

III. Comparability of Costs Estimates Among Jurisdictions: Other Issues

While we have made every effort to ensure that our estimates of the costs of workers' compensation insurance in Ontario are comparable to those of other jurisdictions, institutional differences among jurisdictions and, in particular, differences between U.S. states and Ontario present challenges that are more daunting than those previously described. We have identified two institutional differences as particularly significant.

First, differences in health care financing between the U.S. and Canada outside the workers' compensation program may result in significant differences in the attribution of work-related workers' compensation costs to workers' compensation programs in the two countries. Specifically, it is possible that, for example, some work-related medical costs in Ontario are paid by the Ontario Health Insurance Program (OHIP) or that some non-work related medical costs are incurred by workers' compensation programs in the United States.

Second, in many Canadian jurisdictions, including Ontario, the workers' compensation program is responsible for financing activities collateral to the provision of cash and medical benefits to injured workers, such as the administration and enforcement of occupational health and safety programs. By and large, these programs are not financed by workers' compensation premiums in the United States. On the other hand, publicly administered and financed workers' compensation programs in both the United States and Canada are not subject to certain costs that are incurred by private insurance carriers, most notably income taxes and the costs of capital.

In this section, we discuss the implications of both issues for the comparability of our costs estimates. Although we are unable to derive precise adjustments to our costs measures to definitively account for these differences, we are able to determine the approximate magnitude of their impact on our costs estimates. In the second phase of this project, we will derive more exact estimates of the costs implications of these institutional differences, which we will use to more accurately refine our costs measures.

A. Medical Costs

As we demonstrate in Section IV.B, the per claim average costs of medical benefits for workers' compensation claimants in Ontario is substantially less than the costs of medical benefits in most U.S. states. By the end of our study period, with data from both countries, health care costs per claim were about four times as high in the U.S. as in Ontario. This difference is even greater than difference in health care costs between Canada and the U.S. for the entire health care system found by previous studies. For example, research shows that U.S. per capita national health care costs, after adjusting for difference in the exchange rate, are approximately twice as great as those in Canada (Pozzebon and Thomason 1993). This subsection examines some of the possible reasons for these differences in health care costs between the countries. Our particular interest is whether any of these reasons for differences in costs affects the comparability of the employers' costs of workers' compensation insurance in Ontario and the U.S.

As an accounting proposition, health care costs are a function of the price of the treatment provided to patients and the quantity of treatment provided. Specifically, total health care costs are equal to the price of each treatment multiplied by the number of treatments provided, recognizing that the price varies by treatment (Johnson et. al 1993).²¹ Thus, two plausible explanations for the difference between Ontario and other North American jurisdictions is that the price of medical care is higher in the United States than in Ontario or that injured workers' receive more medical treatment for a given condition in the United States than in Ontario. A third plausible explanation is that either reported health care costs in Ontario are lower than the true costs or that reported costs are higher than their true costs in the United States or both. This third explanation could occur as the result of cost-shifting between the workers' compensation program and the general health care system.

The first two potential explanations for health care costs differences do not affect our costs comparisons or estimates of relative delivery system efficiency of the various workers' compensation programs. However, if cost-shifting is responsible for the differences in medical

costs between Ontario and U.S. jurisdictions, then our costs comparisons are misleading. For example, if ten percent of the medical costs for work-related injuries in Ontario are paid for by the Ontario Health Insurance Program (OHIP), then the costs of workers' compensation in the province are artificially low. (We present hypotheses and evidence on the extent of cost shifting in the U.S. and Ontario in this section.) Even though cost-shifting of medical expenses were to make our inter-jurisdictional cost comparisons misleading, our estimates of delivery system efficiency are not adversely affected. Delivery system efficiency is assessed by controlling for actual medical costs, regardless of the source of the costs. We explore the methodology and meaning of workers' compensation delivery system efficiency in greater detail in Section IV. The balance of this section examines whether there are factors that mean the comparisons of workers' compensation costs between Ontario and other jurisdictions are misleading.

1. Price of Medical Care

One possible explanation for the difference in medical costs between Ontario and other North American jurisdictions – and, in particular, U.S. workers' compensation programs -- is that the price of health care generally is higher in the United States than in Ontario. For example, Pozzebon and Thomason (1993) argued that the system of private insurance in the United States, combined with legal rules that encourage medical malpractice litigation, engender additional administrative and other transaction costs that increase the costs of medical services in the United States above the costs in Canada. This cause of higher costs of medical care should not affect the comparability of our measures of workers' compensation insurance costs, since the higher costs of health care for workers' compensation claimants in the U.S. reflects the inefficiencies of the American health care delivery system relative to that of Ontario.

To examine this, we compared fee schedules for ten common medical procedures used in 39 workers' compensation programs in the United States with the OHIP fee schedule for similar procedures in Ontario.²² These data are presented in Table 2.

**Table 2
Selected Medical Fee Schedules, 1998**

Jurisdiction	Arthroscopy, Inguinal Hernia		Laminectomy, Lumbar	Neurolysis at Carpal Tunnel	Chest X-Ray, Two Views	CAT Scan		Office Visit, New Patient, Comprehensive Exam		Office Visit, Established Patient, Intermediate Exam		Emergency Care, Initial Visit, Detailed History
	Knee, with Meniscectomy	Repair, Unilateral				Lumbar without Contrast	Office Visit, Established Patient, Brief Exam	Office Visit, Established Patient, Intermediate Exam				
Alabama	\$2,067	\$1,003	\$2,748	\$823	\$66	\$284	\$157	\$29	\$46	\$80		
Alaska	\$3,031	\$1,550	\$4,066	\$1,773	\$110	\$862	\$248	\$47	\$85	\$236		
Arizona	\$2,802	\$1,280	\$3,769	\$939	\$70	\$794	\$154	\$18	\$46	\$117		
Arkansas	\$2,008	\$806	\$2,105	\$924	\$54	\$442	\$144	\$20	\$42	\$116		
California	\$1,362	\$719	\$2,020	\$765	\$48	\$386	\$122	\$20	\$40	\$115		
Colorado	\$1,083	\$658	\$2,551	\$650	\$52	\$419	\$169	\$23	\$59	\$163		
Connecticut	\$2,885	\$1,450	\$4,977	\$1,580	\$92	\$760	\$187	\$35	\$63	\$182		
Florida	\$1,064	\$570	\$1,710	\$489	\$32	\$313	\$58	\$17	\$29	\$71		
Georgia	\$1,800	\$1,300	\$3,060	\$900	\$80	\$590	\$125	\$30	\$50	\$90		
Hawaii	\$803	\$513	\$1,520	\$435	\$45	\$371	\$154	\$18	\$49	\$112		
Kansas	\$1,485	\$838	\$2,925	\$866	\$55	\$440	\$132	\$23	\$45	\$146		
Kentucky	\$1,343	\$697	\$2,038	\$817	\$39	\$313	\$139	\$16	\$41	\$105		
Louisiana	\$1,387	\$823	\$2,403	\$688	\$68	\$548	\$229	\$27	\$68	\$173		
Maine	\$1,130	\$697	\$2,037	\$583	\$38	\$359	\$193	\$23	\$58	\$146		
Maryland	\$1,600	\$827	\$1,144	\$605	\$35	\$341	\$142	\$17	\$42	\$139		
Massachusetts	\$779	\$410	\$1,418	\$346	\$25	\$163	\$72	\$10	\$37	\$51		
Michigan	\$1,328	\$768	\$1,977	\$755	\$51	\$488	\$116	\$12	\$43	\$110		
Minnesota	\$1,074	\$669	\$1,942	\$557	\$36	\$342	\$189	\$22	\$57	\$143		
Montana	\$1,279	\$777	\$3,016	\$768	\$55	\$459	\$111	\$15	\$38	\$107		
Nebraska	\$1,495	\$985	\$2,840	\$812	\$88	\$709	\$169	\$18	\$51	\$123		
Nevada	\$1,646	\$999	\$3,980	\$988	\$66	\$538	\$156	\$21	\$54	\$150		
New Mexico	\$1,818	\$881	\$2,467	\$840	\$65	\$614	\$160	\$18	\$47	\$105		
New York	\$2,013	\$1,285	\$2,810	\$957	\$78	\$583	\$154	\$27	\$49	\$169		
North Carolina	\$1,354	\$1,276	\$2,449	\$705	\$58	\$467	\$174	\$20	\$51	\$132		
North Dakota	\$1,093	\$700	\$2,131	\$619	\$51	\$454	\$150	\$15	\$45	\$132		
Ohio	\$1,445	\$897	\$2,633	\$746	\$52	\$416	\$157	\$16	\$47	\$117		
Oklahoma	\$1,555	\$951	\$3,575	\$910	\$56	\$459	\$149	\$20	\$52	\$143		
Oregon	\$1,723	\$1,064	\$3,139	\$890	\$75	\$605	\$201	\$21	\$60	\$151		
Pennsylvania	\$1,005	\$561	\$1,647	\$488	\$43	\$345	\$136	\$21	\$43	\$88		
Rhode Island	\$1,922	\$1,258	\$3,232	\$1,054	\$65	\$487	\$183	\$36	\$57	\$116		
South Carolina	\$1,011	\$624	\$1,824	\$522	\$52	\$416	\$173	\$20	\$52	\$131		
South Dakota	\$1,375	\$835	\$3,242	\$825	\$72	\$558	\$143	\$19	\$49	\$137		

Table 2 (Continued)
Selected Medical Fee Schedules, 1998

Jurisdiction	Arthroscopy, Inguinal Hernia		Laminectomy, Lumbar	Neurolysis at Carpal Tunnel	Chest X-Ray, Two Views	CAT Scan		Office Visit, New Patient, Comprehensive Exam	Office Visit, Established Patient, Brief Exam	Office Visit, Established Patient, Intermediate Exam	Emergency Care, Initial Visit, Detailed History
	Knee, with Meniscectomy	Repair, Unilateral				Lumbar without Contrast	Lumbar with Contrast				
Texas	\$1,416	\$860	\$3,338	\$850	\$70	\$580	\$137	\$18	\$48	\$105	
Utah	\$1,352	\$777	\$1,842	\$625	\$51	\$497	\$133	\$18	\$40	\$112	
Vermont	\$1,360	\$790	\$2,026	\$768	\$58	\$458	\$125	\$18	\$40	\$112	
Washington	\$844	\$523	\$1,541	\$437	\$43	\$352	\$165	\$17	\$49	\$123	
West Virginia	\$988	\$558	\$1,631	\$467	\$46	\$372	\$155	\$18	\$46	\$117	
Wisconsin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Wyoming	\$1,344	\$816	\$3,168	\$806	\$66	\$533	\$137	\$18	\$47	\$131	
Median	\$1,375	\$823	\$2,467	\$768	\$55	\$459	\$154	\$19	\$48	\$117	
Ontario (CDN \$)	\$279	\$262	\$560	\$144	\$31	\$82	\$48	\$16	\$25	\$40	
Ontario (US \$)	\$209	\$197	\$420	\$108	\$23	\$62	\$36	\$12	\$19	\$30	
Ratio (CDN \$)	4.923	3.141	4.405	5.333	1.774	5.598	3.208	1.188	1.920	2.925	
Ratio (US \$)	6.564	4.188	5.874	7.111	2.366	7.463	4.278	1.583	2.560	3.900	

The first 39 rows displays the fees mandated by the 39 U.S. jurisdictions with fee schedules. The 40th row reports the median fee for these jurisdictions. The next two rows report the OHIP fee schedule, in Canadian and U.S. currency, respectively. The ratio of the median fee for U.S. jurisdictions to the OHIP fee is presented in the last two rows in Table 2.

Overall, these data indicate that the price for medical procedures in the U.S. is substantially greater than the price of similar procedures in Ontario. The ratio of the median fee in the United States to the OHIP fee, in U.S. dollars, varies between 1.583 and 7.111 for these ten procedures. In other words, the median U.S. fee is between one and a half to seven times more expensive than the comparable Ontario fee. Taking a simple average of fees across procedures, the average median fee in the United States is 4.589 times greater than the average fee for these procedures in Ontario. This statistic suggests that price differences could account for all of the difference in per claim medical costs reported in Figure 21. The implication is that, since the difference in total medical expenditures is explained by a price differential, the U.S. and Ontario medical costs data are, in fact, comparable.

However, as can be seen there are substantial variations in relative costs in Ontario compared with those in other jurisdictions across medical procedures. In particular, the gap between Ontario medical costs and those of the median jurisdiction shrinks for more common procedures, such as the brief office exam for an established patient. This would imply that a weighted average of the costs ratio for all medical procedures could be substantially less than 4.589. This would suggest that while price differences account for some of the difference we have found in average medical costs per claim between Ontario and U.S. jurisdictions, the remainder is possibly due to differences in utilization or to other factors.

2. Quantity or level of treatment

A second possible explanation for these costs differences between the U.S. and Ontario is that injured workers in the United States receive more medical treatment than their Ontario counterparts. If so, the difference in treatment levels may reflect a higher quality of care for American

workers; that is, due to a greater level of or more prompt medical treatment, American workers recover from injury more quickly or more completely than injured workers or somehow enjoy a higher quality of life post-injury than injured workers in Ontario.²³ Alternatively, it is possible that while American workers receive more treatment than Ontario workers, this does not translate into any real beneficial outcome difference, because the treatments are ineffective.²⁴

The evidence concerning the relative quality of health care in the U.S. and Canada is inconclusive. We recognize that some general measures of health care quality, such as life expectancy, indicate that the quality of health care in Canada is equal to or better than that in the United States. In any case, our conclusions about the relative costs of workers' compensation insurance in Ontario compared to North America are unaffected by differences in the quality of cost of health care in the two countries, as are our conclusions about the relative efficiency of the Ontario workers' compensation delivery system. However, the implication of the higher quality of care hypothesis is that workers' compensation costs are lower in Ontario because workers receive less adequate medical treatment than their counterparts in the United States. On the other hand, if American workers are simply receiving more treatments without an increase in quality of care, then the implication is, once again, simply that the US health care system is simply less efficient than the Canadian system.

3. Cost Shifting of Medical Costs

The final explanation, and one that is most relevant for our examination of relative costs, attributes at least some of the difference in health care costs between Ontario and U.S. states to cost-shifting from private health insurance to workers' compensation in the United States and from the workers' compensation program to the provincial health care system in Canada. If either hypothesis is correct – i.e., that medical costs are inappropriately shifted from group health

plans to the workers' compensation program in the United States or that the opposite occurs in Ontario – then workers' compensation costs in U.S. jurisdictions are overstated relative to the costs of workers' compensation in Canada and, as a result, costs comparisons that fail to account for this will be misleading.

(a) Cash benefits and program utilization. There is a substantial research literature showing that program utilization increases with increases in cash benefit generosity both in the United States and Canada. Research has shown that benefit levels are positively related to the frequency of workers' compensation claims (Butler and Worrall 1983; Krueger 1990; Thomason and Pozzebon 1995; Lanoie 1992), the duration of short-term disability (Butler and Worrall 1985; Johnson and Ondrich 1992) and the probability of permanent disability (Thomason 1993). Furthermore, there is evidence that this relationship between benefit levels and program utilization is the result of increased claims reporting by claimants. That is, higher benefits are not resulting in more actual injuries, which would be the *true injury effect*. Rather, increased cash benefits induce claimants to report that they have suffered an illness or injury as the result of an occupational disease or accident (the *reporting effect*) and to increase the duration of time on benefits, given that an injury or illness has been deemed compensable (the *duration effect*).

The reporting effect may be the result of workers reporting bona fide, compensable injuries that would not have been reported if benefits were lower, or it may be the result of workers' fraudulently reporting non-occupational injuries as work-related. (Similarly, the duration effect may be due to malingering or to a legitimate need to recuperate that the injured worker could not afford at lower benefit levels.) Smith (1992) provided evidence that some of the claims rate response to higher benefit levels is due to an increase in fraudulent reporting. Smith hypothesized that workers are more likely to falsely report nonwork injuries on Mondays (or on Tuesdays following a long weekend) compared to other weekdays. To test this hypothesis, he partitioned a sample of workers' compensation claims into two types: (1) type F – injuries that can feasibly be misreported as having occurred at work when, in fact, they may have occurred off the job, such

as sprains and strains, and (2) type N – injuries that are difficult to falsely report as occupational, such as cuts and lacerations. Examining injury frequency by day of the week for each of these injury types, he found that type F injuries were more likely to occur on a Monday than on other days of the weeks, while there was no reliable difference between the day of occurrence for type N injuries²⁵.

This research has two implications for the medical cost-shifting issue. First, the research shows that, in general, worker behavior is affected by benefit generosity, and we may expect this result will be true for medical as well as for cash benefits. Second, to the extent that generous cash benefits induce workers with non-work related conditions to initiate a workers' compensation claim, as Smith suggests, then the research specifically suggests that level of cash benefits itself affects medical costs shifting. Regardless of whether the reporting effect is due to injured workers reporting claims that they would otherwise not report or whether the effect is due to injured workers falsely reporting a non-work related condition, the level of cash benefits could affect our measure of medical costs – the average medical costs per claim. The nature and extent of the effect depends on how the injury distribution is changed by increased program utilization.

If more generous cash benefits increase the proportion of more serious injuries and illnesses, which require more intense medical care, then we would expect that the program utilization effect to elevate average medical costs. If benefits reduce average injury severity, then average medical costs would be lowered by higher benefits. While the research suggests that the duration of temporary total disability and the probability of permanent partial disability are positively related to cash benefit generosity, these results are conditional on a claim being initiated. And while, as noted, other research indicates that claim frequency is positively related to benefit levels, there is a suspicion that these “marginal” claims, i.e., claims that are reported when cash benefits are raised, are less severe injuries. Unfortunately, there is no existing research that indicates the effect of benefit levels on unconditional claim severity.

(b) The Medical cost-shifting hypotheses. The basis for the cost-shifting hypothesis in the U.S. is that privately financed health care insurance typically fails to pay for all of the costs of non-work related illnesses and injuries,²⁶ while workers' compensation offers first dollar coverage in U.S. jurisdictions. This means that American workers have an incentive to report non-work related injuries as work-related. In addition, until recent years, health care providers in many states were more likely to receive higher payments from the workers' compensation program than from general health care plans, which provided an additional incentive for cost shifting into the workers' compensation program. To be sure, workers' compensation carriers and, to a lesser extent, employers had incentives to shift work-related injuries and diseases to general health care plans, so there were multiple and complex incentives in the U.S. concerning the shifting of health care expenses. Nonetheless, the normal assumption for the U.S. is that the incentives to shift marginal cases into the workers' compensation program dominate the incentives to shift such cases to the general health care system.

In contrast, since both the provincial health care system and workers' compensation pay for 100 percent of the patient's medical expenses, Canadian workers have less incentive to report a non-work-related injury or illness as work-related.²⁷ Nonetheless, it is possible that in Ontario the OHIP rather than the Workplace Safety and Insurance Board, may pay for some work-related medical expenses, particularly in the case of medical-only claims. The treating physician's fees will be reimbursed by OHIP regardless of whether the injury or diseases is identified as work-related, and the fee will only be charged back to the WSIB if the physician indicates that the medical condition is work-related. There are virtually no incentives to ensure that the physician will accurately report occupational injuries as work-related.

(c) Evidence on shifting of medical costs in Ontario. The hypothesis is that medical costs could be shifted from the Ontario workers' compensation program to the OHIP. However, the medical payments made by the WSIB and by the OHIP are subject to periodic audits in order to make certain that the programs are paying their appropriate share. The data indicated that be-

tween October 1990 and December 2000, the WSIB paid almost \$500 million dollars to the OHIP in order to reimburse the OHIP for medical benefits paid for work-related injuries and data.²⁸ These payments should insure that the Ontario workers' compensation program is not shifting costs to the OHIP. As indicated in the Preface, one of our responsibilities for this phase of our research was to identify issues concerning medical care that warranted further research, and these payments are a topic that warrants further investigation, in part because the payments from the WSIB to the OHIP include payments for no fault benefits and administrative fees.

Research involving Manitoba workers who experienced back disorders provides some additional support that cost-shifting of medical costs from workers' compensation programs to general health care systems is not a major problem in Canada. Mustard et. al (1998) concluded that "a very large majority of the costs associated with the provision of health care to persons claiming a workplace back injury were borne by the Manitoba Workers' Compensation Board." Whether this result is entirely applicable to the Ontario context deserves further consideration in a subsequent research project. However, the best evidence we have readily available suggests that shifting of medical costs from the Ontario workers' compensation program to the OHIP is not a major problem that jeopardizes the comparability of our cost comparisons.

(d) Evidence on shifting of medical costs in the U.S. From the late 1980s until the early 1990s, the growth of medical costs incurred by workers' compensation programs in the United States exceeded that of the U.S. health care system more generally (Pozzebon and Thomason 1993; Pozzebon 1994; Burton 1997). Questions exist as to whether this difference in cost growth was due to increasing disparity in medical prices between the programs, or to increasing greater utilization of services by the workers' compensation program, or to greater cost-shifting between programs.

Most studies only deal with differences in prices or utilization between workers' compensation health care system and the general health care system that existed at a particular time, rather than explaining the increasing differential in costs over time between the systems. Durbin,

Corro, and Helvacian (1996) examined this issue by matching data on workers' compensation claims initiated between 1988 and 1991 from four U.S. states with a control sample of group health insurance claims involving non-occupational illnesses and injuries. The authors looked at the number of services provided per case and cost-per service for 14 high cost (e.g. arthroscopy repair hernia, etc.) and 11 high frequency procedures (e.g., chest x-ray, limited office visit, etc.). They found that, while there was little difference in the average price of these procedures between workers' compensation claims and non-occupational claims made against group health insurance, workers' compensation claimants utilized these procedures significantly more than workers who had non-occupational claims with their group health insurer.

Using these same data, Durbin and his colleagues also estimated multiple regression equations predicting medical costs for both workers' compensation and group health claims. After controlling for demographic factors, diagnosis, the nature and intensity of treatment, and a number of cost containment measures, they found that medical costs for workers' compensation claims were significantly greater than those for group health claims. To determine the effect of claimant incentives on medical benefit utilization, they also included a variable that measured the extent to which claimants bore non-work-related health care costs through cost sharing devices, like deductibles, co-insurance, etc. They found that this cost-sharing variable was negatively and significantly related to total (work-related and non-work-related) medical costs. Importantly, they also found that after controlling for cost sharing, medical costs for workers' compensation claims did not differ from or were less than medical costs for non-work related injuries and illnesses. This suggests that any of the difference between group health and workers' compensation is attributable to greater health care utilization induced by first dollar coverage by workers' compensation programs.

This research indicates that in the U.S. the relative generosity of medical benefits in the workers' compensation programs compared to the medical benefits in general health care plans induce greater utilization of the workers' compensation program by injured workers. To the ex-

tent that greater utilization implies inappropriate utilization, that is, to the extent that claims against the workers' compensation program for non-occupational injuries increase if medical benefits increase, then it is possible there is cost-shifting from health insurance to the workers' compensation program. To date, there is a paucity of studies that examine cost-shifting in the U.S. One study that has examined this question directly is Card and McCall (1996), who hypothesized that workers with low rates of medical coverage for non-occupational injuries and diseases would be more likely to initiate a claim on Mondays than workers with better medical coverage.

These authors tested this hypothesis using individual claims data from Minnesota. Lacking direct information on the extent to which the injured workers in their sample lacked medical coverage for non-occupational conditions, the authors imputed coverage using data on medical insurance coverage from the Current Populations Survey.²⁹ They found little or no evidence to support the hypothesis that workers with low medical coverage were more likely than other workers to initiate a compensation claim on a Monday. Combined with other results, they concluded "...the interpretation of the 'Monday effect' in injury rates as evidence of fraudulent claim behavior may be inappropriate" (Card and McCall 1996, p. 705). Rather, they believe that their results support an alternative explanation: "a higher fraction of strains, sprains, and back injuries truly arise on Mondays, perhaps as a consequence of the return to work after a weekend hiatus" (Card and McCall 1996, p. 705).

Card and McCall's results suggest that the alleged problem of cost shifting to workers' compensation programs in the United States is exaggerated. On the other hand, Butler, Hartwig, and Gardner (1998) present evidence indicating that U.S. health care providers sometimes shift non-work related health care costs into the workers' compensation program. Specifically, they find that physicians in health maintenance organizations in the United States are more likely to classify claims as compensable under workers' compensation than other physicians. They attribute this result to the fact that the HMO physician is paid on a fee-for-service basis for the treat-

ment of workers' compensation claims, but a flat salary for the treatment of non-work related conditions. They further suggest that HMO growth in recent years could be partially responsible for the rise in the health care component of workers' compensation costs in the United States.

Our conclusions for this report are that (1) cost-shifting of the costs of medical care for work-related injuries and diseases from the workers' compensation program to the general health care system or vice-versa is probably a very minor problem in Ontario (given the evidence involving the audits of the WSIB and OHIP expenditures) and (2) cost-shifting is probably also a minor problem in the U.S., although the incentives for shifting medical costs to the workers' compensation program are probably stronger in the U.S. than in Canada and the evidence on U.S. experience is limited and inconsistent. As part of our current project, we will submit a supplemental report indicating how this issue can be further examined in a second phase of our research.

B. Legislated Mandates in Ontario and Extra Costs in U.S. Premiums

The Ontario provincial legislature has mandated that the Workers' Safety and Insurance Board provide a variety of services to employers, injured workers, and the public that, arguably, are not typically provided by workers' compensation programs in the United States. Ontario employers subsume the cost of these services in the workers' compensation assessments paid. To the extent that U.S. employers receive similar services that are not funded through workers' compensation premiums, then these costs should be deducted from our Ontario costs estimates to ensure comparability. In addition, it is arguable that the costs of Ontario mandates and services should be deducted from Ontario assessments if other stakeholders in U.S. workers' compensation programs – i.e., injured workers, health care providers, etc. – incur them.

Similarly, workers' compensation premiums in the United States include costs that are also incurred by Ontario employers, but which are not included as part of the workers' compensation assessments in Ontario. These include the costs of corporate income taxes paid by private sector insurers, which are passed through to employers in the form of higher premiums. In con-

trast, the WSIB does not pay income taxes, and as a result the income tax burden of Ontario employers is increased at the same time that its workers' compensation assessment is lowered. As a result, the income tax component of the workers' compensation premium in the United States should be removed in order to make U.S. premiums comparable to those in Ontario. A similar argument can also be made with respect to the costs of capital, although we conclude that an adjustment to U.S. rates to make them comparable with Ontario rates is not necessary for the costs of capital. Both the treatment of income taxes and of the costs of capital, as well as the costs of mandates in Ontario, are examined in this section.

1. Ontario Mandates

Mandates and services funded through employer assessments in Ontario include the Workplace Safety and Insurance Appeal Tribunal (WSIAT), the Office of the Worker Adviser, the Office of the Employer Adviser, the Occupational Health and Safety Administration, Mine Rescue, the Institute of Work and Health and Safe Workplace Associations. The proportion of the average rate for Schedule 1 employers dedicated to each of these mandates for the year 2000, as well as the proportion dedicated to WSIB administrative costs, is reported in Table 3.

As can be seen from that table, overhead expenses (which include administrative costs as well as the costs of various mandates), as a percentage of the actual rate paid by employers, accounted for about 19 percent of total costs in 2000. While mandates only account for 5.41 percent of actual costs of the Ontario workers' compensation program in 2000, they represent over one-quarter of Ontario administrative expenses.

Table 3
Average Ontario Assessment Rate and Components, 2000

Item	Average Assessment Rate	Percent of Average Assessment Rate	Percent of Average Assessment Rate Net of Unfunded Liability
Average Assessment Rate	\$2.290	100.00%	--
<i>New Claim Costs</i>	\$0.949	41.44%	--
<i>Unfunded Liability</i>	\$0.901	39.34%	--
Average Rate Net of Unfunded Liability	\$1.389	60.66%	100.00%
<i>Overhead Expenses</i>	\$0.443	19.34%	31.89%
<i>WSIB Administration</i>	\$0.319	13.93%	22.97%
<i>Mandates</i>	\$0.124	5.41%	8.93%
<i>Workplace Safety and Insurance Appeals Tribunal</i>	\$0.017	0.74%	1.22%
<i>Office of the Worker Advisor</i>	\$0.009	0.39%	0.65%
<i>Office of the Employer Advisor</i>	\$0.003	0.13%	0.22%
<i>Occupational Health and Safety Association</i>	\$0.036	1.57%	2.59%
<i>Mine Rescue</i>	\$0.002	0.09%	0.14%
<i>Institute of Work and Health</i>	\$0.004	0.17%	0.29%
<i>Safe Workplace Association</i>	\$0.053	2.31%	3.82%

Two of these costs components, the WSIAT and the Offices of the Workers' Adviser perform services related to the adjudicative function of Ontario's workers' compensation program. Specifically, the WSIAT is an external appeals tribunal for employer and worker claims that were unresolved through the WSIB's internal appellate process, while the Office of the Workers' adviser provides education, advice, and representation to non-union workers in the province. The adjudicative function is central to workers' compensation programs throughout North America, and in most jurisdictions at least part of the costs associated with this function is included in the adjusted manual rate. In most, if not all jurisdictions, the adjusted manual rate includes the costs of an external appellate body like the WSIAT.³⁰ However, employers do not typically pay the costs of legal representation of their injured employees in the appellate process; rather, workers assume the costs of their own representation.³¹ This would suggest that the costs of the Office of the Worker Adviser should not be included in our estimates of the adjusted manual rate, but that a different conclusion may be reached with respect to the WSIAT.

The Office of the Employer Adviser, like the Worker Adviser, represents employers in adjudicative proceedings.³² However, we believe that the costs of the Employer Adviser should not be deducted from the adjusted manual rate for two reasons. First, private sector insurers in the United States perform similar functions for their insureds, and the costs of this representation are subsumed in the employers' workers' compensation premium in the United States as it is in Canada. Second, we note that to the extent that the program is effective and cost-efficient, monies spent in this way will reduce employers' losses; to reduce the adjusted manual rate by the costs of the Employer Advisor would be tantamount to double counting.

For similar reasons, it is arguable that our measure of employers' costs in Ontario should be adjusted for the costs of the Ontario Occupational Health and Safety Administration. The activities of OHSA should result in an amelioration of Ontario employers' loss experience and therefore a reduction in employers' costs. However, while private sector insurers perform safety audits and may reduce the employers' workers' compensation premium based on the results, it is

clear that these activities are not nearly as extensive as those performed by the Ontario Occupational Health and Safety Administration. The agencies that play a similar role in the United States, i.e., the federal and various state occupational safety and health agencies, are financed through general tax revenues and not by the workers' compensation program. For this reason, we believe that the costs of OHSA should be deducted from the adjusted manual rate in Ontario. Similarly, it would appear that in the United States the costs of services comparable to those provided by the Mine Rescue program are financed out of general tax revenues, so that these costs should also be deducted from the Ontario costs estimate.³³

To the best of our knowledge, U.S. jurisdictions lack institutions comparable to the Safe Workplace Associations (SWAs). While their function seems similar to that performed by many private workers' compensation carriers in the United States, i.e., offering advice to member employers designed to increase the effectiveness of their loss control activities, we believe that the role played by the SWAs (as well as the concomitant costs) is (are) more substantial in Ontario than that played by private carriers in the United States. Thus, we would be inclined to deduct the WSIB's funding of the SWAs from Ontario premiums. However, we note that, to the extent that the SWAs are effective in reducing workers' compensation losses, this deduction is tantamount to double counting.

Finally, while several U.S. workers' compensation programs have a research unit, most do not. Moreover, to our knowledge, none has a research function that is as comprehensive or as broad as that of the Institute of Work and Health. The institution in the United States that is most comparable in function is the National Institute of Occupational Safety and Health, which is funded from general tax revenues paid to the federal government. In addition, while some of the Institute of Work and Health's research efforts may reduce loss experience, at least in the long run, the knowledge that is acquired through the Institute's research has the characteristics of a public good. That is, there is no way to prevent free riders; the benefits of the Institute's research accrue to all employers, including employers in the United States and not just employers in On-

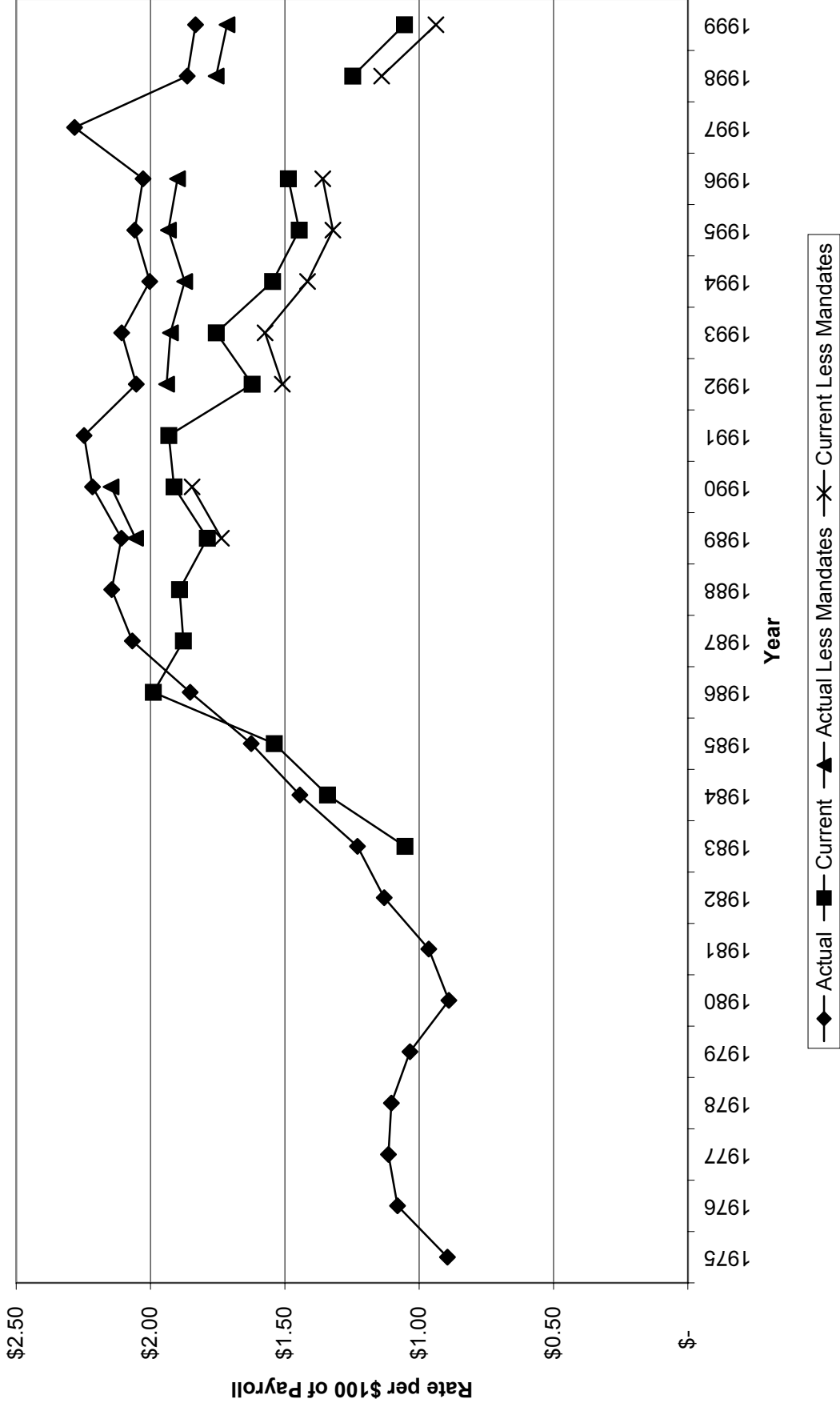
tario. For both reasons, we believe that the costs of the Institute should be deducted from the employers' costs of workers' compensation in Ontario in order to make those costs comparable to costs in U.S. jurisdictions.

The determination of the precise adjustments to our rate estimates required to ensure costs comparability between Ontario and U.S. state workers' compensation programs is beyond the scope of this phase of our research project. This issue will be further explored in the second phase of this project and, at that time, we hope to derive costs estimates that properly account for these mandates.

Nevertheless, we have obtained data on the costs of Ontario mandates at the rate group level that establish an upper bound on the mandate-related adjustment to our costs estimates that may be required to ensure comparability. Specifically, the WSIB furnished us with data on the costs of mandates charged to each rate group for most years between 1989 and 1999. We calculated adjusted manual rates by deducting the total costs of all mandates listed in Table 3 from the payroll and experience-rated adjusted actual and current costs estimates presented in Figure 1.³⁴ As can be seen from the data in Table 3, the cost of these mandates represent 5.41 percent of actual costs and 8.93 percent of current costs as of 2000.

Figure 20 shows that the adjustment for the costs of mandates reduces the average adjusted manual rate significantly, especially in recent years. Remarkably, after making these adjustments the current costs rate for 1999 is less than \$1.00 of payroll. Since mandate costs prior to 1985 were significantly less than today, this would suggest that after deducting mandate costs, the current costs of workers' compensation – i.e., the costs of new compensation claims -- is at its lowest level of the past 25 years.³⁵

Figure 20
Actual and Current Ontario Costs, Including and Excluding the Cost of Mandates, 1975-95



2. Extra Costs in U.S. Premiums

Some of the costs of doing business incurred by employers in both Ontario and the United States are included in the workers' compensation premiums paid by employers in the United States, but are not included in the premiums paid by Ontario employers. These costs include the costs of corporate income taxes paid by private insurers in the U.S. and, perhaps, the costs of capital risked by those insurers. In order to ensure comparability with Ontario rates, these costs should be deducted from our adjusted manual rate estimates for U.S. employers.

The comparability problem involving corporate income taxes can be illustrated by assuming that there are two jurisdictions, State A & Province B, identical in all ways, except one. Both jurisdictions have 1000 insured employers and must collect \$50 M in taxes from employers to fund all government services except workers' compensation. These government services are financed through a corporate income tax. The direct costs of workers' compensation – \$10 M in benefits and administrative costs in both jurisdictions – are financed through a payroll tax similar to that used to finance workers' compensation in Canada and the United States. Finally, the private insurers in State A are required to pay income taxes of \$5 M, while the public insurer in province B is not.

The income tax bill for the average employer in Province B is \$50,000, while the average workers' compensation assessment is \$10,000, so that the average total of workers' compensation premiums and tax assessment is \$60,000. In State A, \$5M of the total income tax bill of \$50 M will be paid by the private insurers, who will in turn add the \$5 M to the workers' compensation premium. This means the average employer in State A will pay a workers' compensation premium of \$15,000. On the other hand, the income tax bill for the average insured employer in State A is \$45,000, i.e., \$50 M of total taxes minus the \$5 M paid by the insurer divided by 1000 employers. The total bills for workers' compensation premiums and income taxes for employers in the two jurisdictions are identical, namely \$60,000 per employer. However, the

workers' compensation premiums are different: the employers in State A pay \$15,000 on average while the employers in Province B pay \$10,000 on average.

As this hypothetical illustrates, in order to ensure the comparability of our Ontario and U.S. costs estimates – at least for those states with a private-sector workers' compensation insurance market – we should deduct the costs of corporate income taxes paid by the insurance carriers from the workers' compensation premiums.

Data on the profitability and income taxes of private workers' compensation carriers in the United States over the period 1990-1999 are shown in Table 4.³⁶ Certain of the data are only available for 1995 to 1999, and so our estimates are based on the averages for these five years. During these five years, income taxes on insurance transactions averaged 2.2 percent of net premium (Table 4, column (8B)). During the same five years, carriers also paid income taxes on investment gains that averaged 1.8 percent of net worth (Table 4, column (11)). Since, as shown in column (9) of Table 4, earned premium was on average 56.5 percent of net worth, the taxes on investment gains were approximately 3.2 percent of net premium ($1.8\% / 56.5\% = 3.2\%$). Thus, during the five-year period from 1995 to 1999, the total of taxes on insurance transactions and the taxes on investment gain were approximately 5.0 percent of net premium.

The five years from 1995-1999 were somewhat more profitable than the entire decade of the 1990s, as shown in Table 4. Profits on insurance transactions (column (8C)) were 10.3 percent of net premium in 1995 to 1999 and only 6.6 percent for the entire period of the 1990s. Likewise, the rate of return on net worth (column (12)) was 11.1 percent in 1995 to 1999, and only 9.1 percent for the decade of the 1990s. Since corporate taxes tend to be higher during years of higher profitability, our estimate that corporate income taxes averaged 5.0 percent of premium for the 1995-1999 period may be somewhat too high as an estimate of taxes relative to premiums over an extended period.

Table 4
Workers' Compensation Profitability and Taxes
Countrywide - Net (IEE)

	Percent of Net Premiums Earned				Percent of Net Worth				
	Net Premium Earned (thousands of dollars) (1)	Underwriting Profit (8)	Investment Gain on Insurance Transaction (8A)	Taxes on Insurance Transaction (8B)	Profit on Insurance Transaction (8C)	Earned Premium (9)	Investment Gain (10)	Tax on Investment Gain (11)	Return (12)
1990	33,581,333	(18.8)	14.6	(3.9)	(0.3)				4.8
1991	36,293,579	(22.7)	15.5	(4.6)	(2.6)				2.4
1992	35,300,397	(22.3)	18.3	(3.5)	(0.5)				4.8
1993	35,932,429	(10.2)	18.6	0.7	7.6				11.4
1994	34,223,396	(2.0)	14.9	2.3	10.7				12.5
1995	29,287,021	0.6	19.3	4.7	15.3	68.0	6.1	1.5	14.9*
1996	29,156,445	(2.4)	18.4	3.5	12.4	64.3	6.5	1.7	12.8
1997	27,200,045	(4.3)	22.2	3.9	14.0	53.8	7.0	1.8	12.7
1998	26,520,547	(11.8)	22.0	1.6	8.6	48.9	7.4	2.1	9.6
1999	25,392,735	(22.5)	21.2	(2.6)	1.3	47.5	6.6	1.7	5.5
Average 1990-99		(11.6)	18.5	0.2	6.6				9.1
Average 1995-99		(8.1)	20.6	2.2	10.3	56.5	6.7	1.8	11.1

Source: National Association of Insurance Commissioners (NAIC), *Profitability By Line By State in 1999*, pp. 33, 128, and 129 and corresponding tables from 1990-1998 editions of *Profitability By Line By State*.

* 15.0 shown in 1995 report and subsequently revised to 14.9.

If, however, we accept the rough estimate that income taxes accounted for approximately five percent of workers' compensation premiums in the U.S., this means that, to be comparable with our Ontario measures of the employers' costs of workers' compensation insurance, our U.S. adjusted manual rates should be reduced by five percent. It is important to note that this is an upper bound on the actual impact of income taxes, since the data for nine competitive state funds³⁷ (which generally do not pay income taxes) are included in Table 4 but data for six competitive state funds³⁸ are not included. Moreover the data in Table 4 do not include results for the six states with exclusive state funds³⁹ during most of the period from 1995 to 1999. If the data for these additional state funds were added to the information in Table 4, the estimates for premiums would increase but the income tax payments would not be paid by most of the state funds, which means that income taxes as a percent of premiums would be lower than our five percent average.

Another potential problem of noncomparable insurance rates involves is the costs of capital. In the United States, private sector employers risk equity capital; if the insurers do not retain reserves that are adequate to compensate covered workers for their losses, the insurers' equity will be used to discharge these liabilities. The insurers' reward for this risk is profits, and workers' compensation rates for private insurers in the United States are increased to allow for a normal return on equity.⁴⁰

As shown in Table 5, workers' compensation carriers averaged a 9.1 percent rate of return on net worth during the 1990s. This was somewhat higher than the 8.6 percent rate of return earned by all property and casualty insurers during the 1990s, but was considerably less than the 12.9 rate of return earned by corporations in all industries in the U.S. during the 1990s. In order to attract capital to the workers' compensation insurance industry, carriers will need to earn rates of return that are comparable to those elsewhere in the economy.

Table 5
Return on Net Worth: Workers' Compensation Insurers,
All Property and Casualty Insurers, and All Industries

	Workers' Compensation (1)	All Property and Casualty (2)	<i>Fortune Magazine</i> All Industrial (3)
1990	4.8	9.4	12.2
1991	2.4	9.8	10.8
1992	4.8	5.5	10.1
1993	11.4	10.0	11.9
1994	12.5	6.5	13.7
1995	14.9	8.8	14.0
1996	12.8	9.0	14.1
1997	12.7	11.4	13.9
1998	9.6	9.2	13.4
1999	5.5	6.5	15.2
Average	9.1	8.6	12.9

Source: National Association of Insurance Commissioners (NAIC), *Profitability By Line By State in 1999*, pp. 34 and 129.

Workers' Compensation and All Property and Casualty are Countrywide - NET (IEE). 1990-1992 *Fortune Magazine* figures are NAIC estimates.

The rates charged by a monopolistic public entity like the Worker Safety and Insurance Board of Ontario do not allow for a return on equity. Nevertheless, it is arguable that the risk remains – that benefit payments (plus administrative expenses) could exceed the reserves that are held to pay for them. The question then becomes, who bears the risk? While it is possible that in the case of a catastrophic loss, general revenues collected by the provincial government would bail out the workers' compensation program, it is more likely, as demonstrated by recent experience, that a shortfall will be recovered through increased workers' compensation rates in future years (Gunderson and Hyatt 2000). In other words, employers in Ontario bear the risk that is largely borne by private insurers in the United States.

While U.S. premiums should be reduced by the corporate income taxes paid by insurers in order to make rates comparable with those in Ontario, we believe our methodology adjusts for the costs of capital. As indicated, our primary cost measure is based on the actual costs of workers' compensation paid by employers. This measure, which includes payments for any unfunded liability, reflects the costs of capital borne by future employers in Ontario. And, for this reason, actual costs are the measure that we will use in our analysis of delivery system efficiency in Ontario.

3. Conclusions on Mandates and Extra Costs

Interestingly, our analysis of the extra costs embedded in U.S. premiums and the costs of mandates in Ontario indicates that essentially these two potential adjustments offset one another. The mandates included in the Ontario rates were equal to about five percent of actual adjusted manual rates in 2000, as shown in Table 3. The taxes included in U.S. rates account for about five percent of premium in 1995-2000, as shown in Table 4. Arguments can be made that our estimate of the potential adjustment in each country is off by a percent or two, but we are persuaded that subtracting the costs of mandates in Ontario and the costs of taxes in U.S. jurisdictions is unnecessary because the result will not affect the relative cost of workers' compensation insurance between Ontario and the US jurisdictions in this study.