That would be a very time consuming endeavor that goes beyond the scope of this project.

SUMMARY, CAVEATS, AND EXTENSIONS

While we have developed a model that can predict pensions with some degree of accuracy, there are some significant limitations. Our model is only applied after the claims have matured to three years of time loss. Some predictive factors—such as number of surgeries or vocational rehabilitation—may take months if not years to develop in a way that signals eventual pensioning. In the application of this model, some data lags are to be expected and so the ability to identify likely pension cases early may depend on how quickly and accurately information about the claims can be loaded into L&I's system and analyzed.

The predictive results that we present apply only to open claims that had between 3 and 10 years of time loss, but we believe the model could be extended to other claim populations to predict their pension outcomes as well. Another caution is that this model was applied to a smaller group of claims than would be necessary if the model were to be employed by the Department of Labor & Industries. Some claims will certainly become pensions after the 10-year time period considered here. The model should also be tested against claims with shorter time-loss durations, maybe 6 to 36 months of time loss. We included reopened cases in the analysis, but for simplicity and time constraint reasons, we did not include cases that are likely to be reopened and become TPD awards later, although that is a sub-group that could possibly be incorporated into the model. Of course such extensions would necessitate re-estimation of the parameters of the model.

While the older claims we viewed appeared to have markers that would indicate a continuation of relatively higher rates, the more recent claims have not fully matured yet. Thus it is risky to predict a continuation of the same patterns based on claim characteristics. But, of course, it is also risky to predict the continuation of the recent trend, especially if the drivers of that trend are not well understood.

Although we know our model can be strengthened and improved, we believe that it can be employed toward the goal of identifying potentially difficult cases and getting a general idea of what the department can expect from open time-loss cases in the future. The value to the Department of Labor and Industries of this model is that it can be used to identify cases that may become pensions so that an operational decision could be applied earlier in the life of the claim, if indicated. The Department would have to consider what kind of interventions should be made, and at what level of probability cases should be evaluated.

The findings of this model are not entirely consistent with those reported earlier based upon our claims review data. Our predictive model used claims with 3 to10 years of time loss, whereas the claim review included a sample of all pensioned claims in two calendar years and without limits on the amount of total time loss. In addition, because certain measured factors are not fully consistent, we would urge caution in reaching firm conclusions about those factors. We do, however, believe that a model such as this (and perhaps including some subjective data such as was possible with the claims review) could help to predict pension claims and pension rates.

In creating and applying this model, we recognize that the ability to predict could be improved in the future were more data available. For example, and as mentioned in chapter four, education is a very significant labor market factor that could signal chances for successful return to work. Pre-injury wage is also a factor which we could not adequately include, but used instead a time-loss rate (daily rate paid based on total time-loss costs divided by days paid) as a proxy. Also other studies have indicated that motivation and depression are very important in return-to-work outcomes, though measuring these is understood to be difficult. Certain administrative information associated with the claim (such as the adjudicators' caseloads, turnover, speed or accuracy) may also be useful in predicting the eventual resolution of a particular claim.

Finally, we stress again that this model is very different than those typically used by actuaries to predict the future population of workers' compensation claims. Actuarial models incorporate the development of claims by estimating the "ultimate" number of open and active claims having certain amounts of time loss and applying time series estimation techniques to those claims to predict pension awards. Our approach does not estimate ultimate claims but instead estimates the expected pension rate at some future point based on the characteristics of claims currently in the system. Like the actuarial model, time loss paid to date is an important predictor in our model. We are able to provide predictions of the likelihood of pensioning given

more detailed information available about these actual claims. The advantage of this approach is that it allows some mid-stream estimation of pension probabilities which may serve to verify actuarial trends. Future work may lead to a combined cross-sectional time-series model that could be used by the Department to further improve predictive capability.

APPENDIX 5.1 Motivation for Logit Model

A binomial logit applies an S-shape pattern to the probability of total permanent disability and provides an easier method of interpreting 0,1 factors (dummy independent variables). Instead of a linear ordinary least squares approach, this method applies an iterative estimation technique called "maximum likelihood estimation." It maximizes the log of the probability (or likelihood) of observing a particular set of values of the variable we are trying to predict (dependent variable). In this case, the dependent variable is the natural log of the probability of total permanent disability (pension award).

L: $\Pr(Di = 1) = \ln (Di /[1-Di])$ where i= 1 to the total number of time-loss claims in the sample, where Di = 1 if the i-th time-loss claim resulted in a TPD,
and Di = 0 if the i-th time-loss claim did not result in a TPD

While the linear regression model presented earlier in this report is adequate for evaluating approximate effects on probability, a more theoretically appropriate model for estimation is one that applies an S-curve because real-world data are often described well by this pattern. Other methods (such as those employing Weibull or similar distributions) may yield more efficient results, but we were not able to test this. For example, an application of this model to all claims regardless of time-loss days would likely require a Poisson distribution because of the relatively small number of total time-loss cases that receive pensions.

Although predictive capability is generally improved with a non-linear binomial model, one disadvantage of this approach is that interpretation of continuous variables such as age becomes more cumbersome. For that reason, we have provided tables and additional discussion to make the effects more understandable.

6 Summary and Findings

INTRODUCTION

The purpose of this study has been to analyze the incidence of Total Permanent Disability (TPD) pensions in Washington's workers' compensation program. Concerns have grown at both the Department of Labor and Industries and in the state legislature as there appears to have been a sharp upturn in the number of pensions awarded since late in the 1990s. This report examines the factors that may be causally related to the upsurge in such awards. Our task is to evaluate pension incidence for both the state fund and the self-insured populations, with the charge of identifying causes of the trend in both sectors. Because of data limitations, we concentrate more on the state fund claims, but present some findings for self-insured employers also. We use our results to develop a model that can be used to predict the future number of TPD pensions based on some of these causative factors.

Interest in pensions arises both because of their costs and because of the widely held view that wherever possible injured workers should be enabled to return to productive employment. The average cost of a total permanent disability award is high in all workers' compensation jurisdictions, generally varying with the worker's age and the wage at the time of injury. In Washington, the cost depends also on the marital status of the worker and on the amount of future inflation adjustments that will be made to the benefits. In Washington, TPD pensions currently make up more than 30 percent of the annual benefit costs for the state fund, and more than 80 percent of the supplemental pension fund costs. In total, TPD pensions account for more than one-fourth of workers' compensation costs for state fund insured employers in Washington. Yet total permanent disability awards do not represent a very large share of overall benefit costs in most states because the incidence of such claims is low. Several factors make the incidence of these awards particularly noteworthy in Washington.

First, it appears that Washington has a higher incidence of total permanent disability cases than do other states. Second, these benefits will be adjusted annually in the future to reflect increases in the state's average annual wage. Inflation adjustments of this or similar kinds are rare in the other state systems, and represent a sizeable portion of the cost of these claims. However, these costs are reduced for employers in Washington since workers pay half the cost of inflation adjustment. Finally, pensions are payable for life (or possibly longer if a spousal

annuity option is selected by the worker or if the worker's death is related to the accepted injury or disease). The costs of a pension are potentially lowered by the worker's receipt of Social Security old age or disability insurance benefits, and an offset will also apply for any previously paid permanent partial disability benefit associated with the permanently and totally disabling injury or illness.

This chapter summarizes the findings of our study. It is organized into five major sections which we treat as questions:

- Are pensions or rates of pensions high in Washington State?
- What factors are associated with claims that result in the granting of pensions?
- Has there been substantial growth in pensions awarded?
- What factors are associated with the growth of pensions?
- How can the number of pensions in the future be predicted?

ARE PENSIONS OR PENSION RATES HIGH IN WASHINGTON STATE?

How does Washington compare to other states in the awarding of total permanent disability pensions? Making interstate comparisons in workers' compensation is always challenging. State laws, practices, terminology, data availability and reporting all vary. Further, workers' compensation data users always must cope with the problem of the "long tail" of claims, and with widely different times to claim resolution across the various states. An extra challenge is that most states allow insurers to use lump-sum settlements to close claims and to terminate liability. In such cases it can be difficult to determine even how much indemnity compensation—as opposed to medical benefits—was paid on a claim. The result of such compromise and release agreements for purposes of a comparative analysis is that there are claims that could result in TPD compensation, but are not recorded as such in other jurisdictions. The payment of the lump-sum benefit terminates the case and there is no need to categorize it as a TPD claim, or even to make that determination since it will not affect the benefits.

NCCI State Comparisons

Using comparative data from the National Council on Compensation Insurance (NCCI), Washington ranks amongst the highest states for time-loss injuries per covered employee. However, we believe that an adjustment to this ranking is needed for Washington based on the different way of measuring the employment base, somewhat lowering the state's rank but leaving

it still about 40 percent above the average for time-loss case incidence among all states in the NCCI ranking. OSHA data are somewhat consistent in finding that the incidence of occupational injuries and illness with time lost from work falls above the national average (See Table 2.23). It should also be noted that the overall claims incidence rate for self-insured employers in Washington is approximately the same as for state fund insured employers.

NCCI reports on the incidence of total permanent disability cases for 44 states and the District of Columbia. California has the highest incidence rate at third report (30 to 42 months following date of injury) with 37 TPD claims per 100,000 workers. Montana, Florida, Arkansas, South Carolina, Kentucky, and Texas all had more than 10 claims per 100,000 workers. At the other end of the distribution; South Dakota, Rhode Island, and Indiana had TPD rates of 1 claim per 100,000 workers or less. The "countrywide" average reported by the NCCI was 7 TPD claims per 100,000 workers, but this 36-state average excludes many of the larger states.

We estimate that Washington's State Fund made 27 TPD awards per 100,000 covered employees in 2001–2002. This is in the same general range as California and Montana, the highest incidence states according to the NCCI. However, taking account of the long time lag between the injury date and the date that a pension is awarded in Washington requires an adjustment, or else this estimate would be a sizeable understatement of the final incidence of TPD. Using the ultimate projected total of TPD claims from the Actuarial Department of L&I for 2001–2002 would yield an estimate of 65 TPD claims per 100,000 employees. We do not think that the ultimate projected totals for other states result in such substantial upward adjustments based on the data available to us. This reflects the fact that claims are closed much sooner than in Washington in other jurisdictions, partly through the use of compromise and release settlements.

So, we consider an alternative metric. The Washington State Fund has an incidence rate of 15.6 TPD claims per 1,000 accepted time-loss claims, slightly more than the rate of California or Florida in fiscal year 2002. Scaling this to match the ultimate expected TPD numbers would yield a final estimated incidence rate of 38.0 TPD awards per 1,000 time-loss claims for Washington, or nearly three times the rate in California and Florida. (Again, we do not know what the ultimate number of TPD awards will be in these states when sufficient time has passed for all their claims to have matured, but do not see strong upward trends from third report through fifth report.) Washington also ranks very high among the states in the ratio of TPD awards to permanent partial disability awards, which raises the possibility that the high incidence

of TPD may be due in part to the threshold between PPD and TPD in Washington. Overall, we believe that Washington has two to four times the TPD incidence of the highest other states.

Comparing Washington and British Columbia

Although interstate comparisons of the incidence of TPD claims are difficult to nail down because of the widespread use of compromise and release settlements elsewhere, an opportunity exists to compare Washington to another jurisdiction with critically important similar features. We have selected British Columbia, Canada (B.C.) for comparison with Washington for a number of reasons. Both jurisdictions are in the same geographic region, with approximately the same population size and similar economic bases. More importantly, they have broadly similar workers' compensation systems with more in common than with most of the states in the U.S.

They are both exclusive public fund jurisdictions, with only three other such states in the U.S. Both have limited self-insurance, although B.C. does not allow self-administration and only permits self-insurance for employers specified by statute. They both have relatively generous benefits for injured workers and a reputation for fair and timely administration of those benefits. Neither jurisdiction allows compromise and release settlements, and lump-sum payments are used sparingly. Relative to many other jurisdictions, the level of disputation over workers' compensation claims is fairly low, although Washington has many more attorneys involved in the system than does British Columbia. While there are always significant differences, the broad structure of workers' compensation in B.C. is similar to Washington's approach.

In British Columbia permanent partial disability compensation is paid as a monthly pension. The level of the periodic benefit is a function of the assessed degree of disability and the injured worker's pre-injury earnings. By contrast, in Washington the worker's pre-injury wage does not affect the aggregate amount of the benefit, which is specified by statute, but the size of the monthly payment is determined by the worker's TTD benefit rate.

In B.C. there is essentially no difference between the treatment of a permanent partial and a total permanent disability case except the amount of the benefit that is paid. A total permanent disability is simply a 100 percent permanent disability rating. The statute does not define total permanent disability and gives it little attention explicitly. In Washington, permanent partial disability is rated strictly on the basis of medical impairment (medical disability). The extent of impairment determines the size of the benefit for either a scheduled or unscheduled injury or

illness. However, total permanent disability is determined by the legislatively specified impairments, **or** the inability to perform or obtain work at a gainful occupation (work disability).

In 2002 a "core review" was undertaken in British Columbia that led to very significant changes in the evaluation of permanent disability. Dissatisfaction with the rating of disability, including 100 percent disability (total permanent disability), before the "reform" was enacted was one of the key issues that led to the core review. In brief, prior to the reform every worker with a permanent impairment was rated in a "dual" or "bifurcated" system once the condition had "medically plateaued" (or maximum medical improvement). In every case the worker was rated by a medical professional on the basis of impairment just as in Washington. However, in every case the worker was also separately rated by a vocational rehabilitation professional on the basis of any loss of earning capacity. The workers' compensation benefit was based on the higher of the two ratings.

Dissatisfaction from the employer community among others resulted, as more and more disability ratings came to be based on the loss of earning capacity evaluation. In some cases, substantial pensions were paid to workers with fairly low levels of medical impairment. The legislative changes resulting from the core review no longer mandate both methods of assessing the degree of permanent disability. Instead, the province now uses impairment as the basis for evaluating disability and uses the loss of earning capacity assessment method only in "exceptional" instances. The B.C. Parliament also saw fit to end pension payments at age 65. The law changes and the associated operating rules for the B.C. Board appear to have had a dramatic impact by lowering the number of loss of earning capacity awards drastically beginning in the second half of 2002.

We have observed there are many features of the two systems that are shared and others that are different. In our view no difference is more important than the range of options, or flexibility of compensation, that exists in B.C. that are not available in Washington. Two of those features stand out. First, despite the limits imposed by the 2002 amendments, the B.C. Board can make adjustments in the permanent disability rating so as not to be locked in by the impairment rating. These adjustments can recognize very special circumstances and adjust the disability rating correspondingly. This flexibility makes it possible to award the benefit it perceives necessary to compensate the injured worker fairly. Secondly, total permanent disability awards are not an all or nothing outcome in B.C. since a permanent partial disability pension can serve

as an adequate alternative for a total permanent award (a 100 percent disability rating), albeit with a lower level of benefits.

A striking difference between B.C. and Washington is the tendency in Washington for sizable numbers of time-loss claims to remain open for very extended periods. WorkSafe BC has avoided this with several measures. The most significant method of keeping time-loss benefits from growing to lengthy levels is through the vocational rehabilitation program. Early and aggressive intervention by skilled VR professionals has great potential to reduce time loss and improve return to work for injured workers. Additionally, B.C. uses a claims inventory management system, with regular tracking and reporting on all their time-loss claims. This information is widely shared throughout the agency and red flags are given to those claims that appear to be extending longer than expected for the claim in question, based on data from other similar claims. This prevents claims from languishing in the system.

Another measure, though not used extensively, is to move the worker's benefit from a temporary total disability to a temporary partial disability benefit. As the Board perceives that the worker is capable of making some earnings, albeit at a level that is below the pre-injury level of earnings, it can reduce the worker's indemnity benefit to reflect the earnings the worker is assumed to be capable of earning at that time. This serves as an added inducement to the worker to return to employment at pre-injury earnings level as soon as possible.

So how do the outcomes in BC compare to those in Washington? Covering roughly the same workforce as the state fund in Washington, WorkSafe BC pays nearly 50 percent more time-loss claims of more than three days; that is after adjusting for the fact that they have no waiting period. However, they have an incidence rate of total permanent disability (defined by us as greater than 50 percent impairment) that is only about 40 percent that of Washington state fund insured employers and 50 percent that of Washington self-insured employers. This comparison is not subject to distortion due to compromise and release settlements, or other distortions due to system characteristics; thus it confirms our findings from comparison with NCCI states.

Conclusion

A comparison with other U.S. jurisdictions through NCCI statistics leads us to the conclusion that there is a very high incidence of total permanent disability awards in Washington. Also, a more carefully controlled comparison with British Columbia, a jurisdiction

with many program similarities to Washington serves to reinforce that conclusion. Definitive quantitative comparisons between jurisdictions cannot be made, but the general conclusion is very clear.

WHAT FACTORS ARE ASSOCIATED WITH CLAIMS THAT RESULT IN PENSIONS?

In order to summarize our findings and conclusions regarding the factors relating to pension claims in Washington, our response to this question is in two parts. First, we suggest some structural reasons why the incidence of total permanent disability claims is high in Washington. Then we report on the findings drawn from a claim file review that demonstrate some of the important correlates of claims that resulted in pension awards.

A Structural Source of the High Incidence of Pensions in Washington

In chapter 3 we considered how Washington State's workers' compensation system compares with those of other jurisdictions in the U.S. and with British Columbia. In terms of pensions we believe that Washington's approach is almost unique in a very significant way. Only one other state, Nevada, provides compensation in basically the same way as Washington does for total permanent disability

First, Washington is different from most of the other states in that its workers' compensation program does not allow for lump-sum settlements for indemnity benefits to decisively close claims. We believe that only eight states either do not allow such agreements or place important limits on their use (See Table 6.1). While 19 states, including Washington, pay PPD benefits for unscheduled injuries or illnesses strictly on the basis of the extent of medically determined impairment resulting from the injury or illness, only six of them also limit lump-sum settlements.

Table 6.1 Arrangements for Permanent Disability Compensation among State Workers' Compensation Systems

Limits on lump-sum settlements for indemnity benefits for permanent disability	Permanent partial disability benefits based solely on impairment (unscheduled injuries)	Total permanent disability benefits paid only for conditions listed in the statute	Total permanent disability benefits paid based on impairments listed in statute or on incapacity from performing work
Delaware	X	X	
Indiana	X		
Nevada	X		X
New Mexico		X	
Tennessee			
Texas	X	X	
Washington	X		X
West Virginia	X		

Notes:

5. Columns 1 and 2 are based on a 1999 publication. Were these state practices evaluated today, some of the entries would need to be changed. States with major legislative changes since then include Nevada, Tennessee, and West Virginia. Some jurisdictions could be added as in the case of California which became an impairment based state (with modifications) in 2004.
6. Texas does not explicitly pay total permanent disability benefits. It does pay Lifetime Income Benefits, but limits those to conditions listed in their statute.
7. Texas pays a supplementary income benefit (SIB) in cases where the impairment benefit has been fully paid, where the impairment is evaluated by the AMA Guides to be 15 percent or greater, and where a lump-sum payment was not taken by the worker for the permanent partial disability.
8. Indiana allows lump-sum settlements in cases where the claim is disputed.

SOURCE: Barth and Niss (WCRI, 1999)

Of these six jurisdictions only Washington and Nevada compensate total permanent disability based on (medical) impairment (for conditions specified in the statute) or for work disability. In Washington the worker is totally disabled for the purposes of a pension when the injury or disease permanently incapacitates the worker from obtaining and performing any work at any gainful occupation. As a consequence, the opportunity to return to work is central to the pension award decision, except for those specific conditions listed in the statute which account for relatively few cases annually.

Thus, among the states where permanent partial disability compensation is based on the degree of impairment, and where the use of lump-sum settlements for indemnity benefits is limited by law or practice, only Washington and Nevada use other criteria besides the degree of impairment to evaluate and grant total permanent disability pensions.

However, the impairment benefit may bear very little relationship to the actual degree of work disability or economic loss. Even where it appears evident that the permanent partial disability inadequately compensates for the work disability that the worker has experienced, the system has no flexibility to remedy this. The result of this combination of factors places the

worker and the state fund or the self-insured employer in a position where the only possible source of additional compensation is the TPD pension.

Characteristics of Pension Claims: Claim File Review

A claim review study was necessary in order to gain a detailed understanding of the claims management and pensioning processes, and to observe any differences in claims or pension adjudication from before the upsurge in claims to the period when substantial numbers of awards were being made. It was also necessary to conduct a claim review in order to obtain data elements that have either never been available in the Department's data warehouse or were archived and no longer available. Last but not least, a claim review allowed us to form a more comprehensive picture of the claims and pensioning process: it allowed a qualitative understanding of trends and patterns as well as consistent quantitative measurement of factors affecting pensioning.

Our method of analysis of the increase in pensions was to take two different time periods, comparing the total permanent disability claims awarded in those time periods, then also selecting a comparison population from time-loss claims in each of those time periods. This way it would be possible to compare characteristics of pensions awarded in the two time periods, and also to compare pension claims to non-pension claims in the two periods. With this strategy it was possible to maximize the likelihood of identifying significant changes between the periods. If there was a difference between pension claims in the two periods, we could check the non-pension claims to determine whether the observed change was specific to pension determination, something that pertained to the larger workers' compensation environment, or even the broader economy.

Our choice of the two time frames, calendar years 1997 and 2002, was influenced not only by the trends we were seeing in pensioned claims but also by the availability of data that would support this type of analysis. We understand that in choosing 1997 we are close to the beginning of potential changes in claims and pension adjudication, but we are confident that the choice of 1997 still allows for some significant "before and after" comparisons between the two time periods. The samples of 1997 and 2002 pension recipients were selected as any claim having a total permanent disability (TPD) award between January 1 and December 31, 1997 and 2002, respectively. We limited the selection of TPD claims to those having original workers'

compensation claim received dates, on or after January 1, 1987 or January 1, 1992. This means that our sample of pension claims all showed less than 11 years since the claim originated.

Obtaining a suitable comparison group was difficult. Ideally we sought a group of claims that had a high probability of TPD by virtue of their characteristics, but had not received a TPD award by the time of our analysis year. We used a propensity score analysis, which matches each "treatment" observation with the most similar "comparison" observation. Ultimately the selection of the comparison group was made using just two predictive factors: time loss paid to date, and age of the worker at injury. We estimate that these two factors were associated with approximately 33 percent of the variance in pension probability.

The selection of self-insured claims was conducted in a similar fashion, but the data on time loss among the self-insured claims were very incomplete. We believe that we have a representative selection of self-insured claims for review, but we are not satisfied with the quality of the time-loss data among the self insured. Our analysis of self-insured claims is also limited by the small sample numbers. Approximately 26 percent (231 claims) of the claims reviewed were self-insured claims and 74 percent (672 claims) were state fund claims. (Table 6.2) Because our sample of self-insured claims is small, and the sub-samples even smaller, this limits our analysis of self-insured claims. Unfortunately, we also underestimated the time required to gather the data from the claim files and, as a result the 2002 time-loss comparison sample is smaller than intended.

Table 6.2 L&I Claim Review Sample Distribution

	1997 pension	2002 pension	1997 time loss	2002 time loss	Total
Self-insured	66	59	50	56	231
State fund	162	210	188	112	672
Total	228	269	238	168	903

We had two purposes in analyzing the results from our claim review. First, we were screening potential causative factors associated with pensions. This would be useful as inputs into a predictive model that we were building. Also, we were eager to link these results with those reported using administrative data (chapter 2).

We generally present two sets of statistical hypothesis tests for each variable that we analyze. The first tests the hypothesis that the values for 1997 and 2002 pension samples are the same. The second tests the hypothesis that the values for 1997 and 2002 comparison time-loss

claims are the same. Suppose we reject the first hypothesis, and conclude that variables associated with pensions in 2002 were different from those in 1997 on some dimension. We still need to establish that this was not true for all serious disability claims to indicate that this factor might be causally related to the surge in pensions.

Table 6.3 summarizes the findings from the claims review. Column 1 specifies whether the measure is for state fund or self-insured claims. Columns 2 and 3 identify the reported variable by name and type. Columns 4 and 5 are the values for the varible for those individuals who received pensions in 1997 or 2002 respectively. Column 6 indicates whether the values in Columns 3 and 4 are essentially the same or if there is a statistically significant difference between them. If they are statistically different we indicate that by a single asterisk representing a 95 percent degree of confidence that the values are different, two asterisks representing a 99 percent level of confidence, and three asterisks indicating a 99.9 percent level of confidence. Columns 7, 8, and 9 replicate columns 4, 5, and 6, respectively, with the values applying to those in our comparison groups for 1997 and 2002.

Table 6.3 Summary of Key Findings from Claim Review

Sector	Variable name	Description	1997 Pension Awardees	2002 Pension Awardees	Statistical Significance	1997 Comparison Group	2002 Comparison Group	Statistical Significance
			Injury Characteristics					
SF	Back injury	% Yes	32.1	32.9		35.1	29.5	**
SI	Back injury	% Yes	37.9	16.9	***	18.0	10.7	*
SF	Number of allowed conditions		1.90	2.23		2.08	1.69	
SF	Average hospital admissions	Mean #	.642	.252	***	.542	.107	***
SF	Surgical procedures	Mean #	.294	.178	*	.323	.071	***
SF	Medical aid paid	Mean #	$41,540	$55,021	***	$49,981	$37,399	***
SF	Time-loss benefits paid		$66,775	$82,199	***	$106,435	$81,597	***
SF	Time-loss days paid	Mean #	1,625.1	1,693.8		1,063.9	1.140.7	
			Worker Characteristics					
SF	Age at injury	Mean #	47.4	49.0	***	44.4	46.8	***
SF	Age at injury	Median #	48.5	52.0		44.0	48.0	
SI	Age at injury	Mean #	49.1	48.9		43.9	46.5	**
SF	Age at pension	Mean #	57.9	56.7	*	56.0	54.3	
SI	Age at pension	Mean #	56.0	54.3	*			
SF	Gender	% Female	22.8	25.7		33.0	32.1	
SI	Gender	% Female	42.4	32.2	*	60.0	50.0	*
SF	Marital status	% Married	70.4	64.3	*	62.2	65.2	
SI	Marital status	% Married	72.7	57.6	***	64.0	50.0	***
SF	Monthly earnings	Mean #	$2,160	$2,529	***	$2,123	$2,467	***
SF	Monthly compensation rate	Mean #	$1,086	$1,230	***	$944	$1,153	***
SF	Education less than high school	%	44.4	50.0		43.1	35.5	***
SF	Agriculture	%	9.9	11.0		11.7	4.5	***
SF	Construction	%	21.6	21.4		24.5	22.3	
SF	Manufacturing	%	8.6	10.0	X	6.4	17.0	X
SF	Services	%	21.0	28.1	X	21.8	25.0	X
SF	Puget Sound region %	Compared to rest of state	58.6	52.3	*	49.5	48.4	
SF	Economically distressed region %	Yes, distressed	25.9	41.0	***	41.5	37.5	
			Medical Treatment and Psychological Impairment					
SF	Opioid use %	Yes	29.9	45.5	***	53.1	46.4	**
SF	Pain clinic used %	Yes	22.8	27.6		27.7	9.8	***
SF	% Psych issues	Yes	33.9	38.1		39.4	17.9	***

Sector	Variable name	Description	1997 Pension Awardees	2002 Pension Awardees	Statistical Significance	1997 Comparison Group	2002 Comparison Group	Statistical Significance
SF	% with Psych Payment	Yes	35.2	41.4		42.6	19.6	***
SF	% IME with psych evaluation	Yes	55.6	50.5		51.1	27.8	***
				Claims Management				
SF	Adjudicative delays	% Yes	39.6	28.5		31.7	21.6	***
SF	Days in assessment	Mean #	508.5	435.0	*	653.4	331.6	***
SF	Number medical exams	Mean #	3.51	2.92	***	4.68	3.06	***
SF	Multiple VR referrals	% Yes	61.7	53.8	*	80.8	65.2	***
SF	Early VR actions	Mean #	1.38	1.41		1.62	1.52	
SF	% Preexisting conditions	Yes	87.8	92.5	***	83.4	76.9	*
SF	% Prior claims among pensions	Yes	83.3	89.3		85.2	82.7	***
SF	% Prior claim same condition	Yes	43.6	47.2		35.6	53.7	***
SF	% Prior claims PPD award	Yes	33.3	40.6	**	19.5	33.9	***
SF	% Reopenings	Yes	10.5	7.1		22.3	4.5	***
SI	% Prior claim same condition	Yes	93.9	84.7	**	78.0	83.9	
				Vocational Rehabilitation				
SF	Mean number VR actions	Mean #	3.28	3.13		4.86	4.49	***
SI	Mean number VR actions	Mean #	2.06	1.87		2.28	1.96	**
SF	Early VR referrals %	Actions per claim	2.07	2.03		2.83	2.72	
SF	Days to 1st VR referral	Mean #	598.7	423.0	***	513.8	376.0	***
SF	Days in VR	Maximum value is 5 years	1,304.8	1,227.2		2,361.5	1,419.2	***

Sector	Variable name	Description	1997 Pension Awardees	2002 Pension Awardees	Statistical Significance	1997 Comparison Group	2002 Comparison Group	Statistical Significance
			Return-to-Work Experience					
SF	Any return to work	% Yes	58.1	49.8	*	65.9	45.2	***
SI	Any return to work	% Yes	58.1	60.3		77.6	70.4	
SF	RTW at employer at injury	% Yes of those with a RTW	84.3	91.3	*	66.4	77.8	***
SF	Accommodation	% Yes	19.3	14.2		29.7	13.1	***
SF	Light duty provided	%	34.8	35.1		42.7	33.9	**
			Disputation in the L&I System					
SF	Employer contested claim	% Yes	11.7	15.2		13.3	23.2	***
SI	Employer contested claim	% Yes	10.6	34.1	***	6.4	7.1	
SF	Appeal to BIIA	Mean #	.376	.448		.601	.330	***

Note: X means did not test
*indicates statistical significance at the 95% level.
**indicates statistical significance at the 99% level.
***indicates statistical significance at the 99.9% level.

For the state fund sector, 2002 pension claims show a slightly higher age at injury, and a lower proportion married; they also show a lower number of hospital admissions and surgical procedures than 1997 pensions. They are more likely to demonstrate opioid use, to have preexisting conditions, and to be from economically distressed counties. They are less likely to show any attempt at return to work than 1997 pension claims.

State fund comparison time-loss claims from 2002 are less likely than 1997 claims to involve back injury, have much lower hospital admission rates, and fewer surgical procedures. They are older at injury and are more likely to have at least a high school education. They show less opioid use, are much less likely to have used a pain clinic, and have significantly less psychological involvement. They are also less likely to have preexisting conditions, far less likely to be a reopened case, and are less likely to show a return-to-work attempt. They are more likely to have had their claim contested by their employer but are far less likely to have been involved in an appeal to the BIIA.

Self-insured pension claims from 2002 are less likely than those from 1997 to involve back injuries and less likely to be female. Fewer of them had prior claims, but they are much more likely to have had a contested claim. Fewer of these 2002 pension claims show appeals. Comparison time-loss claims from 2002 are quite similar. They involve fewer back injuries, are

slightly older, and less likely to show opioid use. There were no significant differences in the number with prior claims or return-to-work attempts. There was also no difference in the number whose claims were contested by the employer.

Multivariate comparisons between 1997 and 2002

We concluded our analysis of the claim review sample with a multivariate analysis that compared the influence of selected variables on the probability of pension award in 1997 and 2002. This differed from the preceding bivariate analysis in that all variables were considered simultaneously, thereby reducing misleading interactions and intercorrelations among causative factors.The differences between the two probability equations presumably indicate changes in Washington's workers' compensation system between 1997 and 2002.

The largest changes in estimated coefficients were found in psychological conditions, agricultural employment, and preexisting conditions. Other variables that showed rising influence on the likelihood of pensions in 2002 included opioid drug use, reopened claims, claims from economically distressed areas, and claims from the construction industry. In addition, the effect of the number of VR activities and prior PPD award both became less negative from 1997 to 2002.

Among those variables that declined in influence between 1997 and 2002 were gender, marital status, age at injury, and possessing less than a high school education. Thus the demographic characteristics of the injured worker seemed to be less important in 2002. In addition, the influence of pre-injury earnings, use of pain clinics, and legal representation were all less positive than they had been in 1997. Small declines were recorded for employer contested claims, prior claims, and the number of medical procedures. No change was seen in the effect of employer accommodation, the number of independent medical examinations, or self-insured status of the employer.

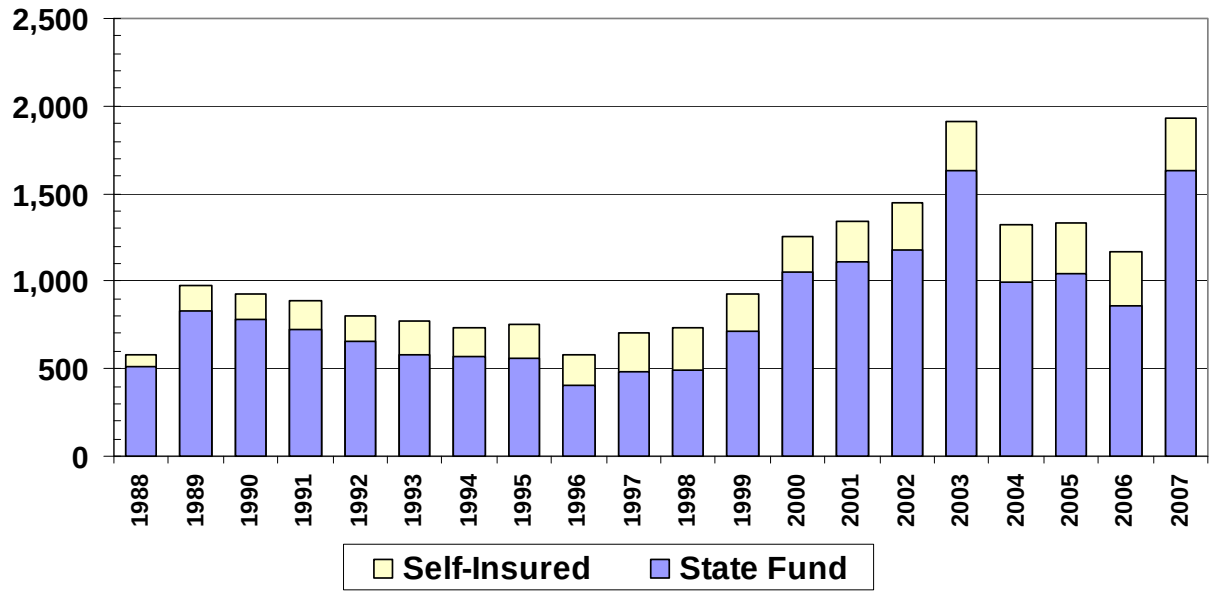
Our ability to predict whether a given claim would receive a pension award improved somewhat between 1997 and 2002. Overall, our estimated equations explained 32 percent of the variance in 1997 and 47 percent in 2002. It seems clear that both the characteristics of injured workers who claim pensions and the characteristics of the workers' compensation system within which they claim them changed between 1997 and 2002. While there are differences, we believe these analyses supplement the presentation and interpretation of administrative data in chapter 2

and improve our understanding of the increase in pension incidence that occurred in Washington over that time period.

HAS THERE BEEN SUBSTANTIAL GROWTH IN PENSIONS AWARDED?

Figure 6.1 shows the numbers of pensions awarded in Washington for the past two decades. It is evident that a sizeable upturn began in the mid to late 1990s and continued at least through 2003, along with a considerable jump in awards in 2007. Also, although pensions awarded in 2004 and 2005 fell from the previous peak in 2003, the number of pensions awarded in those years were higher than levels reached before 2000. The figure makes it clear that this upturn was more characteristic of state fund claims than of self-insured claims, although self-insured pensions rose substantially also. We noted earlier that the comparative growth of state fund and self-insured claims depends heavily on the base year selected for comparison.

Figure 6.1 Number of TPD Pensions Awarded by Fiscal Year



SOURCE: L&I Research and Data Services

Perhaps the most remarkable thing about the growth in pension awards, at least among state fund employers, is that it occurred in the face of a steady decline in the number of workers' compensation claims for time-loss benefits, since reaching a peak in 1990–91.

Our analysis begins with the question, was there actually sizable growth in pensions beginning in the mid 1990s and if so, was it very significant? Although we believe that such a phenomenon did occur, it may have been somewhat less dramatic than a first look at the data

suggests. Consider that in the five years 1988–1992, there were an average of 682 pensions awarded per year; or that in 1989 to 1991 under the previous push to close claims at L&I, there were 735 pensions awarded per year. Then consider that in the years 1993–1998 there were only 499 pensions awarded per year. If the 1989–91 period was a spike that was accounted for by the "Yes-We-Can" push, it was followed by a dearth of pensions from 1993 to 1998, with an inventory buildup that was pared down over the next few years. This view would suggest that a portion of the jump in pensions actually was an inventory adjustment from the decline in the average number of pensions awarded in the 1993–98 years.

If we consider the years 1999 to 2006, the average number of awards is indeed higher than the 1989–91 baseline. That is hardly surprising in the light of time-loss claims that began to increase after 1982 and peaked in 1990. Claims from this peak period were the raw material for the pensions in the late 1990s and going forward. From 1998 to 2001 the median length of time for pension awards made in those years was eight years from date of injury. That the number of pensions is correlated with the number of time-loss cases with a lag of six to 10 years is both intuitive and indisputable.

Based on the peaking of time-loss claims in 1990, give or take a few years around this point, pensions should have been growing for that reason alone in the late 1990s and early 2000s; even aside from the working down of the excess inventory that built up from 1993–1998. There was indeed an upsurge in pensions around 1999, at least for the state fund. But the judgment of the size of the upsurge must necessarily be shaped by the baseline used to measure it. There is little doubt that there has been a continuing increase in the ratio of active or open claims to all compensable claims from the mid 1990s to the present. As duration continues to increase, the raw material for future pensions does as well.

Aside from the issue of a claims inventory adjustment and of the lag from the peak years for time-loss claims to the awarding of pensions, one other factor adds to the puzzle. Beginning early in the 2000s the median time from claim origination to allowance fell from approximately eight years to about six years. That is equivalent to saying that claims that once would have remained in open payment status for some additional years were now being pensioned, boosting the number of pensions that L&I awarded beginning early in the 2000s. Had this change in practice or policy not occurred, it is likely that the pension counts would have been lower in the mid 2000s, though very likely most of these would have become pensions a few years later.

Where do these various complications leave us? We conclude that pensions have been growing and not simply due to an inventory adjustment resulting from claims management processes in the agency. The rate of pensions relative to time-loss claims, lagged appropriately, has also grown. And there has been continuing growth in the proportion of time-loss claims that remain open or active, both for relatively short durations and for long ones suggesting that the agency is encountering difficulty in closing claims as quickly as they have in the past. That said it is likely that the amount of the growth in pensions is not as great as one might sense, if the basis for that is simply Fig. 6.1.

WHAT CAUSED THE GROWTH IN PENSIONS?

This section consists of two parts. First, we examine the claims flow process. Then we try to establish the factors that were responsible for the growth in pensions.

The Claims Flow Process

Claims by injured workers are dealt with in a manner that is not notably different than in many other states. In addition to other duties, L&I plays the role that private insurance carriers do in 47 states and the District of Columbia and similar to those of the more than 20 competitive state insurance funds. One notable difference is that in most states claims are initially filed by injured workers or their employers, while in Washington it is left to the health care provider to submit the first report of injury. This can be a source of some delay in the initial delivery of time-loss benefits. A pilot project is currently underway in Washington to evaluate a procedure where the initial report is submitted instead by the employer.

Self-insured employers in Washington manage their own workers' compensation claims, either directly or through a third-party administrator. L&I exercises broad regulatory and oversight functions, becoming involved in specific claim management issues only in limited circumstances. For example, L&I reviews and approves all claim rejections and most closures. But L&I adjudicates all pension claims, whether from self-insured or state fund insured employers.

Some attention was given in chapter 2 to the processes that are used to close claims. There is a record of periodic dissatisfaction by some critics of L&I regarding the lengthy time for which claims remain open and for which time-loss benefits are paid. This has led to periods of intense attention that the agency has given to try to reduce the number of long-term claims, both

those open and those in active status. Claims are eventually closed in a limited number of ways, either when no timely protest or appeal is filed and the closing order becomes final, or when all protests and appeals have been exhausted. The paths to closure, which essentially parallel those found in most jurisdictions, include the following:

- determination of maximum medical improvement by the attending physician, a medical consultant or an IME;
- return to work (with or without vocational rehabilitation; with or without permanent restrictions; with or without modified work);
- determination of employability following maximum medical improvement based upon the opinion of the attending physician, medical consultant, IME, vocational provider or forensic vocational assessment;
- finding that the continued inability to work was not related to the injury or illness for which the claim was allowed (e.g. preexisting conditions that naturally progressed post injury or an unrelated post-injury condition);
- a PPD award, after a determination of maximum medical improvement;
- settlements resolving issues such as back time loss, medical bills, travel expenses or accepted conditions. Settlements may include PPD, but only insofar as this is adequately supported by documented medical opinion; and
- determination of total and permanent disability leading to pension.

One path to closure that is found in most states but not in Washington is the use of compromise and release settlements. All but eight states allow, with few or no meaningful limits, the use of such settlements to terminate the payment of indemnity benefits. Lump-sum settlements are allowed under RCW 51.32.130 in death or total permanent disability cases. But because the maximum amount is limited to $8,500 this provision is rarely used.

There are numerous barriers to claim closure in Washington, at times delaying definitive action, and these can substantially extend the payment of time-loss benefits. Actions taken by injured workers, employers, attorneys, and medical or vocational providers all can play some role in extending the period for which time-loss benefits are paid and claims remain open. The Department can also be responsible for delays that extend time-loss payments, and there have been periodic bursts of managerial response which have not always proven to be effective. In some cases efforts to close claims of long duration may have been successful, but served to increase the number of cases where pensions were granted.

As is the case in most states, disputes in Washington can be resolved by protests or appeals; made first to the workers' compensation agency (L&I), and if not resolved there to an appellate body independent of the agency. The decisions of that appellate body (the Board of Industrial Insurance Appeals in Washington) can be appealed to the courts. The appeals process involving the BIIA and the courts can also contribute to the extended duration of some claims.

The BIIA currently receives about 9,000 state fund case appeals per year and issues decisions on about 6,000 to 7,000. These numbers rose slowly from 1988 to 1999, then jumped significantly in 2000 and have remained relatively flat since then. Unfortunately, it is not possible to determine from existing BIIA or L&I records how frequently pension issues were either the main or secondary reason for appeals. According to L&I's data warehouse, the number of pensions ordered by the BIIA rose sharply from FY 1988 to a peak of 149 in 1992, then dropped back to 75 to 90 from 1996 through 1999, before rising sharply again to 207 in 2002. Since that high point the numbers have fallen back to the 70 to 90 range per year.

The number of self-insured pensions awarded by BIIA decisions rose gradually from 1988 to a peak of 63 in 2006, without the steep increases experienced by the state fund in 1992 and 2002. The frequency of self-insured pensions, as a percent of all BIIA self-insured decisions, has consistently ranged between one and two percent since calendar year 1989, except for a one-year peak of 2.5 percent in 2006.

When the available data are considered as a whole, we cannot conclude that changes in BIIA behavior explain the changes in the rate of state fund pensions from the late 1990s to the present. But we are unable to rule out the importance of BIIA decisions in the years prior to the substantial growth in pensions granted by L&I. Increased BIIA pension decisions have contributed to the overall increase in pension numbers because of the increase in appeals reviewed by the BIIA, not because the BIIA has become more likely to award pensions at a higher rate.

Major Causes of the Increases in Pensions: Claims Management Practices

We examined claims management practices at L&I to determine how significant this has been in the sharp growth in pensions. In our view one of the factors that led to a surge in pensions was the result of three conditions that occurred in combination. These conditions are:

- a build-up of open (or active) long-duration time-loss claims;

- a high probability that a long-duration time-loss claim will evolve into a pension case; and
- a concerted push to clear out the long-duration time-loss claims.

In 1998 about one in seven open claims at L&I had been open for at least six years; many of these were a good deal older. This proportion began to decline slowly thereafter, yet one in every eight open time-loss claims had been open for six or more years in 2001. Each year from 1996 to 1999 there were close to 6,000 open time-loss claims that had been open for six or more years. This is compared to a range of 600 to 1,000 pension awards per year.

A large share of the pensions awarded in any year goes to claims where the work accident occurred 10 or more years previously. In 2000 a high water mark was reached as over 38 percent of the pensions awarded that year went to claims that had been open for 10 or more years. The number of these 10-year-old or older cases that were pensioned peaked in 2002 and 2003.

The data suggest that there is a continuing problem with long-duration claims in Washington. The percent of compensable claims from each calendar accident year that are active five years after the injury year began to rise in 1996, increasing nearly 60 percent by 2002. This growth of long-duration time-loss claims provides the base for pension growth in the future. Additionally, as is noted in chapter 2, the linkage between long-duration cases and the increasing probability that this results in pensions seems incontrovertible.

Steps to shorten average duration have been taken at various points for more than two decades at L&I. One such major push was made in 1998 when money was made available to fund 24 additional Claim Managers, with the proviso that time-loss duration be reduced by 5 percent by June 30, 2000 and an additional 2.5 percent by June 30, 2001. This added considerably to the workloads of the Pension Adjudicators, both because of the increased number of pension determinations that were needed to be made by them, and because the average experience level of the Claim Managers was less due to the presence of newly acquired staff.

We believe the concerted push to reduce time loss and close claims during the period from 1998 to 2001 contributed to a lumpiness in the year-to-year number of pensions that were awarded, thereby precipitating a portion of the upsurge in the number of pensions awarded.[153] This administrative phenomenon accounts for a significant share of the pension growth.

[153] Not only do such special efforts contribute to year-to-year volatility, there is considerable variation in the number of pensions awarded on a quarter-to-quarter basis. This seems particularly pronounced since 2000.

However, the administrative push and its resulting awarding of pensions was built upon a foundation of increasing time-loss durations. This push to resolve claims also led to some decisions by the agency that disappointed some claimants and fostered an increased number of appeals.

Major Causes of the Increases in Pensions: Poor Labor Market Conditions

Difficulty in the labor market is likely to increase the probability that an injured worker cannot return to employment and the earnings level that existed before the injury or illness. That difficulty may be the result of economic weakness in the injured worker's community or region, and/or it may result from personal characteristics that contribute to difficulty in finding and retaining employment, except perhaps when the labor market is very strong. We believe the evidence shows that labor market conditions have played a significant role in the pension increase in Washington.

Labor markets that provide substantial job opportunities reduce some of the barriers that injured workers face in seeking and retaining employment. Strong labor markets also cause employers to have a greater need to reemploy their injured workers. These high-demand labor markets also tend to generate wages that encourage workers to return to, and to remain in, employment.

Since the early 1990s the labor market in Washington has been weak, though some geographic areas have been strong for most years. Not surprisingly, those workers with the least education have been disproportionately at risk for having their work injuries evolve into pensions. Work injuries and illnesses compound the problems that such workers face in the labor market.

Other Possible Causes of the Increases in Pensions: Changing Demographics

There is no doubt that a worker's age is positively associated with receiving a pension. It is also true that Washington's population, and likely its labor force, have grown older in recent years. Did this contribute to the growth in pensions? Our analysis finds that the aging of the workforce is not a significant contributor to the year-to-year growth in pensions. Age undoubtedly has an impact on pension likelihood but not on short-term swings. The impact of age does manifest itself over longer periods of time, and it has likely had some effect when

viewed over the period of a decade or more. As the state's labor force continues to age, it will tend to raise the rate of pensioning.

Other Possible Causes of the Increase in Pensions: Changing Types of Injuries and Illnesses and Their Treatment

We examined back injuries and psychological conditions as well as certain treatments to determine their role, if any, in the growth of pensions. Back injuries are often the focus of concern in workers' compensation studies because of their frequency, their cost, and the difficult diagnostic, etiological, and treatment issues they present. From 1993 to 2004, accepted back or spinal injury claims fell by 29 percent in Washington, and the number of denied claims over the same period fell by 48 percent. When we examined the proportion of back or spinal injury claims that were accepted as a proportion of all time-loss claims in each accident year, the rate fell over the 12 years, albeit slightly.

Could changing treatment for back injuries be responsible for the increase in pensions? It was suggested to us that more frequent use of lumbar fusion surgery in Washington State, especially with intervertebral cage devices, may have made a significant contribution to the increase in pension awards. The data on such procedures lead us to conclude that this type of surgery could not have been responsible for more than a small percent of the increased number and rate of pensions during calendar years 1996 to 2003.

By contrast, claims with psychological involvement have clearly increased and may have played a role in the increasing number of pensions. However, the rates of increase are not sufficient to account for a major share of the increase in pensions during the period under question. These medical conditions often develop after another disabling injury has occurred. They may be the result of work disability as much as the cause.

The use of opioids to treat injured workers has also grown considerably over the period we considered in this study. It is difficult to sort out the causal relationship between the use of these medications and long-term disability and pensions. Is their continuing use a function of the degree of pain and impairment for the worker? What is cause and what is effect? However, even if this treatment is responsible for increasing the numbers of pensions, our analysis suggests that it could not be a major cause of these cases.

Other Possible Causes of the Increases in Pensions: Injuries and Illnesses, Frequency and Sseverity

In seeking to explain the upsurge in pension awards beginning in the late 1990s we need to rule out some sources that theoretically could be in whole or in part responsible. One possible cause could be that there was an increase in the number and/or the severity of occupational injuries and illnesses several years before the increase in pensions. Both the U.S. and Washington appear to have had consistent long-term downward trends in the incidence rates of non-fatal work injuries. It seems very unlikely that the number or the rate of Washington's pensions were the product of more injuries in the decade or so before the upsurge in awards.

We looked at the data on occupational fatalities on the grounds that if the numbers or rates of injuries and illnesses or their severity were increasing, one should find the same in fatality rates. We found that from 1993 to 1998, the level of occupational fatalities in Washington stayed in a fairly narrow range. After 1998 the number of these fatalities declined, reaching its lowest point in 2000. It is important to keep in mind that the size of the workforce in Washington was growing over much of this period, even as the number of fatalities was declining. Comparing the state's performance with that of the U.S., Washington's relative safety performance record as judged by the number of fatalities has improved over this time.

Another possible cause of the upsurge could be that the severity of injuries and illnesses has increased even if the number or rate of incidents has not. Some evidence on that matter can be obtained by considering the incidence of permanent partial disability. For those claimants who did not receive a pension, the number of permanent partial disability recipients has fallen, though the proportion of time-loss claims that resulted in permanent partial disability awards has steadily moved higher.

By the latter measure, we could conclude either that the rate of more serious injuries and illnesses (but not the level) has increased over time, or that the standards for awarding permanent partial disability benefits have been relaxed. Also, the extent of PPD impairment for those who were eventually determined to be permanently and totally disabled did not increase over the period when the upsurge in pension awards occurred. Overall the findings for the self-insured and for the state fund are very similar.

Making some assessment of the changing degree of severity using permanent partial disability ratings is complex. Many pension recipients were not given permanent partial benefits and ratings of their impairment are not captured in available data sources. Of those who did get

rated and obtained benefits, it is possible that their condition changed between the time they were rated for permanent partial disability and their condition at the time they were awarded a pension.

We have not resolved this issue here with certainty though it is instructive to see that the average impairment rating—both the mean and the median—associated with permanent partial disability awards has steadily declined. We are inclined to believe that the severity of injuries and illnesses resulting in permanent disability has not increased. A variety of improvements in health care and in safety and prevention practices over this period make it unlikely that the average degree of severity increased over time in Washington, although we cannot rule out that possibility absolutely.

Possible Causes of the Increase in Pensions: The Changing Legal Environment

An obvious place to turn to explain the growth in pensions is the legal environment in which workers' compensation cases are evaluated. We found that neither the statute nor the regulations changed in the time period under consideration in a way that accounts for the upsurge. The language of the statute itself regarding pensions has remained unchanged for decades. Of the many persons we have interviewed, no one has pointed to legislative or regulatory change as the reason that more pensions have been awarded.

Some have suggested that certain judicial decisions (e.g. Leeper 1994) may have been significant. Although decisions such as Leeper undoubtedly favored applicants for pensions, decisions made far earlier show a relatively tolerant standard by the courts to pension applicants. We are not able to conclude whether or not the upswing in pensions may be partly a product of the Board or the Courts becoming more "worker friendly."

While this is a possibility, as is the possibility that attitudes favoring such determinations are the product of changing attitudes at the Department, there is no unambiguous way to show that there has been some changing standard for the granting of a pension. However, it is highly unlikely that such attitudes changed quickly enough to account for the upsurge in pensions. We believe that legislative changes or court decisions, and possibly appeals that derive from these, can be the source of diversions that disrupt the usual processing of claims. Any resulting delays in processing or managing claims can add to volatility in the number of pensions awarded. If this contributes to longer duration claims, it could also lead to some claims becoming pensions that otherwise might have been resolved with prompter claims management attention given to them.

Possible Causes of the Increase in Pensions: The Second-Injury Fund

The Second-Injury Fund does not appear to have been a significant driver of pensions for state fund cases. However, it plays an extremely important role in the number of pensions awarded to workers from self-insured employers. As such, the growth in self-insured pension cases, which actually began several years before the sizeable upturn in state fund cases, must be viewed as a very important potential consequence of second-injury fund relief provisions which were being used with increasing frequency and by a wider assortment of self-insured employers.

Possible Causes of the Increase in Pensions: The Vocational Rehabilitation Program

Our primary mission is to determine the source of the upswing in the number of pensions awarded. The Vocational Rehabilitation (VR) program plays a critical role in pensions, as successful rehabilitation obviates the likelihood that a pension will follow. Our conclusion, based on our review of claim files, interviews with staff and providers, and analysis of the available data is that VR at L&I has not had a negative impact on service provision to an extent that would explain the rapid growth in pensions awarded. This is not to suggest that the VR program is problem free. Indeed, a newly grounded pilot program for VR is testimony to the agency's searching for an improved model of service.

Clearly a VR program can have an impact on the ability of injured workers to return to work and its strengths and weaknesses will affect the promptness and effectiveness of return-to-work efforts. However, there is no evident relationship between the bulge in pension awards beginning in the late 1990s and the VR program, per se.

Possible Causes of the Increase in Pensions: Appeals by Workers

As we have noted several times in this report, a correlation between variables is not evidence of a causal relationship. A strong correlation exists between the number of appeals filed and pensions awarded two years later. Several things could explain this relationship including the fact that both measures have a tendency to grow over time (as do many other possible variables.) Still, there are some plausible hypotheses that are consistent with this relationship. For one example, as claim managers and other agency staff are heavily engaged in responding to appeals, they might give less attention to managing other claims, thereby leading to extended durations. As stated earlier, we believe that the increase in appeals was a consequence of the upsurge rather than a cause.

PREDICTING THE NUMBER OF FUTURE PENSIONS

We used information from the L&I data warehouse to estimate a binomial logit model that would predict pension receipt among claims that had already received between 3 and 10 years of time loss payments. Our model predicted the probability that these claims would be granted a pension in the six years following based upon their characteristics. The data included such factors as time-loss duration, gender, age at injury, county of injury, industry of employment, PPD and Social Security offset status, number of appeals, vocational rehabilitation plan development, hospital admissions, surgical procedures, opioid prescriptions, neck and back conditions, psych treatment, and prior claim status.

In our predictive model, the most important determining factor in the likelihood of pension is the length of time from the date of the injury. Each additional year since the injury increases the odds of a pension by 30 percent. Age at injury was also a very significant factor. Each additional year beyond the mean is associated with a nine percent increase in the odds of pension, holding other factors constant. Translating this to predicted probabilities, a worker who is less than 30 years old and has between 3 and 10 years of time loss has a 15 percent predicted probability of pensioning, while a worker with the same characteristics, but between 60 and 65 years of age has a 78 percent predicted probability of TPD.

The estimated amount of time loss paid per day also influences the likelihood of pension slightly. For each dollar paid over the mean, there is an increase of .90 percent in the odds of TPD. For example, $50 over the estimated average daily amount paid in time-loss benefits is associated with an increase in pension odds of five percent. Claims from economically distressed areas had a 16 percent increased likelihood of TPD over those that are not from distressed areas, holding other factors constant.

Claims with psychological treatment within the first three years of injury had a 40 percent increased chance of pension outcome over claims without psychological treatment. Accepted back and neck conditions (as defined by ICD-9 codes) were associated with a 30 percent increase in odds of pension over claims with conditions other than neck and back. Claims with opioid prescriptions showed a 21 percent greater likelihood of pensioning than claims without opioid prescriptions.

Another indicator of whether or not a case will receive a pension is whether or not the worker receives a vocational rehabilitation plan. A case with a vocational plan approved is 56

percent less likely to receive a pension than a case without such a plan, other things equal. This estimate does not mean that VR treatment will reduce the likelihood of pension by 56 percent, but it does indicate that claims selected for VR referral that proceed to VR plan approval are much less likely to end up as pension claims.

If a worker's benefits are offset due to Social Security payments, the worker is more than twice as likely to receive a pension. Presumably this is due to the disability status they have demonstrated already, which makes them very unlikely to return to work. Receiving a permanent partial disability (PPD) award has a negative effect on the likelihood of pension. Our model indicates that the receipt of PPD within the first three years of a claim lowers the probability of pension by 17 percent, holding other factors constant. One possible reason for this can be that in order to be granted a PPD award, the worker must be rated as to the degree of medical impairment. If the medical condition has not stabilized, the worker will not be rated. As a result, the absence of a rating may be correlated with a more severe condition, i.e., one that is more likely to result in an inability to return to employment and thus, the eventual awarding of a pension. Appeals to the BIIA can also signal TPD likelihood, as a case with an appeal has an increased likelihood of TPD by 10 percent.

Industry of employment is also an important factor. In this model we included agriculture and construction as two major industries tending to have seasonal effects and relatively high workers' compensation claim incidence. Individuals injured in agriculture and construction may have more serious injuries, lower levels of formal education, and more difficulty returning to work. Our model estimates that an agricultural worker was 25 percent more likely to receive a TPD than other workers, but that construction workers were not statistically different from other workers with regard to TPD benefit receipt.

Our model correctly predicts pension outcomes approximately 70 percent of the time based upon the available variables. The predicted pension probability is somewhat lower than the ultimate probability of pension predicted by L&I Actuarial Services for claims three or more years old. But it is important to note that our pension probability model misses many of those likely to be identified by the actuarial models, especially claims older than 10 years. The actuarial models are using a different method, employing projections of ultimate counts based on the number of active claims and past claim closure rates rather than individual claim characteristics, and their numbers are not directly comparable to ours.

In essence, actuarial methods use a macro or system approach, while our model uses a micro or individual approach. In addition, our model only explains a portion of the overall variation in pension rates due to its restricted range and limited variable set. While we think our model could offer a valuable contribution toward understanding the individual factors affecting pension likelihood, our model is definitely not a substitute for what actuaries at L&I currently employ.

The value to the Department of Labor and Industries of this model is that it could be used to identify cases with a high probability of pension so that a claims management intervention could be applied earlier in the claim. This model—or a more highly developed variation of it—could help the department to evaluate what future pension outcomes are likely to be and what will be the characteristics of future pension claims. As such, it would be a complement to the existing L&I actuarial forecasting efforts.

References

American Medical Association. 2008. *Guides to the Evaluation of Permanent Impairment, 6th edition*. Chicago: AMA.

Ballantyne, Jane C., and Jianren Mao. 2003. "Opioid Therapy for Chronic Pain." *New England Journal of Medicin*e 349(20): 1,943–1,953.

Barth, Peter S., Mike Helvacian, and Te-Chun Liu. 2002. *Who Obtains Permanent Partial Disability Benefits: A Six State Analysis*. Cambridge, MA: Workers Compensation Research Institute.

Barth, Peter S., and Michael Niss. 1999. *Permanent Partial Disability Benefits: Interstate Differences*. Cambridge, MA: Workers Compensation Research Institute.

Belton, Sharon E., Richard A. Victor, Te-chun Liu, and Sharon E. Fox. 2007. *Comparing Outcomes for Injured Workers in Nine Large States*. Cambridge, MA: Workers Compensation Research Institute.

Biddle, Jeff E., Leslie I. Boden, and Robert T. Reville. 2001. "Permanent Partial Disability from Occupational Injuries: Earnings Losses and Replacement in Three States." In *Ensuring Health and Income Security for an Aging Workforce*, Peter Budetti, Richard V. Burkhauser, Janice M. Gregory, and H. Allan Hunt, eds. Kalamazoo, MI: W.E. Upjohn Institute, pp. 263–90.

Caudill-Slosberg, Margaret A., Lisa M Schwartz, and Steven Woloshin. 2004. "Office Visits and Analgesic Prescriptions for Musculoskeletal Pain in the US: 1980 vs. 2000." *Pain* 109(3):514-519.

Census of Population and Housing, 1990: Modified Age/Race, Sex and Hispanic Origin Files (MARS). 1991. Washington, DC: U.S. Bureau of the Census.

Cheadle, Allen, G. Franklin, C. Wolfhagen, J. Savarino, and P. Y. Liu. 1994. "Factors Influencing the Duration of Work-Related Disability: A Population-Based Study of Washington State Workers' Compensation." *American Journal of Public Health: JPH* 84 (2):190.

Core Services Review of the Workers' Compensation Board, retrieved from http://www.labour.gov.bc.ca/pubs/pdf/WinterReport-Complete.pdf

Deyo, Richard A., Darryl T. Gray, and William. Kreuter, et al. 2005. "United States Trends in Lumbar Fusion Surgery for Degenerative Conditions." *Spine* 30: 1,441–1,445.

Early Intervention Program. See: http://www.lni.wa.gov/ClaimsIns/Rules/MedicalAid/Rule29619A/29619A050.asp WAC 296-19A

Franklin, Gary M., Jaymie Mai, Thomas Wickizer, Judith A. Turner, et al. 2005. "Opioid Dosing Trends and Mortality in Washington State Workers' Compensation, 1996-2002." *American Journal of Industrial Medicine* 48 (2): 91-99.

Franklin G., B. Stover, and J. Turner, et al. Unpublished. "Early Opioid Prescription and Subsequent Disability among Workers with Back Injuries: The D-RISC Study." Government Management, Accountability and Performance Audit, Presentation June 28, 2005.

Harder, Henry G., and L. R. Scott. 2005. *Comprehensive Disability Management*. London: Elsevier.

Higdon, K. M., and J. L. Collins. 2004. "A Study on Aging and the Cost of Workers' Compensation." *Journal of Workers Compensation* 13(4): 61–68.

Jauquet, Joseph, and Heather Grob. 2005. "The Aging Workforce: Implications for Workers' Compensation." Olympia, WA: Washington State Department of Labor & Industries Research and Data Services.

Joint Legislative Audit and Review Committee JLARC Implementation report. See: http://www1.leg.wa.gov/Reports/03-10.pdf

Joint Legislative Audit and Review Committee (JLARC). 1998. Audit of the Washington State Workers' Compensation System. See: http://www1.leg.wa.gov/JLARC/Audit+and+Study+Reports/LWD/98-9.htm

Maghout-Juratili, S., G. Franklin, and S. Mirza, et al. 2006. "Lumbar Fusion Outcomes in Washington State Workers' Compensation." *Spine* 31: 2,715–2,723.

Mahmud, Mohammed A., Barbara S. Webster, Theodore K. Courtney, et al. 2000. "Clinical Management and the Duration of Disability for Work-Related Low Back Pain." *Journal of Occupational and Environmental Medicine*, 42(12) (December): 1,178-1,187.

Medical Aid Rules Chapter 296-19A. See: http://www.lni.wa.gov/ClaimsIns/Rules/MedicalAid/Rule29619A/Chapter29619A.asp

National Council on Compensation Insurance. 2007. *Annual Statistical Bulletin*. New York, N.Y.: The Council.

Pease, Sara R. 1989. *Workers' Compensation in Washington: Administrative Inventory*. Cambridge, MA: Workers Compensation Research Institute.

Preferred Worker Program. See the brochure at http://www.lni.wa.gov/IPUB/280-021-000.pdf

RSCM retrieved from http://www.worksafebc.com/publications/policy_manuals/rehabilitation_services_and_claims_manual/default.asp

Rehabilitation Services and Claims Manual II, retrieved from http://www.worksafebc.com/publications/policy_manuals/Rehabilitation_Services_and_Claims_Manual/volume_II/assets/pdf/rscm_ii_06.pdf

Sengupta, Ishita, Virgina Reno, and John F. Burton, Jr. 2007. *Workers' Compensation: Benefits, Coverage, and Costs, 2005.* Washington, DC: National Academy of Social Insurance.

Silverstein, Michael. 2008. "Meeting the Challenges of an Aging Workforce." *American Journal of Industrial Medicine* 51(4): 269-280.

Stover, Bert, Thomas M. Wickizer, Fred Zimmerman, Deborah Fulton-Kehoe, and Gary Franklin. 2007. "Prognostic Factors of Long-Term Disability in a Workers' Compensation System." *Journal of Occupational and Environmental Medicine* 49(1):31-40.

Swedlow, Alex, Laura Gardner, John Ireland, and Elizabeth Genovese. 2008. *Pain Management and the Use of Opioids in the Treatment of Back Conditions in the California Workers' Compensation System.* Oakland, CA: CWCI.

Telles, Carol A., and Sharon E. Fox. 1996. *Revisiting Workers' Compensation in Washington: Administrative Inventory*. Cambridge, MA: Workers Compensation Research Institute.

U.S. Bureau of Labor Statistics. Available at http://www.bls.gov/iif/oshstate.htm

U.S. Chamber of Commerce. 2007. *Analysis of Workers' Compensation Laws.* Washington, DC: U.S. Chamber of Commerce.

United States. 2006. *State Workers' Compensation Laws.* Washington, D.C.: Division of State Workers' Compensation Programs.

Washington Administrative Code (WAC) 296-14-150. Available at www.lni.wa.gov.

Washington (State). 2007. *Washington State Labor Market and Economic Report.* Olympia, WA: The Branch.

Washington (State). (various). *Washington State Labor Market and Economic Report.* Olympia, WA: The Branch.

Washington State Labor Market and Economic Reports, Economic and Policy Analysis Unit, Washington State Employment Security Department. (Annual Reports)

Wooldridge, Jeffrey M. 2006. *Introductory Econometrics: A Modern Approach.* Cincinnati, OH: South-Western College, pp. 271-303.

"Workers' Comp Second Injury Funds: Going, Going, Gone." 2004. *Insurance Journal*, Feb. 9, 2004, available at http://www.insurancejournal.com/magazines/southeast/2004/02/09/partingshots/36602.htm.

Workers Compensation Act, retrieved from http://www.qp.gov.bc.ca/statreg/stat/W/96492_01.htm#section23.