

**KANSAS DEPARTMENT OF LABOR  
WORKERS COMPENSATION DIVISION**

**CLOSED CLAIMS ANALYSIS  
Calendar Year 2018**

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## Introduction

This study presents an analysis of a sample of Workers Compensation claims that were closed by their respective claims administrators during Calendar Year (CY) 2018. Not every injury results in a claim for indemnity benefits, but those that do allow our division to collect information about the costs of those claims. When no further payments are expected on a claim, a final report (FN) is submitted that details the total of all benefits and expenses paid to date.<sup>1</sup> The final reports allow us to examine claims in terms of the benefits paid on behalf of the insured from start to finish.

The data for the present study consist of a sample of 1000 claims taken from the set of all claims that closed in 2018 (the initial data set), excluding claims that did not meet certain restrictions, outlined in Appendix B.<sup>2</sup> A closed claim is any claim reporting at least one indemnity payment for which an FN has been submitted. See Appendix B for sample rationale and methodology.

Payment information was collected from the FN for each claim, while basic information pertaining to the claimant and the circumstances and nature of the injury were collected from First Reports of Injury (FROIs). For claims which had outcomes that were mediated by the judicial process, information pertaining to judicial oversight of claims was gathered from the internal Workers Compensation system for tracking claims. For descriptions of specific variables, see Appendix A.

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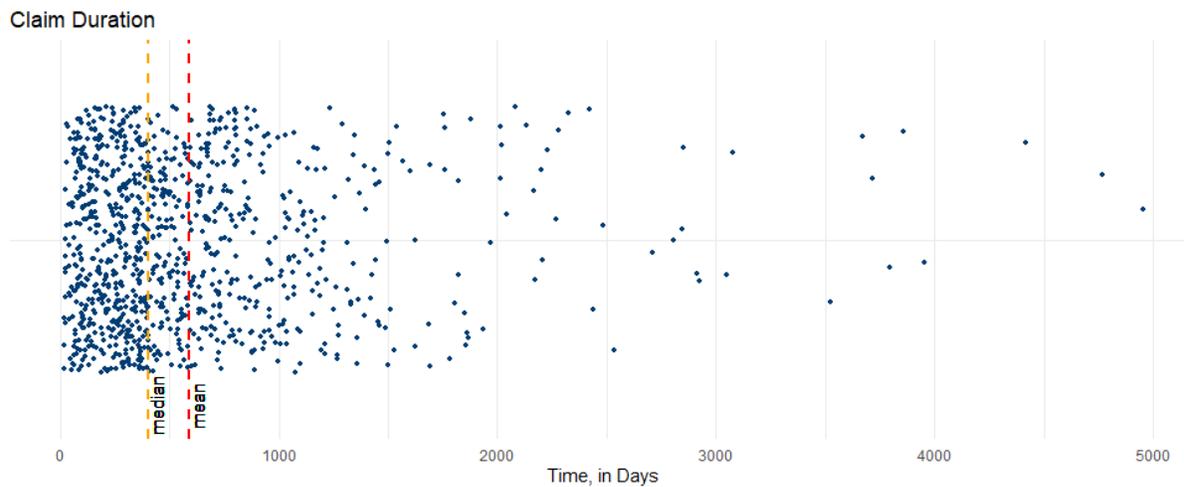
<sup>1</sup> Certain assumptions and limitations are worth noting. Because the state of Kansas legislates the actions that employers and employees must take when a workplace injury takes place, we assume that injuries are reported honestly by both employees and their employers. EDI industry implementation standards, together with Kansas legislation, determine the sequencing of EDI files as well as which information is mandatory on a claim file. We, therefore, assume that claim administrators have received the training needed to submit correct claim and payments information to our division. We assume that when an FN is filed, no further payments are anticipated. It should be noted that this is not always the case, as claims may be reopened for various reasons, but we assume that this is true at the time of reporting.

<sup>2</sup> Because a lag can exist between when an FN report was created and when it is received by our division, we define the set of FNs by the date they were generated in the Electronic Data Interchange (EDI) system, which is not necessarily the date it was created.

## 1. Characteristics of Closed Claims

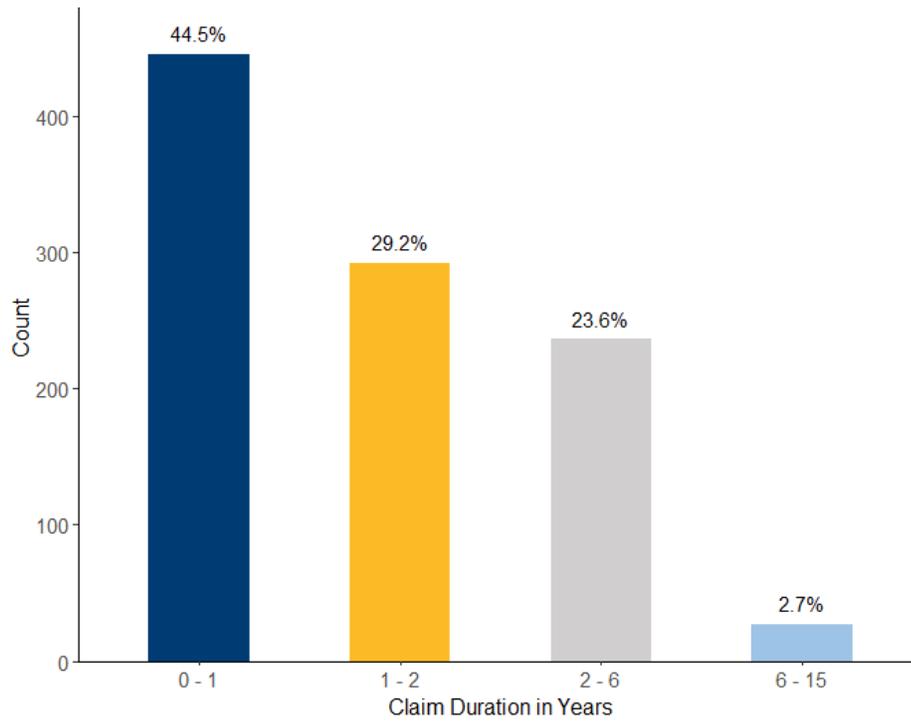
### 1.1 Duration of Closed Claims

Duration is defined as the number of days from the date that the injury is reported to the date that the final report is filed. Of the 1000 claims in this study, the mean duration is 541 days while the median is 405 days. The Figure 1.1 illustrates the distribution of the duration of claims in our sample set in terms of the number of days the claim remains open. Note that the mean duration is heavily influenced by a small percentage of claims that take several years to close, while most claims close in a much shorter time period. For this reason, the median is the more salient measure of duration.



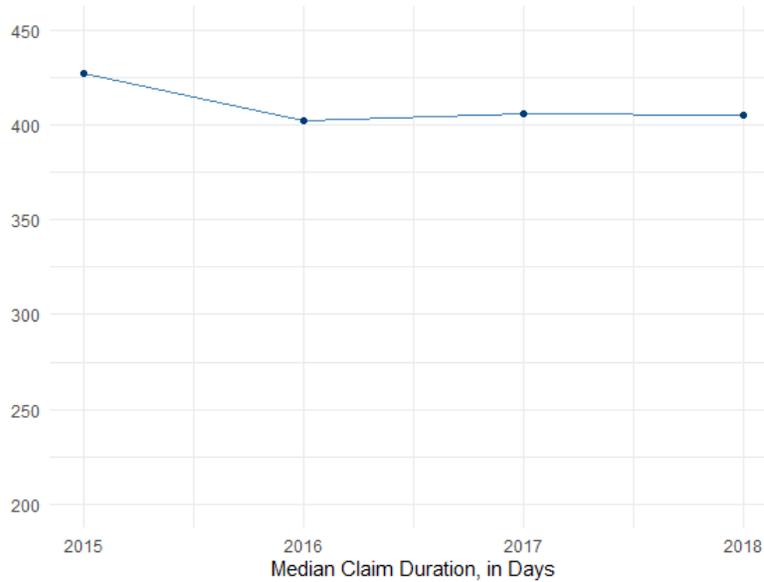
**Figure 1.1** Distribution of Claim Duration in Days

Figure 1.2 shows the duration of claims by years instead of days. The year groupings have been chosen to highlight the distribution of claim duration data. In the sample set of 1000 closed claims, the number of claims that closed in one year or less was 445, or 44.5 percent. This makes sense as the median, or 50 percent, is equal to 405 days. The majority of claims closed in less than 2 years (73.7 percent, or 737 claims) while only 2.7 percent of claims (27 claims) remained open for several years.



**Figure 1.2** Claim Duration in Years, Grouped by Year Categories

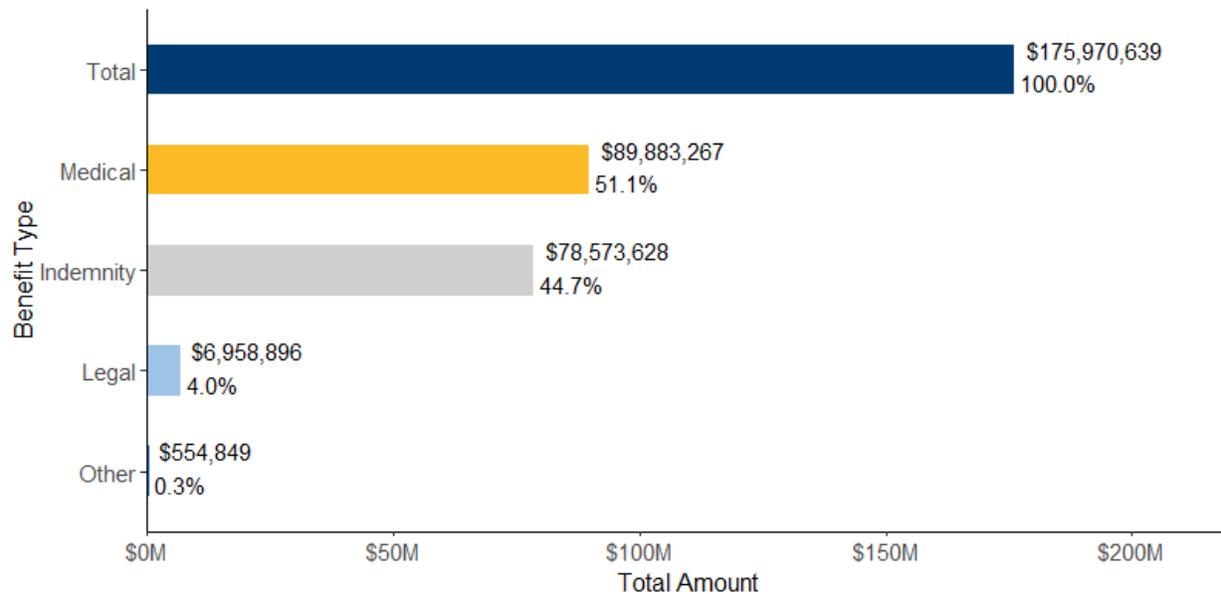
The Workers Compensation Division has reported the median duration of a claim since 2015 and that data is plotted in Figure 1.3 for the years 2015-2018. The median duration of a claim has stayed approximately the same for four consecutive years. Note that the axis begins at 200 and not zero.



**Figure 1.3** Median Duration of Claims, Years 2015 - 2018

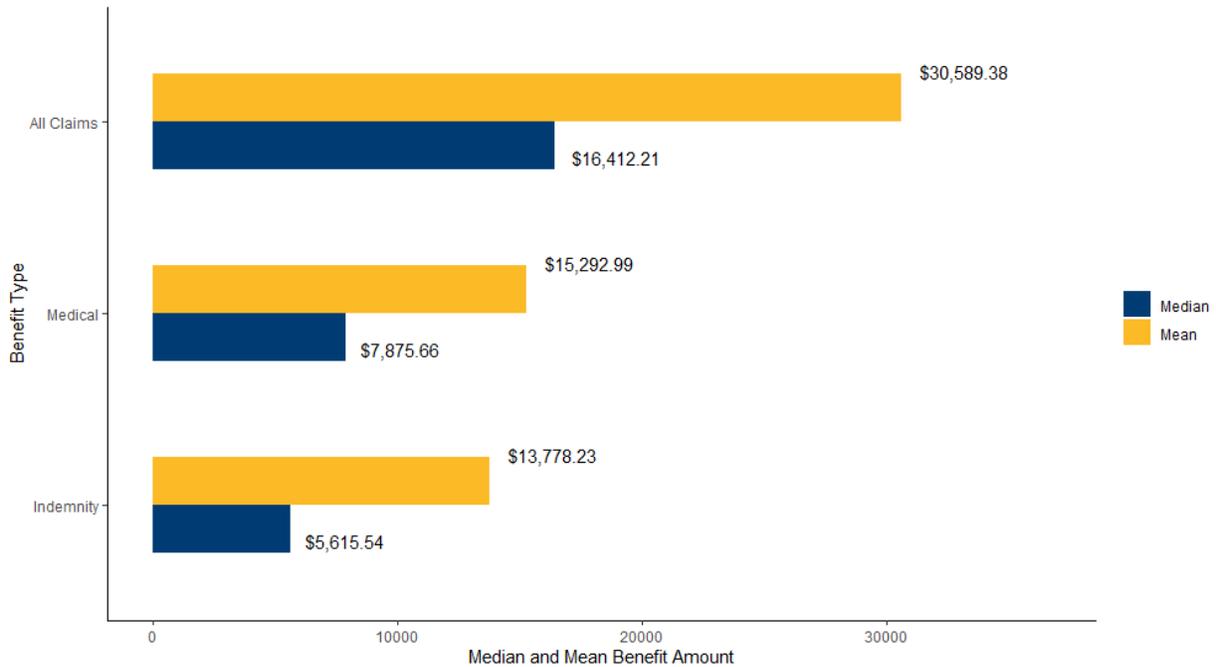
### 1.2 Total Costs of Closed Claims

The total reported cost of benefits associated with indemnity claims that closed in calendar year 2018 was \$175,970,639. Medical benefits comprised the greatest share of this cost at 51.1 percent, followed by indemnity benefits at 44.7 percent, legal benefits at 4 percent and other benefits at 0.3 percent. Figure 1.4 illustrates total benefits paid on behalf of insurers for claims with reported indemnity benefits that closed in 2018. The total amount is given, as well the percentage that each type of expense represents of the total. Note that the medical benefits stated below are the medical benefits reported on *indemnity* claims and not claims that report only medical benefits.



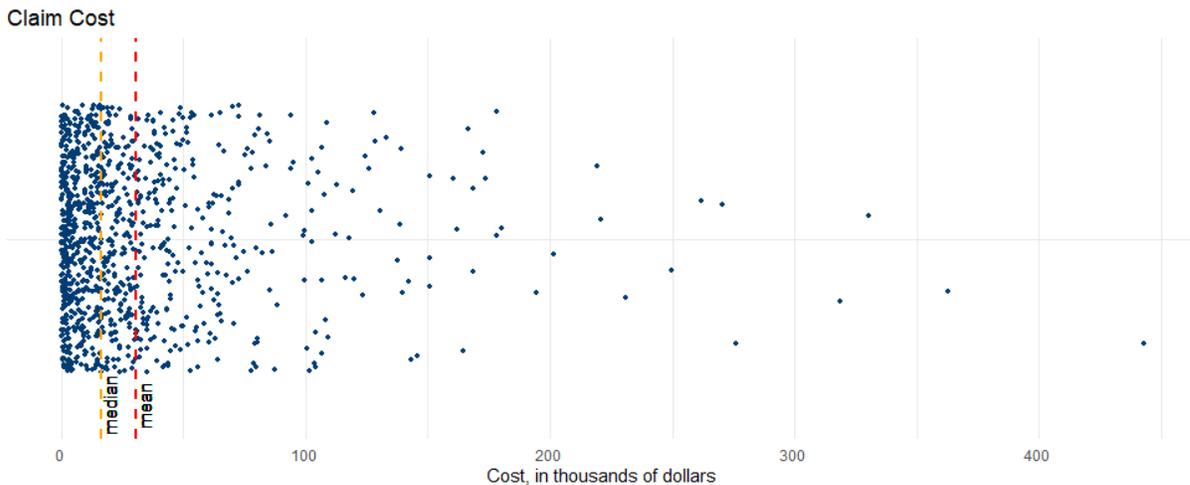
**Figure 1.4** Total Benefits Paid for All Claims that Closed in 2018

In terms of individual claims, the mean cost of a claim in our 2018 sample set was \$30,589.38 while the median cost was \$16,412.21. The cost of an individual claim is defined as the total dollar amount of all expenses and indemnity payments incurred during the life of a claim. Legal and other (non-medical, -indemnity, or -legal) benefit types on a claim had median values of \$0. This means that, while a few claims did incur legal and other expenses, the typical claim that closed in 2018 did not involve insurer-paid benefits not categorized as indemnity or medical. Figure 1.5 illustrates mean and median benefits by benefit type paid for the sample set of claims closing in calendar year 2018.



**Figure 1.5** Mean and Median Paid Benefit Amounts by Benefit Type

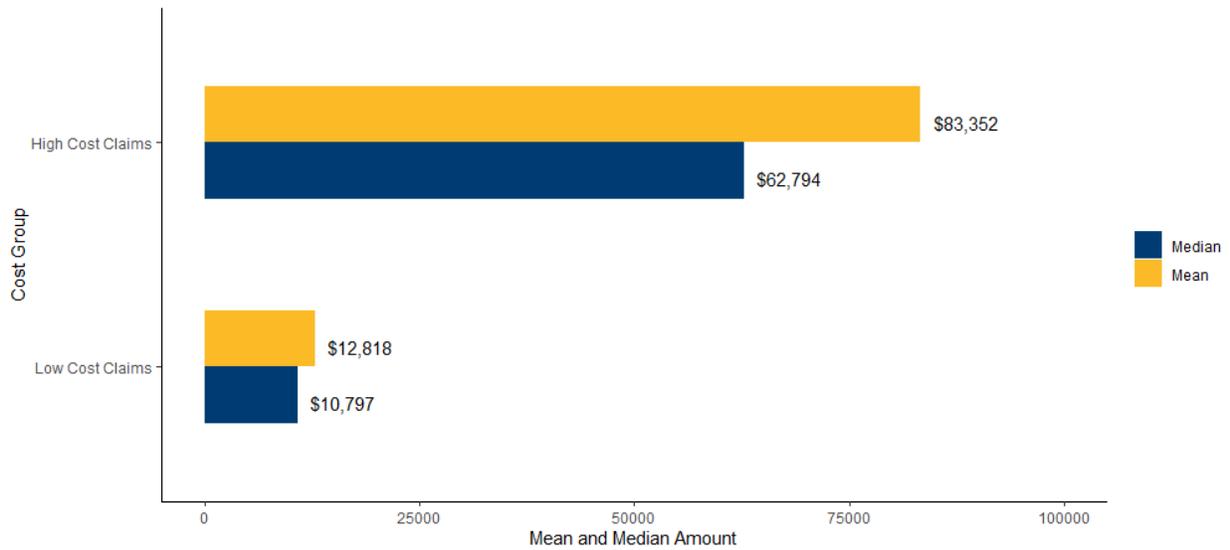
Note that the mean paid benefit amount of a claim is greater than the median paid benefit amount of a claim for both medical and indemnity benefits. This is because the mean paid amount of benefits, like mean duration, is influenced by a small percentage of very expensive claims. This positively skewed distribution of cost data is typical as there are generally a small percentage of costly claims in any given report year. For this reason, the median paid benefit amount is generally regarded as more informative than the mean. Figure 1.6 illustrates the distribution of the total costs of claims data and demonstrates the similarity between the cost data and the duration data.



**Figure 1.6** Distribution of Claim Total Paid Benefits in Thousands of Dollars

### 1.2.1 Contributors to Claim Cost

To better understand what contributes to the cost of a claim, the data is divided into percentiles by the total paid benefits of a claim. The lower 3 quartiles are aggregated to represent claims whose costs fall into the lower 75 percent of the distribution. The upper quartile represents claims whose costs fall into the highest quarter (25<sup>th</sup> percentile) of the distribution. The lower-cost claims set includes claims whose paid benefits total \$37,713.00 or less and the higher-cost claims set include claims that total greater than \$37,713.00. Fatal injuries are removed from the dataset before dividing into percentiles since fatalities are uncommon and expensive and could skew the characteristics of the higher-cost claims. The mean and median of each group is shown in Figure 1.7. Note that each group exhibits similar distributional properties as the entire sample set in which the mean is greater than the median.



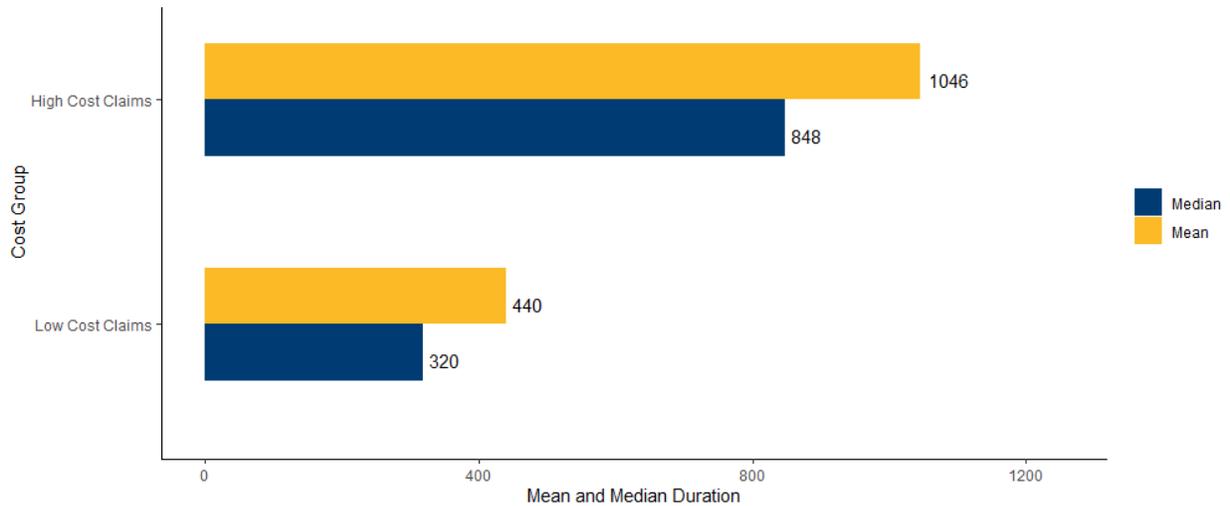
**Figure 1.7** Mean and Median Cost of Claims for Lower-Cost and Higher-Cost Groups

When the costs are examined in terms of benefits paid in each group, both groups display nearly the same proportions of paid benefit amounts by each benefit type. Medical paid benefits are a slightly greater percentage of total paid benefits in the higher-cost claims, but only by 3 percent. In other words, the higher-cost claims group does not exhibit significantly greater paid benefit amounts in a specific benefit type.

|           | High Cost | Low Cost |
|-----------|-----------|----------|
| Indemnity | 45.7%     | 47.0%    |
| Medical   | 49.6%     | 47.0%    |
| Legal     | 4.4%      | 5.2%     |
| Other     | 0.3%      | 0.7%     |

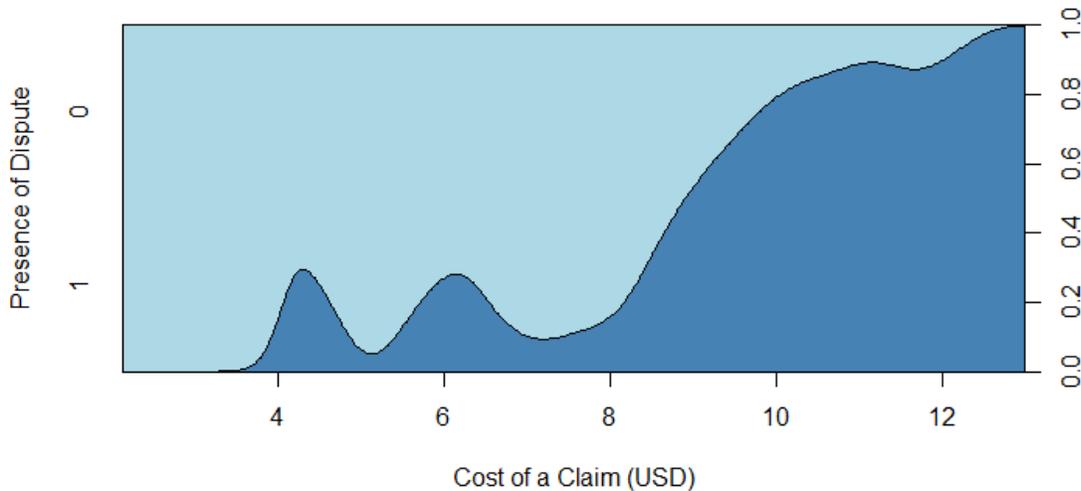
**Table 1.1** Percentage of Paid Benefits in Lower-Cost and Higher-Cost Groups by Benefit Type

One characteristic that higher cost claims do exhibit is longer claim duration. The mean and median duration of claims for higher and lower cost claims are shown in Figure 1.8. The total cost of a claim is positively correlated with claim duration ( $r = 0.67$ ), meaning that there is a moderately strong relationship between the movement in claim cost as related to the movement in claim duration. This makes sense as the longer the claim remains open, the more costs may be associated with it.



**Figure 1.8** Mean and Median Claim Duration for Lower-Cost and Higher-Cost Groups in Days

Claim total cost is also positively, moderately correlated with whether the claim was disputed ( $r = 0.55$ ). Figure 1.9 illustrates the relationship between the cost of a claim and a dispute. The light blue color indicates that no dispute is present (dispute = 0) and the darker blue color indicates a dispute (dispute = 1). The cost of a claim is a log variable and it increases with movement to the right. The graph shows that as the cost of a claim increases, the likelihood that a dispute is present also significantly increases. This could also be related to claim duration as a dispute may influence the duration of a claim.



**Figure 1.9** Correlation Between Claim Costs and Disputes

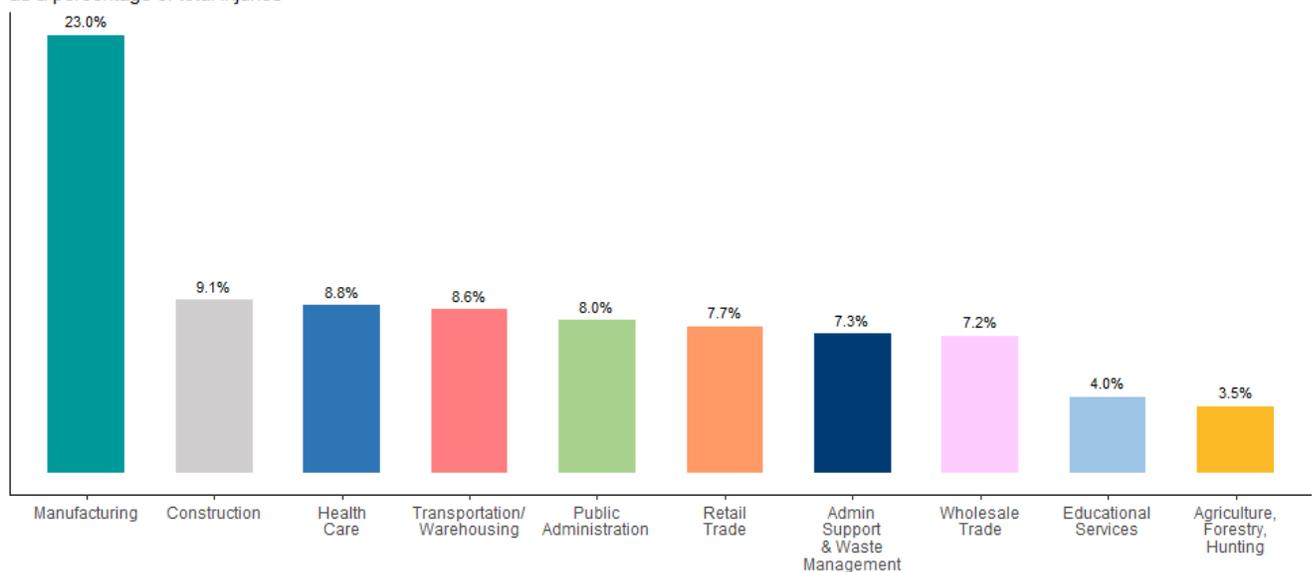
Further correlation and multiple regression analyses were conducted to examine the relationship between total claim cost and various predictors. The results of the regression analysis are provided in Appendix C.

### 1.3 Injuries Reported by Sector and Industry

In terms of economic sectors that report injuries, nearly one quarter (23.0 percent) of all injuries was reported as occurring in the manufacturing sector. Manufacturing contributes more than twice the amount of claims than the next highest contributor (construction, 9.1 percent). Other top contributing sectors are included in Figure 1.10, which illustrates the percent of injuries contributed by a specific sector as a percentage of all injuries reported for the sample set of claims that closed in 2018.

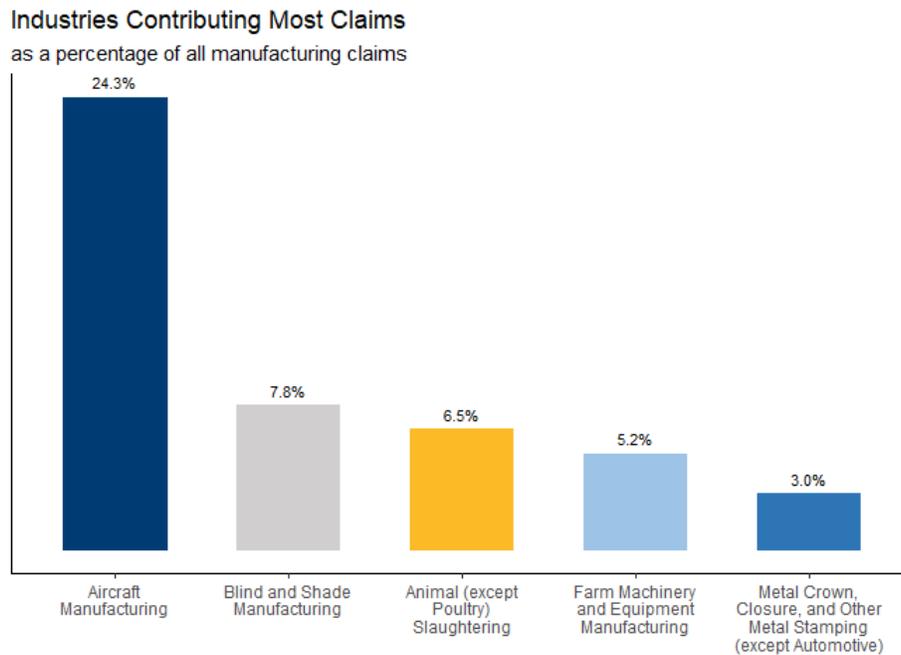
#### Top 10 Sectors Contributing Most Injuries

as a percentage of total injuries



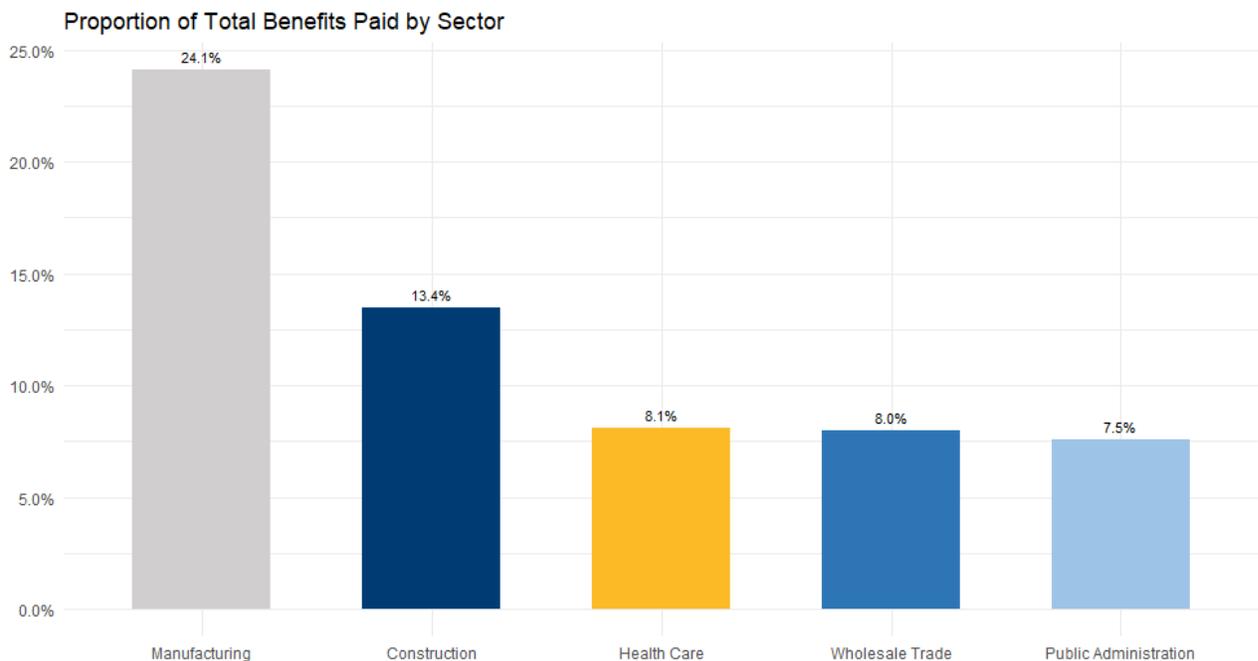
**Figure 1.10** Top Ten Sectors Contributing Injury Reports by Percentage of Total Injuries Reported

When the manufacturing sector claims are disaggregated into the unique manufacturing industries that report injuries, it becomes evident that the aircraft manufacturing industry accounts for most manufacturing claims at 24.3 percent. This is followed by the blind and shade industry (7.8 percent), the animal (except poultry) slaughtering industry (6.5 percent), the farm machinery and equipment industry (5.2 percent), and the metal crown, closure, and other metal stamping (except automotive) industry (3.0 percent).



**Figure 1.11** Manufacturing Industries that Report Injuries, as a Percentage of all Manufacturing Sector Reports

As a proportion of the total benefits paid on 2018 closed claims, the manufacturing sector comprised 24.1 percent of total paid benefits, nearly the same proportion as its percentage of the total number of reported injuries. Construction contributed 9.1 percent of total reports of injury (see Figure 1.10), but contributes 13.4 percent to total paid benefits, meaning the construction sector contributes fewer claims than manufacturing, but the claims are more costly than manufacturing claims on average.



**Figure 1.12** Proportion of Total Benefits Paid by Sector

This is apparent when the mean cost of claims is examined by sector. Table 1.3 displays the mean and median indemnity costs by sector, ranked in terms of mean cost. Although manufacturing contributes nearly a quarter of all claims and accounts for nearly a quarter of the total paid benefits in our sample set, it ranks 9th of 18 sectors in terms of mean cost of a claim (\$32,061.79). The construction industry has the highest mean cost of a claim at \$45,202.76.

| Sector                                     | Mean Claim Cost | Median Claim Cost |
|--|-----------------|-------------------|
| Construction                               | \$45,202.76     | \$25,280.17       |
| Profession, Scientific, Technical Services | \$38,623.15     | \$20,241.93       |
| Finance and Insurance                      | \$36,752.09     | \$19,213.44       |
| Real Estate                                | \$36,723.29     | \$9,119.92        |
| Information                                | \$35,093.67     | \$25,128.13       |
| Wholesale Trade                            | \$33,804.65     | \$19,380.75       |
| Utilities                                  | \$32,862.28     | \$27,341.74       |
| Agriculture, Forestry, Hunting             | \$32,212.24     | \$12,597.79       |
| Manufacturing                              | \$32,061.79     | \$18,532.54       |
| Public Administration                      | \$28,866.61     | \$16,968.92       |
| Arts, Entertainment, Recreation            | \$28,539.22     | \$9,171.41        |
| Health Care                                | \$28,131.86     | \$15,815.91       |
| Mining, Oil, Gas                           | \$27,173.49     | \$14,726.43       |
| Admin Support & Waste Management           | \$27,028.62     | \$14,738.10       |
| Educational Services                       | \$24,584.21     | \$21,632.49       |
| Transportation/Warehousing                 | \$24,210.56     | \$13,016.92       |
| Retail Trade                               | \$23,891.65     | \$14,838.08       |
| Other Services                             | \$19,448.34     | \$17,255.49       |

**Table 1.2** Mean and Median Total Costs of Claims by Sectors, Ranked by Mean Claim Cost

### 1.4 Characteristics of Injuries

When claims are filed by trading partners, they must categorize the body part injured, the cause of injury, and the nature of injury. These categories, while not identical across all states, are tracked by Workers Compensation Insurance Organizations (WICOS), and are useful for analysis in many different agencies.

### 1.4.1 Body Parts

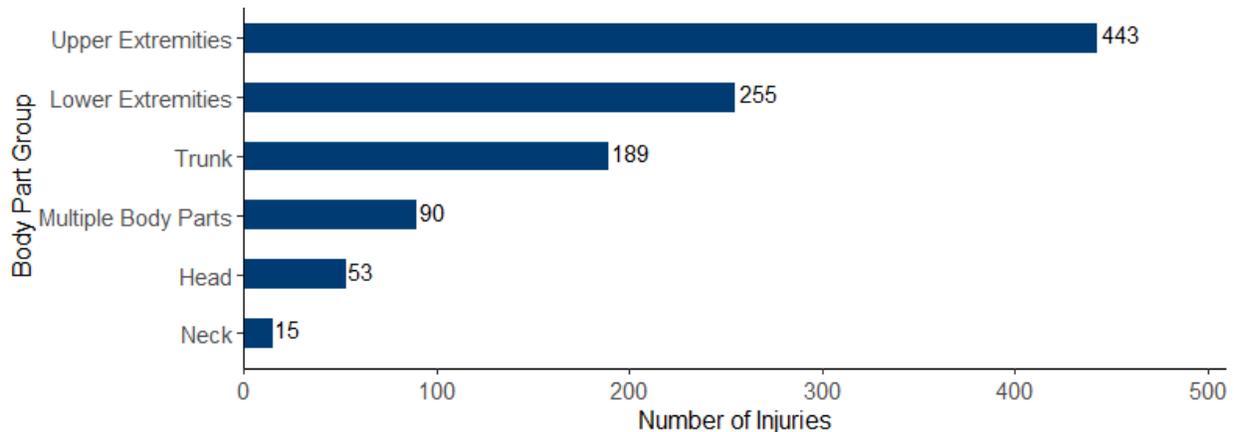
Expectedly, the purpose of the body part category is to identify the physical parts of the body which have sustained injury. For this reason, one can select multiple body parts as well as use codes that indicate “multiple” injuries sustained to a specific region of the body. Figure 1.13 shows the frequency of each body part selected in the 2018 sample set of closed claims. It shows that, of 1045 body parts cited in the sample set, shoulder, knee, and lower back were the three most commonly selected.

| Body Part Injured                      | Count | Body Part Injured              | Count |
|--|-------|--------------------------------|-------|
| Shoulder(s)                            | 154   | Multiple Head Injury           | 10    |
| Knee                                   | 121   | Multiple Trunk                 | 9     |
| Lower Back Area                        | 100   | Soft Tissue                    | 6     |
| Multiple Body Parts                    | 72    | Eye(s)                         | 5     |
| Wrist                                  | 61    | Internal Organs                | 4     |
| Finger(s)                              | 58    | Lumbar & or Sacral Vertebrae   | 4     |
| Foot                                   | 42    | Multiple Neck Injury           | 4     |
| Ankle                                  | 39    | Nose                           | 4     |
| Hand                                   | 38    | Facial Bones                   | 3     |
| Abdomen Including Groin                | 35    | Multiple Lower Extremities     | 3     |
| Lower Arm                              | 29    | Pelvis                         | 3     |
| Upper Arm                              | 27    | Body Systems and Multiple Body | 2     |
| Lower Leg                              | 26    | Brain                          | 2     |
| Elbow                                  | 25    | Disc (Neck)                    | 2     |
| Thumb                                  | 21    | Disc (Trunk)                   | 2     |
| Wrist(s) & Hand(s)                     | 17    | Ear(s)                         | 2     |
| Skull                                  | 15    | Heart                          | 2     |
| Insufficient Info to Properly Identify | 14    | Lungs                          | 2     |
| Upper Back Area                        | 14    | No Physical Injury             | 2     |
| Multiple Upper Extremities             | 13    | Spinal Cord (Neck)             | 2     |
| Chest                                  | 12    | Toes                           | 2     |
| Other Facial Soft Tissue               | 12    | Sacrum and Coccyx              | 1     |
| Hip                                    | 11    | Spinal Cord (Trunk)            | 1     |
| Upper Leg                              | 11    | Vertebrae                      | 1     |

**Table 1.3** Total Injuries by Body Part Injured

Body part codes can also be organized by larger, more general categories based on the region of the body. The frequency of injuries of these broader categories is shown below in Figure 1.13. The more general categories make patterns of injuries more evident. For example, shoulder is the most commonly cited body part on claims and, when aggregated with other body parts in the same body region, creates

an upper extremities category that accounts for 42.4 percent of all injuries. This is almost twice the share of total injuries as the next highest category, lower extremities, which accounts for 24.4 percent of all body parts selected.



**Figure 1.13** Total Injuries by Primary Body Part Group

### 1.4.2 Causes of Injury

The cause of injury codes describe how an injury occurred. If multiple injuries are sustained in one accident, one primary cause of injury must be identified. Table 1.5 lists the frequency of cause of injury codes that were selected for each claim in the sample set of 1000 closed claims.

Cause of injury codes, like body part codes, can be grouped more generally into primary causes of injury. For example, burns, whether resulting from hot objects or chemicals, can be aggregated as injuries caused by burns. Figure 1.14 lists causes of injury, aggregated into primary causes and grouped by frequency. The “Strain or Injury By” category refers to a strain or injury caused by a variety of movement such as twisting, lifting, pushing, reaching, etcetera, which have been grouped together. Strain is the most common cause of injury and this makes sense as it encompasses a wide range of activities.

| Cause of Injury  | Count | Cause of Injury   | Count |
|--|-------|---|-------|
| Lifting  | 134   | Striking Against or Stepping On, NOC                    | 8     |
| On Same Level  | 77    | Into Openings Shafts, Excavations, Floor Openings, etc. | 7     |
| Strain or Injury By, NOC   | 76    | Moving Part of Machine                                  | 7     |
| Pushing or Pulling   | 62    | Vehicle Upset/Overturnd/Jackknifed                      | 7     |
| Fall, Slip or Trip, NOC  | 59    | Other Than Physical Cause of Injury                     | 6     |
| Repetitive Motion Carpel Tunnel Syndrome                         | 49    | Hand Tool, Utensil; Not Powered                         | 5     |
| Other - Miscellaneous, NOC                                       | 45    | Powered Hand Tool, Appliance                            | 5     |
| From Ladder or Scaffolding                                       | 42    | Stepping on Sharp Object                                | 5     |
| Object Being Lifted or Handled                                   | 35    | Animal or Insect  | 4     |
| From Different Level (Elevation) Off Wall, Catwalk, Bridge, etc. | 29    | Chemicals   | 4     |
| Falling or Flying Object   | 25    | Jumping   | 4     |
| Twisting   | 23    | Motor Vehicle   | 4     |
| Slipped, Do Not Fall   | 22    | Moving Parts of Machine                                 | 4     |
| Fellow Worker; Patient   | 20    | Object Handled By Others                                | 4     |
| On Ice or Snow   | 20    | Absorption, Ingestion or Inhalation, NOC                | 3     |
| Reaching   | 20    | Motor Vehicle, NOC                                      | 3     |
| Stationary Object  | 19    | Person in Act of a Crime                                | 3     |
| Machine or Machinery   | 17    | Repetitive Motion Callous, Blister, Etc.                | 3     |
| Holding or Carrying  | 16    | Temperature Extremes                                    | 3     |
| From Liquid or Grease Spills                                     | 14    | Fire or Flame   | 2     |
| Collision or Sideswipe With Another Vehicle                      | 13    | Hot Objects or Substances                               | 2     |
| Caught In, Under or Between, NOC                                 | 12    | Mold  | 2     |
| Object Handled   | 11    | Steam or Hot Fluids                                     | 2     |
| On Stairs  | 11    | Broken Glass  | 1     |
| Struck or Injured, NOC.  | 11    | Crash of Rail Vehicle                                   | 1     |
| Using Tool or Machinery  | 11    | Electrical Current                                      | 1     |
| Caught, Puncture, Scrape, NOC                                    | 9     | Foreign Matter (Body) in Eye(s)                         | 1     |
| Hand Tool or Machine in Use                                      | 8     | Welding or Throwing                                     | 1     |
| Cumulative, NOC  | 8     |   |       |

Table 1.4 Total Injuries by Cause of Injury

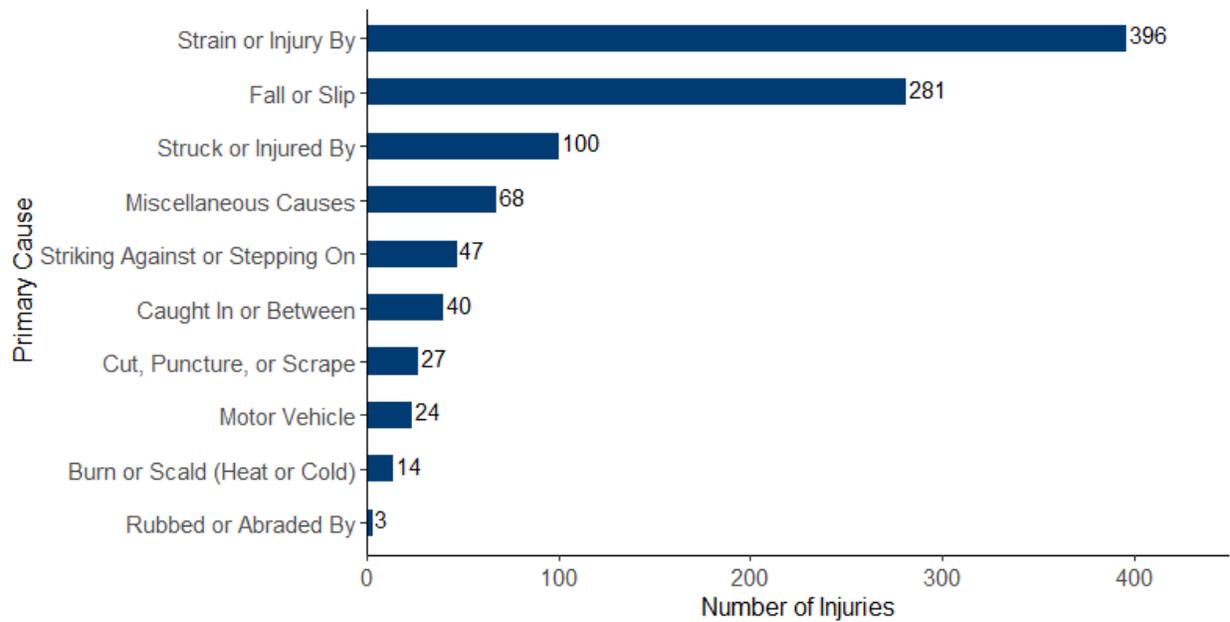


Figure 1.14 Total Injuries by Primary Cause of Injury

Some causes of injury result in costlier workers compensation claims. Figure 1.15 displays the median cost of claims, grouped by cause of injury codes, of the ten cause of injury codes with the highest median costs. Notice that the causes that resulted in claims with the highest median costs generally have the lowest frequencies (see Table 1.5).

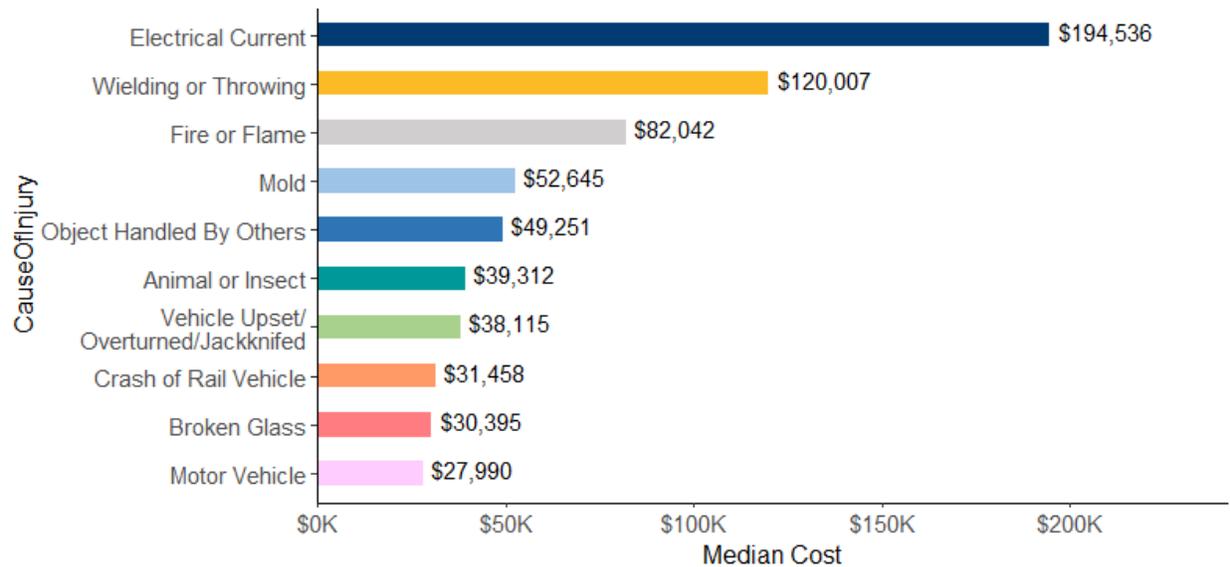


Figure 1.15 Top Ten Causes of Injury by Median Total Cost

### 1.4.3 Nature of Injuries

Nature of injury can be understood as a description of the injury sustained to a body part. In other words, nature of injury is the result of an accident rather than the cause. The figure below lists the frequencies of nature of injury codes as they occurred in the claims sample set.

| Nature of Injury                 | Count | Nature of Injury                                 | Count |
|----------------------------------|-------|--|-------|
| Strain or Tear                   | 345   | Amputation                                       | 9     |
| Fracture                         | 133   | Vascular   | 8     |
| Contusion                        | 88    | Puncture   | 5     |
| Sprain or Tear                   | 79    | All Other Occupational Disease, NOC              | 4     |
| All Other Specific Injuries, NOC | 73    | Infection  | 4     |
| Laceration                       | 40    | No Physical Injury                               | 3     |
| Inflammation                     | 38    | Multiple Injuries (Incl. Physical/Psychological) | 2     |
| Dislocation                      | 33    | Respiratory Disorders                            | 2     |
| Hernia                           | 22    | Severance  | 2     |
| Multiple Physical Injuries Only  | 22    | Contagious Disease                               | 1     |
| Concussion                       | 17    | Dermatitis                                       | 1     |
| Carpal Tunnel Syndrome           | 16    | Electric Shock                                   | 1     |
| Crushing                         | 14    | Heat Prostration                                 | 1     |
| All Other Cumulative Injury, NOC | 12    | Mental Stress                                    | 1     |
| Rupture                          | 12    | Myocardial Infarction                            | 1     |
| Burn                             | 11    |  |       |

**Table 1.5** Total Injuries by Nature of Injury

In terms of median costs associated with different nature of injury codes, there are some similarities to the causes of injury median costs. For example, the median costs of claims that listed electric shock and severance as the nature of the injury were very high, but the frequencies of those nature of injury codes was very low. This pattern is less extreme, but still true for other nature of injury codes with high median costs. Figure 1.16 illustrates that the majority of nature of injury codes associated with higher median costs occur relatively less frequently than the most common nature of injury codes selected in the sample set. The one exception to this pattern is fractures, which is the nature of injury code associated with the 8<sup>th</sup> highest median claim cost and is also the second most commonly listed in the sample set.

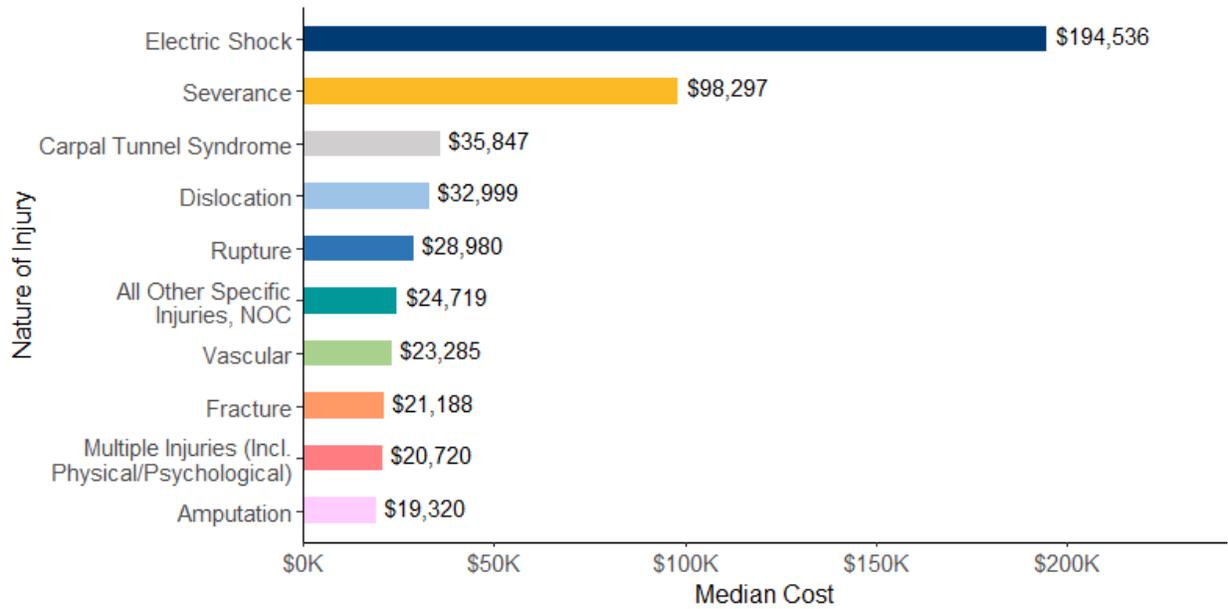


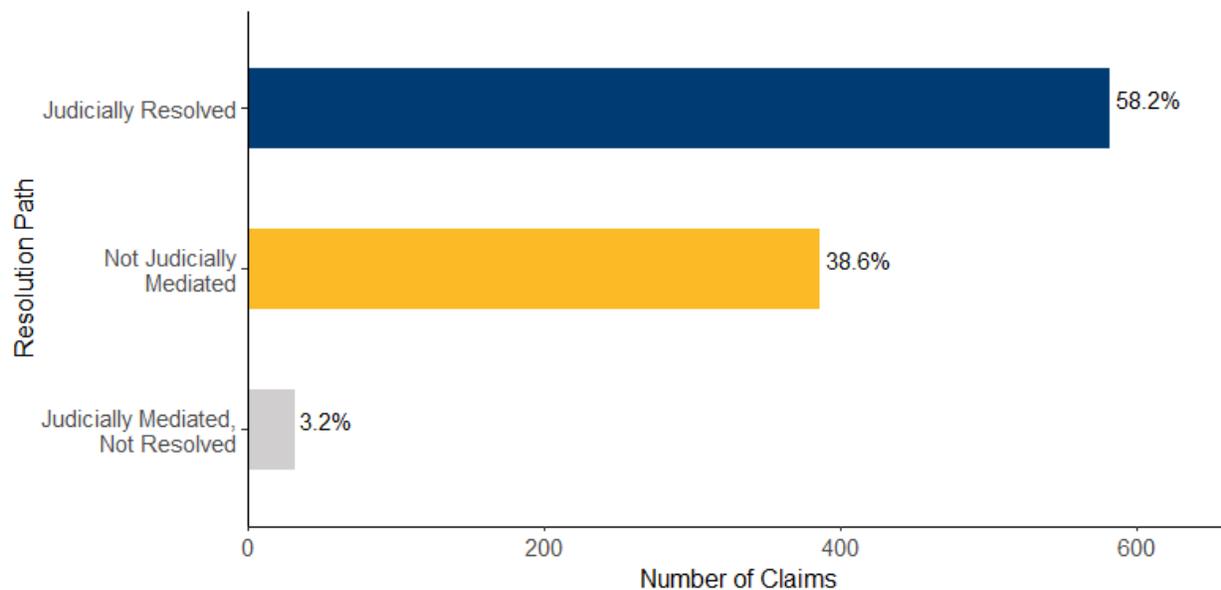
Figure 1.16 Top Ten Natures of Injury by Median Total Cost

## 2. Judicial Outcomes of Closed Claims

### 2.1 Judicial Mediation and Resolution of Closed Claims

Although claims are often resolved without recourse to the judicial system, the resolution of claims frequently requires some form of judicial mediation. For the purpose of the present study, judicial mediation is initiated when either 1) a claimant or a claimant’s surviving spouse, dependent, or heir requests judicial review of a claim through the filing of an E1/E2 (Application for Benefits)<sup>3</sup>, or 2) a claimant and their employer file a formal settlement that must be approved by an Administrative Law Judge (ALJ).<sup>4</sup>

Of the 1000 claims in this study, 614 required some form of judicial mediation. Of these, 32 claims were judicially mediated, but resolved extra-judicially.<sup>5</sup> A claim is considered judicially resolved when the claim reaches a formal settlement or a final decision regarding benefits is reached by an ALJ. The remaining 386 claims were not judicially mediated. Figure 2.1 shows the breakdown of claims in the study according to their path to resolution (judicially resolved, judicially mediated but not judicially resolved, or not judicially mediated).



**Figure 2.1** Total Number of Closed Claims by Resolution Path

In order to gain a better understanding of the ways that claims may be resolved, claims were analyzed according to the type of resolution that occurred. The resolution of a claim takes many forms. Among judicially resolved claims, there are various ways that resolution can occur, and as mentioned above, a claim may also be resolved between a claimant and their employer with or without recourse to the judiciary. The resolution type of a claim was categorized according to the following definitions:

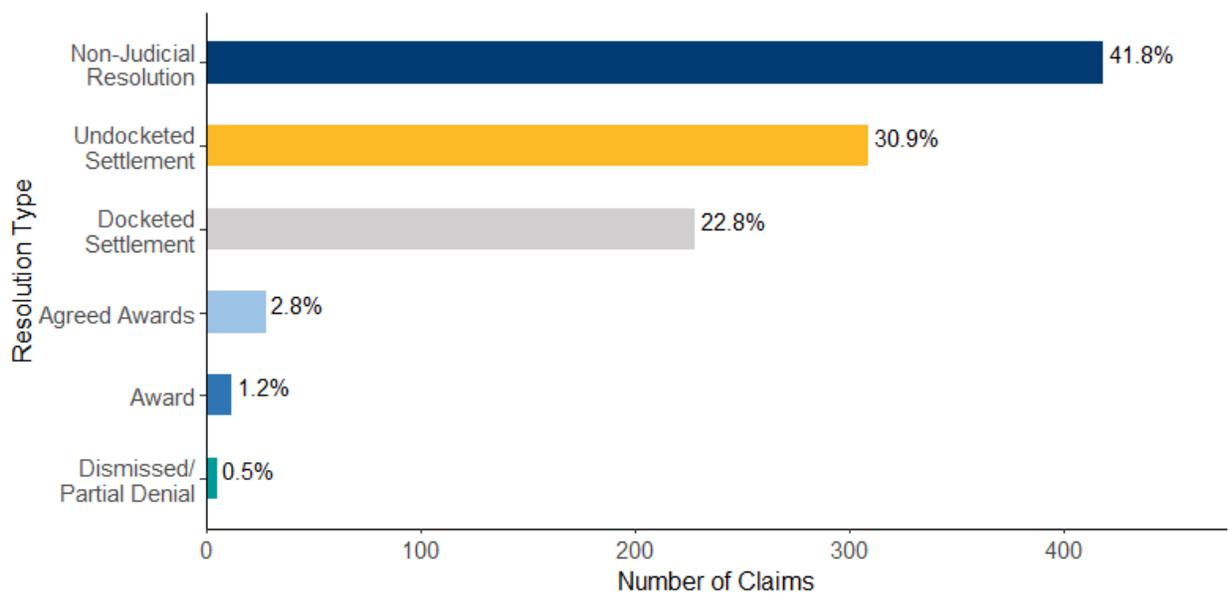
<sup>3</sup> The E1 is the standard filing for a claimant seeking benefits, while an E2 is filed by a deceased claimant’s surviving spouse, dependent, or heir.

<sup>4</sup> Note that this includes Special Administrative Law Judges, which are appointed under certain circumstances as prescribed by law, and which typically oversee settlement hearings.

<sup>5</sup> While a claim may go through various stages of judicial mediation, there are cases in which the claim is nevertheless resolved extra-judicially. These are claims in which an E1 is filed, but no other judicial events occurred before the claim filed an FN to close.

- Award:** compensation determined by decision of an ALJ
- Agreed Awards:** compromises that require oversight of an ALJ. For the purposes of the present study, includes true Agreed Awards, Redemption Settlements, and Joint Petition/Stipulation
- Docketed Settlement:** settlement arrived at after filing application for hearing
- Undocketed Settlement:** settlement approved without prior filing of application for hearing
- Dismissed/Partial Denial:** judiciary denies some portion of benefits, or case ultimately dismissed with no further benefits awarded. Involves cases for which benefits are paid, but claimant seeks further benefits through judicial process, or cases in which some portion of benefits is reimbursed to the
- Non-Judicial Resolution:** benefits conferred without reaching resolution via judicial intervention

Of all closed claims in the study, 41.8% had a non-judicial resolution. Of the remaining 582 claims that were judicially resolved, most (309 claims) were resolved by means of an undocketed settlement. The next most common type of resolution was a docketed settlement (228 claims). Only 28 claims resulted in agreed awards, 12 resulted in awards, and 5 were partially denied or dismissed from further consideration. Importantly, these figures seem to indicate that most claims result in a settlement or resolution between parties without recourse to the judiciary. Only a small percentage of claims—just 1.7%—require a final decision regarding benefits by means of an ALJ.

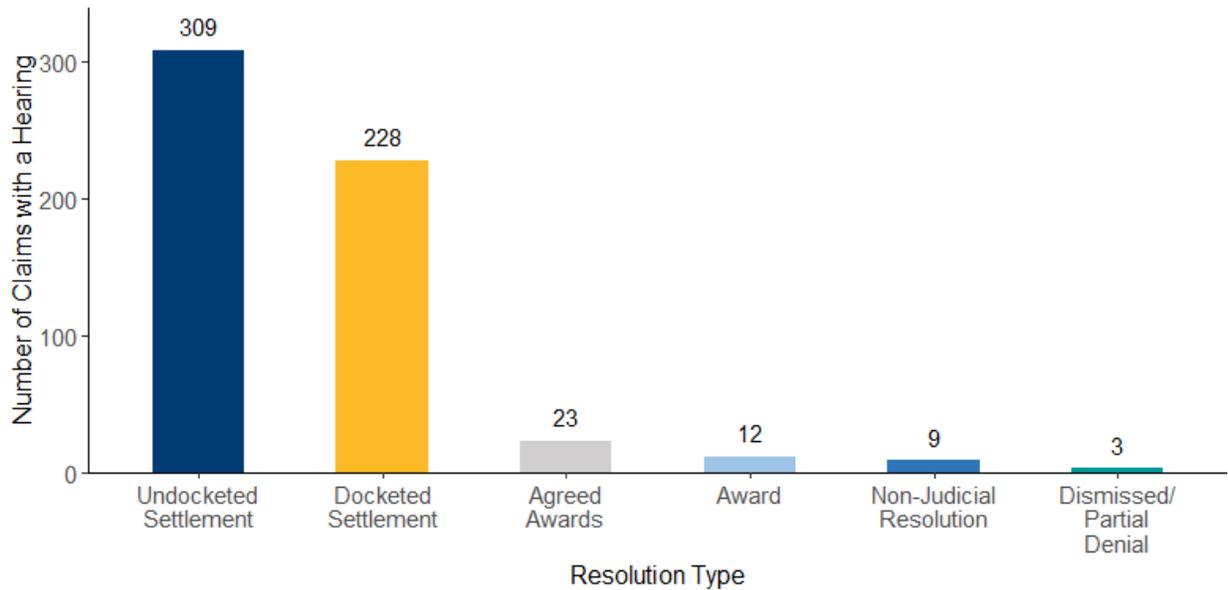


**Figure 2.2** Total Number of Closed Claims by Resolution Type

## 2. 2 Hearings Associated with Closed Claims

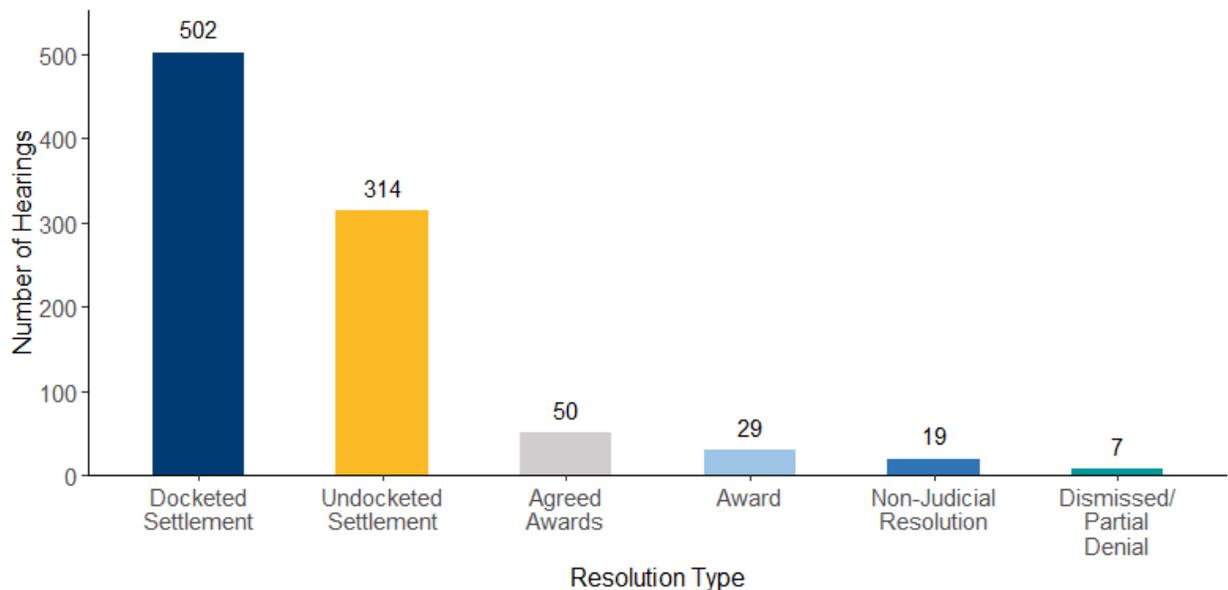
Judicially mediated claims typically require at least one hearing on their way to resolution. Of the 614 claims in the present study that required some form of judicial mediation, 584 (95.1% of judicially mediated claims, 58.4% of all claims) required a hearing. Figure 2.1 illustrated that only 3.2% of claims that file an E1 to initiate the judicial process are resolved outside of that process. This seems to indicate that, for the majority of claims, simply filing an E1 is not sufficient to resolve benefit disputes, but that a hearing is needed in order to further the process. Note that the overwhelming majority of hearings that are held are

settlement hearings. If settlement hearings are excluded, only 199 claims (32.4% of judicially mediated claims, 19.9% of all claims) required a hearing. Figure 2.3 shows the number of claims that required at least one hearing for each resolution type.



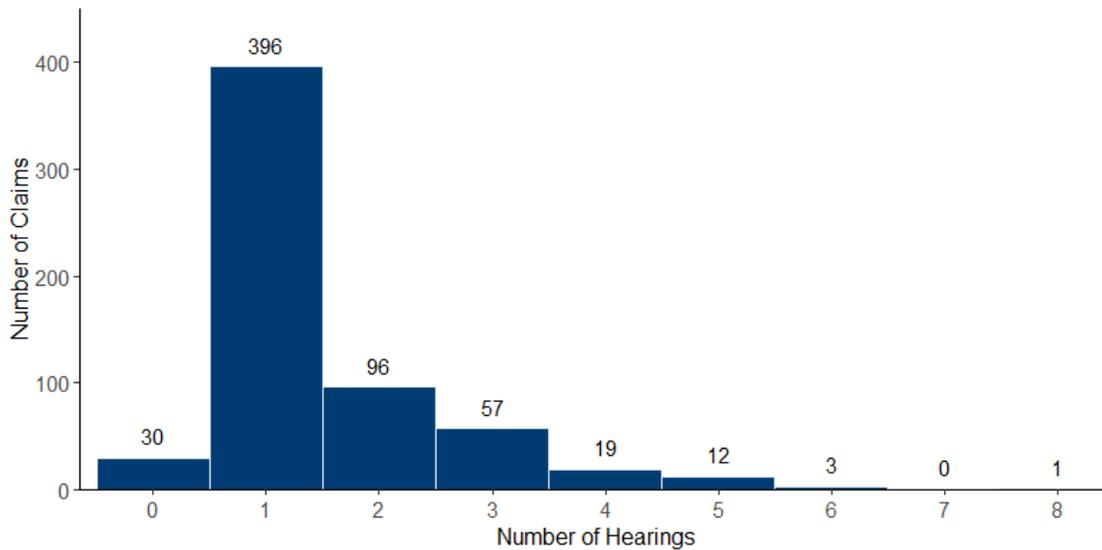
**Figure 2.3** Number of Claims with at Least One Hearing, by Resolution Type

In terms of the overall number of hearings, there were a total of 921 hearings associated with the claims in the present study. Of these, 816 (88.6%) were associated with a claim that resulted in a settlement. Figure 2.4 shows the number of hearings held according to the resolution type of the claim.



**Figure 2.4** Total Number of Hearings by Resolution Type

Judicially mediated claims varied in the number of hearings that were required on their way to resolution. Figure 2.5 shows the distribution of claims in the study according to the number of hearings that were held. While 30 claims in the study did not require a hearing at all (4.9% of judicially mediated claims)<sup>6</sup>, most required only one hearing (396 claims, 64.5% of judicially mediated claims).



**Figure 2.5** Histogram of Number of Hearings per Claim

Table 2.1 shows the data for Figure 2.5, listing the count of claims in the study with the number of corresponding hearings, along with the cumulative percentage of judicially mediated claims that required that number of hearings. As seen there, 85% of judicially mediated claims required two hearings or fewer.

**Table 2.1** Count of Claims by Number of Hearings, with Cumulative Percentage of Judicially Mediated Claims

<sup>6</sup> Interestingly, judicially mediated claims sometimes do not require a hearing to be held at all. Sometimes, a claim for which an E1 is filed is settled before any hearing is necessary. In such cases, it often seems to be that the threat of judicial entanglement is sufficient motivation for reaching a settlement.

As to the average number of respective hearings, claims vary primarily in terms of the resolution type that they result in. Figure 2.6 shows the mean number of hearings per claim for each resolution type. Unsurprisingly, claims that result in an award require the greatest number of hearings, on average (2.42 hearings per claim). Claims resulting in a docketed settlement required the next greatest number of hearings on average at 2.2, followed by agreed awards at 1.79 hearings, ultimately dismissed/partially denied claims at 1.4 hearings, and undocketed settlements at 1.02 hearings. Only rarely did a judicially mediated claim with a non-judicial resolution ever have a hearing held, with an average of 0.05 hearings on average. That claims resulting in docketed settlements had 2.2 hearings on average indicates that most of these had at least one hearing prior to the settlement hearing.<sup>7</sup>

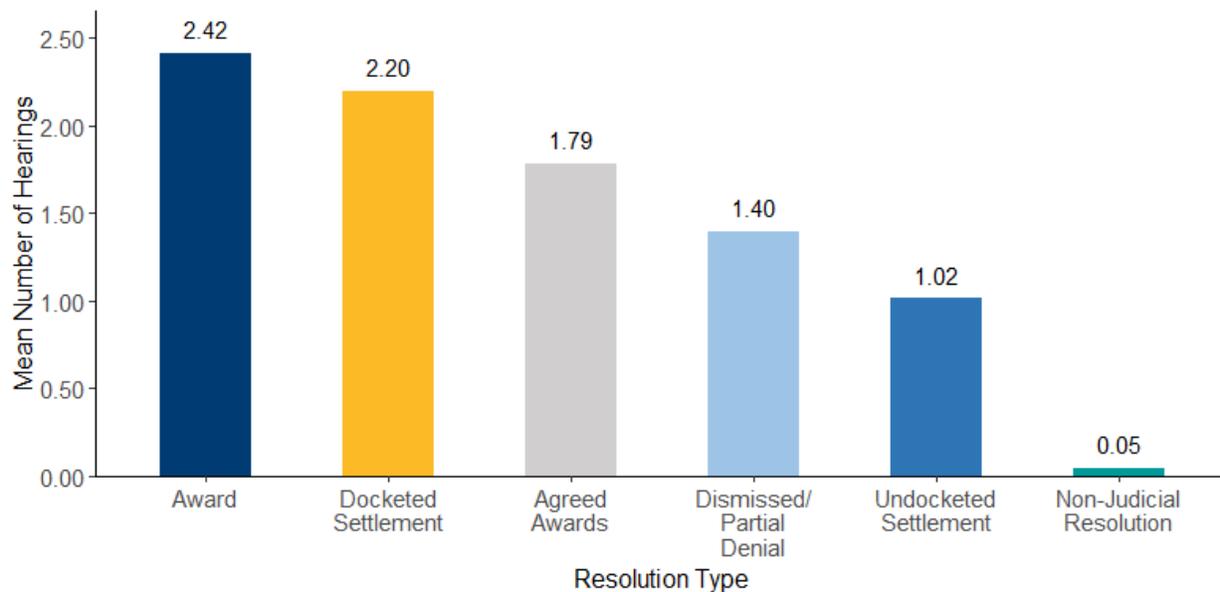


Figure 2.6 Mean Number of Hearings per Claim by Resolution Type

### 2.3 Judicial Time of Closed Claims

This section reports the amount of time that judicially mediated claims spent in the judicial system. Due to the widely varying nature of injuries and costs, claims vary as to the extent of time in the judicial process that is required to mediate them. For the purposes of the present study, the “judicial time” of a claim, or time that a claim spends in the judicial system, is defined here as the number of days between the first official judicial filing and the earlier of 1) the claim closure date or 2) the last judicial resolution point (the most recent acceptance or rejection of a matter involving benefits dispensation; includes settlement dates, (agreed) award approval dates, dismissal or denial orders, or otherwise date most recent hearing was held).

Table 2.2 shows the count of claims in the study resolving within a corresponding range of years, along with the cumulative percentage of claims that lasted that length of time. As can be seen, an overwhelming majority of the judicially mediated claims (430, or 70% of judicially mediated claims) spent one year or less in the judicial system. Note that this figure is heavily influenced by undocketed settlements,

<sup>7</sup> The 1.02 hearings on average for undocketed settlements is due to a small number of claims that end up having a second hearing for some reason or other after the settlement is initially approved.

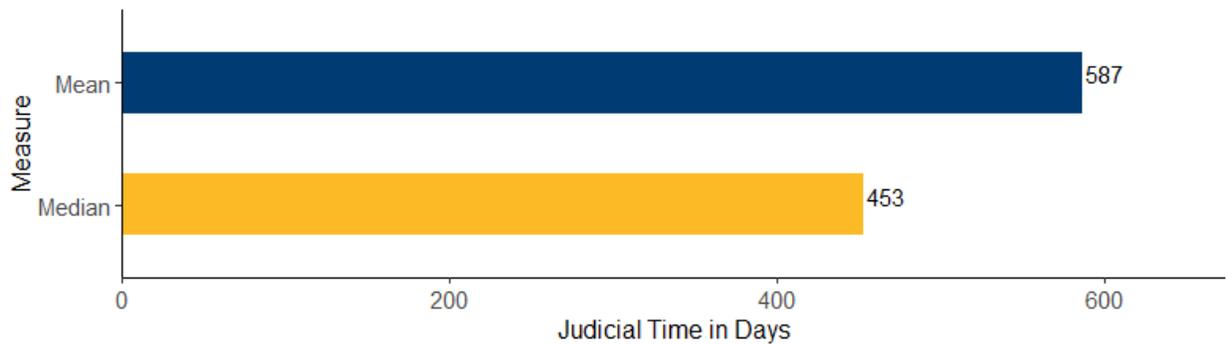
which typically do not require time in judicial mediation beyond the filing and approval of the settlement. In fact, of 309 undocketed settlements, all but three had judicial times less than or equal to one year. Thus, undocketed settlements comprise the overwhelming majority of cases spending less than one year in the system. Only infrequently did a claim in the study last longer than four years, with 98.5% of all claims resolving before four years had passed. The longest running claim in the study lasted longer than twelve years (specifically, 4,507 days, roughly 12 years 4 months).

| Years   | Number of Claims | % of Total |
|---------|------------------|------------|
| 0 - 1   | 430              | 70%        |
| 1 - 2   | 100              | 86.3%      |
| 2 - 3   | 49               | 94.3%      |
| 3 - 4   | 22               | 97.9%      |
| 4 - 5   | 4                | 98.5%      |
| 5 - 6   | 4                | 99.2%      |
| 6 - 7   | 1                | 99.3%      |
| 7 - 8   | 1                | 99.5%      |
| 8 - 9   | 0                | —          |
| 9 - 10  | 2                | 99.8%      |
| 10 - 11 | 0                | —          |
| 11 - 12 | 0                | —          |
| 12 - 13 | 1                | 100%       |

**Table 2.2** Count of Claims by Length of Judicial Time in Years, with Cumulative Percentage of Total

Figure 2.7 shows the overall mean and median judicial time in days for judicially mediated closed claims, excluding undocketed settlements, which nearly always have a Judicial Time of zero due to the fact that the day that they were officially filed being identical to the settlement hearing date.<sup>8</sup> As noted above, there is a general disparity in judicial times between claims resulting in an undocketed settlement and claims resulting in other outcomes due to this difference in how undocketed settlements are filed.

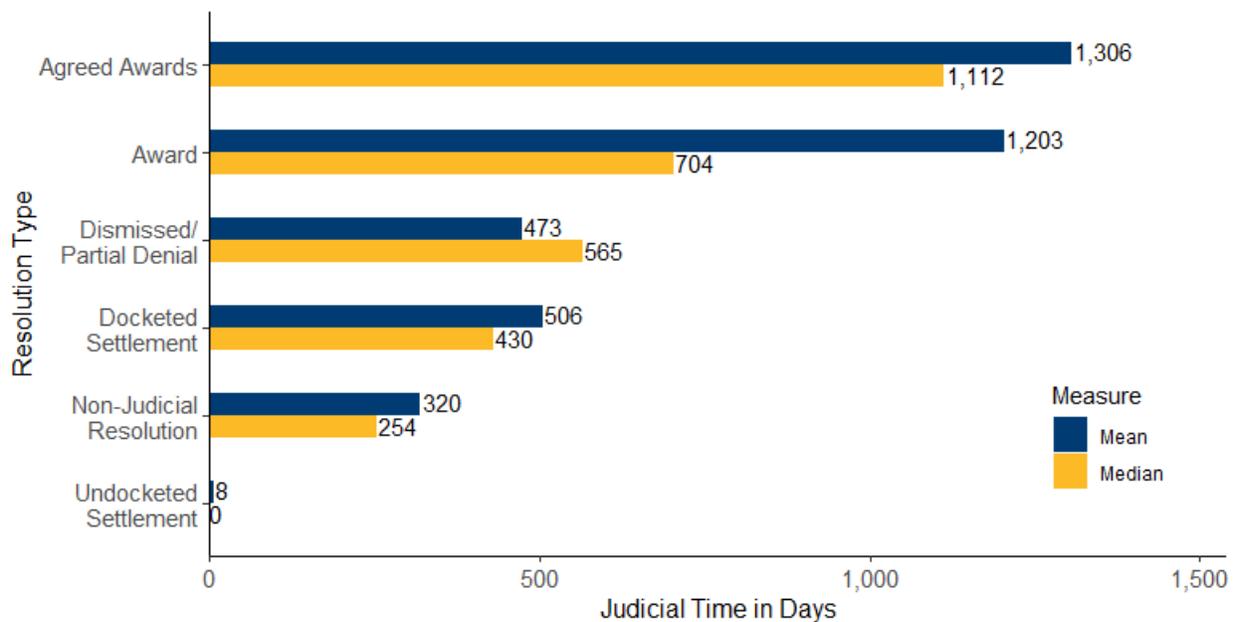
<sup>8</sup> Undocketed settlements are excluded here because they obscure important patterns with respect to judicial times, due to the way that they are filed. The first official filing under the data management system in which they were entered was recorded as the same day as the settlement hearing itself, resulting in most such claims having a judicial time of zero days.



**Figure 2.7** Overall Mean and Median Judicial Time in Days (Excluding Undocketed Settlements)

As seen in Figure 2.7, on average, judicially mediated claims in the study (other than undocketed settlements) spent 587 days (1.6 years) in the system, while the median judicial time for the same claims was 453 days (about 1 year 3 months). However, the typical time that a claim spends in the judicial process varies widely, depending especially on the type of resolution involved.

Figure 2.8 shows the mean and median judicial time in days broken down according to resolution type. Perhaps unsurprisingly, claims that resulted in Awards (mean 1,203 days, median 704 days) and Agreed Awards (mean 1,306 days, median 1,112 days) spent the longest time in the system. Notice, however, that while awards frequently required as much or more time than agreed awards, the latter *typically* required more time than awards. That is, even though the average for agreed awards was only somewhat higher than that of awards, the median length of time was substantially higher. This suggests that in spite of their name, agreed award types may typically involve more contentious cases than claims that result in an award.

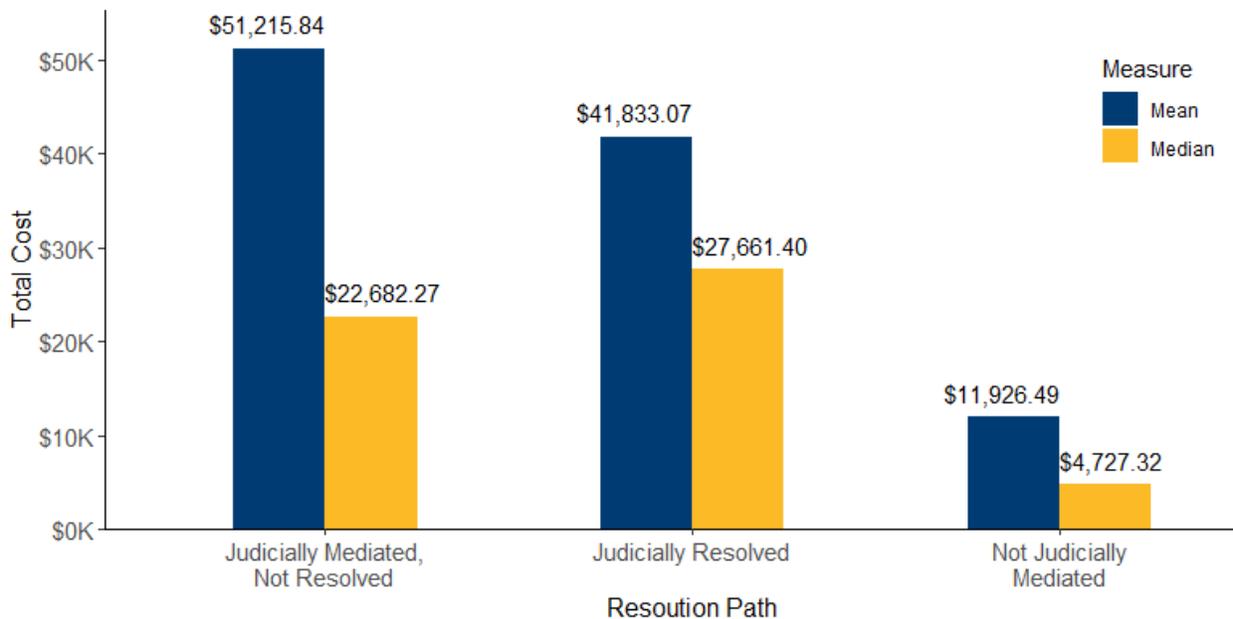


**Figure 2.8** Mean and Median Judicial Time in Days by Resolution Type

### 2.4 Costs Associated With Judicial Outcomes

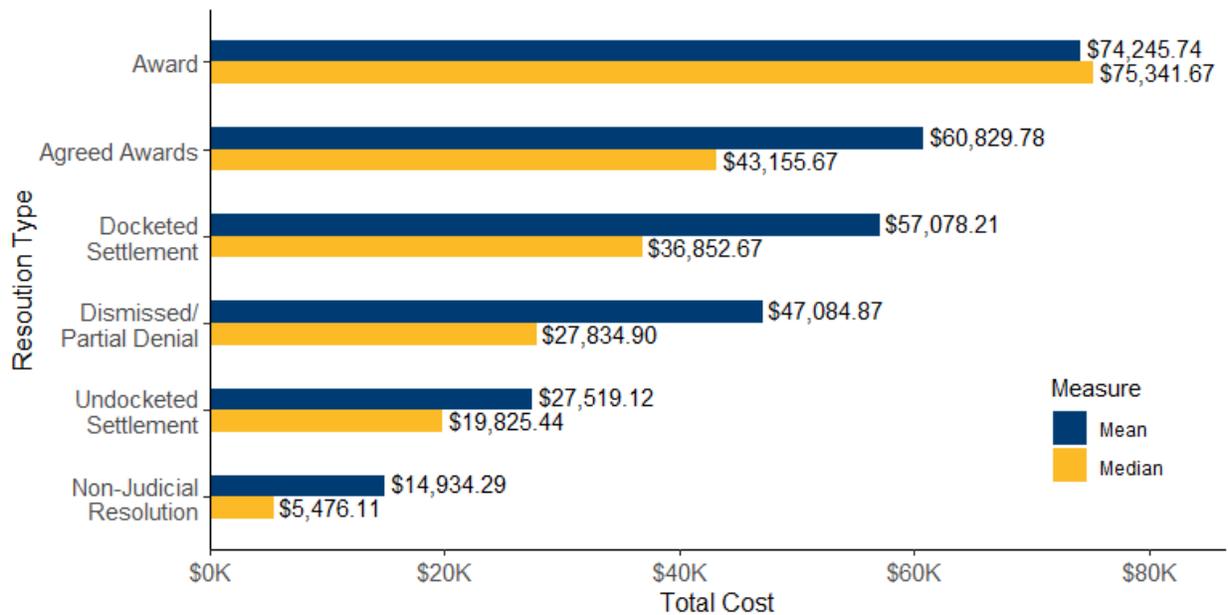
This section reports basic information regarding the cost of judicially mediated closed claims. There are differences in overall claim costs depending on the path to resolution of a claim, and on the type of resolution that is reached. In general, claims requiring more judicial intervention tend to cost more.

Figure 2.9 shows the mean and median total overall claim cost by resolution path. Claims that are judicially mediated have the highest average cost (\$51,215.84), while claims that are judicially resolved have the highest median cost (\$27,661.40). These figures indicate that judicially resolved claims tended to cost more, even though claims that were judicially mediated but not resolved had a small number of outsized claims that had a much higher relative cost. Claims that were not judicially mediated were substantially less costly than the other categories, both in terms of mean (\$11,926.49) and median (\$4,727.32). In fact, claims that were not judicially mediated had a median cost that was nearly six times lower than that of judicially resolved claims.



**Figure 2.9** Mean and Median Total Claim Cost by Resolution Path

Figure 2.10 shows the mean and median total overall claim cost broken down by resolution type.



**Figure 2.10** Mean and Median Total Claim Cost by Resolution Type

Perhaps unsurprisingly, claims resulting in an award had the highest overall cost, both in terms of mean (\$74,245.74) and median (\$75,341.67). Interestingly, awards had the smallest discrepancy between mean and median values, which may be an indicator of consistency in the types of claims that result in awards, as well as the way that awards are decided.

Finally, claims with different resolution types showed interesting tendencies in terms of their medical and indemnity costs. Figure 2.11 shows median total indemnity and total medical cost of claims according to the resolution type. In general, the median cost of indemnity and medical benefits were comparable for a given claim resolution type. However, two differences are worth highlighting. First, claims resulting in an award had a median indemnity cost (\$42,795.20) that was more than three times greater than the median medical cost (\$12,911.14) for the same resolution type, and the median indemnity cost was more than twice as much as the next closest resolution type (agreed awards, \$19,130.81). Second, Undocketed settlements were the only type of resolution for which the median total medical cost (\$11,300.70) was substantially higher as compared to the median total indemnity cost (\$7,524). These differences are likely a result of a difference in the nature of claims that result in undocketed settlements as opposed to claims that result in awards.

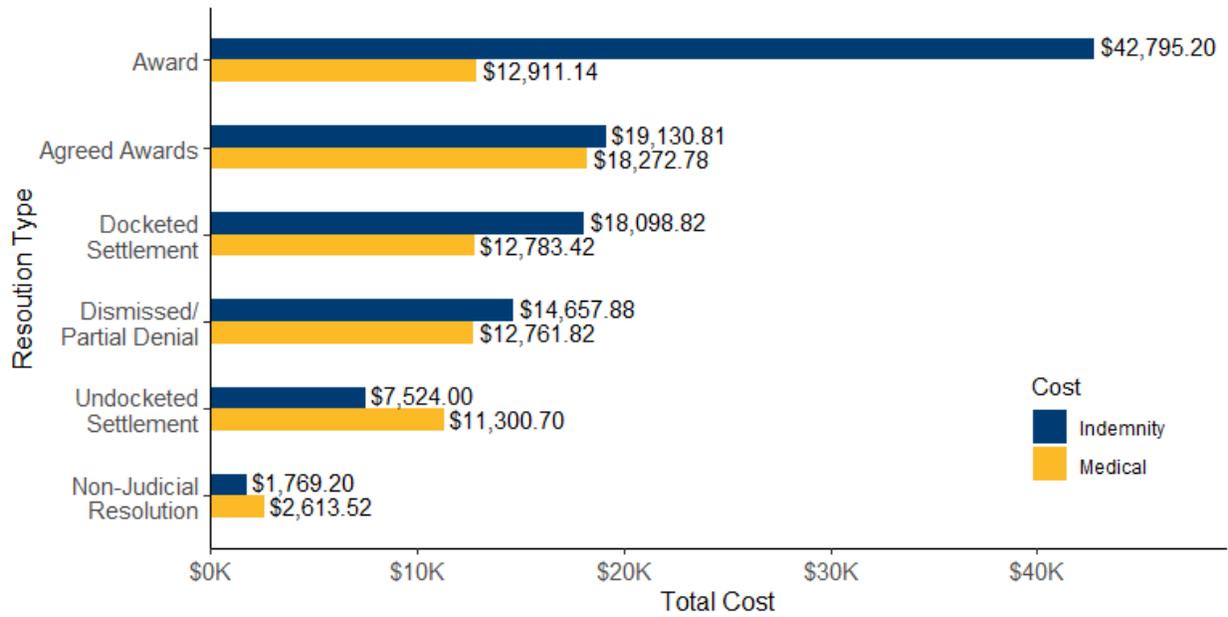


Figure 2.11 Median Total Indemnity and Medical Costs by Resolution Type

## Appendix A: Data Set Variables

### Claim-related variables

#### Qualitative:

- Claimant characteristics
  - Age in Years
  - Gender
  - Annual Wage
  - Industry Classification (NAICS code)
- Injury characteristics
  - Type of Loss (Traumatic Injury, Occupational Disease, Cumulative/Repetitive Trauma)
  - Cause of Injury; how the injury occurred
  - Nature of Injury; how body part(s) and/or systems were affected
  - Body Part: which body part(s) and/or systems were affected

#### Quantitative:

- Cost of individual benefit types
- Aggregated benefit costs (Total Benefits Paid, Indemnity Benefits Paid, Medical Benefits Paid, etc.)

#### Temporal:

- Claim Time: the number of days between the submission date of the earliest First Report of Injury and the submission date of the final (SROI FN) report

### Judicial process variables

#### Qualitative:

- Resolution Type (Judicially Resolved, Judicially Mediated/Not Resolved, Non-Judicially Mediated)
- Resolution Path (Award, Undocketed Settlement, etc.)
  - Award: compensation determined by decision of an Administrative Law Judge
  - Agreed Awards: compromises that require oversight of an Administrative Law Judge
    - include true Agreed Awards, Joint Petition/Stipulation, Redemption Settlements
  - Settlements:
    - Docketed settlement: settlement arrived at after filing application for hearing
    - Undocketed Settlement: settlement approved without filing of application for hearing
  - Dismissed/Partial Denial: judiciary determines benefits to be partially denied, or case ultimately dismissed with no further benefits awarded. Involves cases for which benefits are paid, but claimant seeks further benefits through judicial process
  - Non-Judicial Resolution: benefits conferred without need for judicial intervention

#### Temporal:

- Judicial Time: the number of days between the first official judicial filing and the earlier of the claim closure date or the last judicial resolution point (the most recent acceptance or rejection of a matter involving benefits dispensation; includes settlement dates, (agreed) award approval dates, dismissal or denial orders, or otherwise date most recent hearing was held).

## Appendix B: Sample Methodology

Claims data is, by nature, inherently problematic due to errors in reporting and to changes in national standards of reporting requirements. Data can also be impacted by internal changes, such as when the Workers Compensation Division adopted the OSCAR (Online System for Claims Administration and Research/Regulation) digital management system in November 2018 that changed the way we receive, interpret, and store data. Structural changes present a challenge in analysis since it is important that the data reflect typical outcomes for the population or sample of interest (in this case, claims closing in 2018), rather than reflect the influence of the structural changes themselves.

For these reasons, the decision was made to evaluate a sample of claims, rather than the entire set of closed claims as had been done in previous years. Taking a random sample of available claims reduces the likelihood that a handful of atypical claims that have been impacted significantly by structural changes will have undue influence on the data patterns. Hopefully, by approaching our analysis in this way, real trends can emerge in comparisons of data over time, provided that the data collection and sampling methods are commensurate.

The data for the present study consist of a sample of 1000 claims taken from the set of all claims that closed in 2018 (the initial data set). Beginning with the initial data set (n = 5636), claims were removed if they did not meet a basic threshold for inclusion. Claims that did not have regular benefits reported on their Final (FN) summary EDI (Electronic Data Interchange) reports were excluded (115 claims),<sup>1</sup> as were all claims from a particular EDI trading partner who failed to report any medical payment information (82 claims). We also excluded claims with certain types of claimant information. These included one claim with a claimant whose age was reported as 220 years, and claims with claimants having an annual wage less than \$1500 (186 claims) or greater than \$250,000 (1 claim). Claims whose judicial outcomes could not be adequately tracked were also excluded from consideration (131 claims). These primarily consisted of claims that closed during November and December of 2018, during which the Division of Workers Compensation was transitioning to OSCAR.<sup>2</sup> Finally, an additional four closed claims were excluded because they were later denied by judicial determination, rendering reported payment information inaccurate. The sample size of 1000 was chosen for its ease in calculating descriptive statistics.

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<sup>1</sup> The failure to include summary indemnity payment information on an indemnity claim indicates a serious reporting error. Because of the complexity of EDI reporting requirements, it is possible for indemnity claims to be closed with information missing on the final report. Claims administrators use a variety of reporting tools, some of which do not automatically calculate benefit summary information on reports.

<sup>2</sup> The OSCAR (Online System for Claims Administration and Research/Regulation) system went live in November 2018.

## Appendix C: Sample Methodology

Further correlation and multiple regression analyses were conducted to examine the relationship between total claim cost and various predictors. The results of the analysis are shown in Table 1.2.<sup>3</sup> Claim duration (*log\_time*) is statistically significant and predicts that a 10% increase in claim duration will lead to an 8.5 % increase in total claim cost. The variable used to examine the nature of injury was not statistically significant. The annual wage of the claimant is statistically significant, but its effect on the total cost of a claim is practically insignificant. The dispute variable is statistically significant and its results are strong enough to warrant further study. It predicts that when a dispute is present, the mean of the total cost of a claim will increase by 116%--more than double what mean of claim costs would total when a dispute is not present.<sup>45</sup>

| <i>Predictors</i>                        | <i>Estimates</i> | <b>log cost</b> |          |
|--|------------------|-----------------|----------|
|  |                  | <i>CI</i>       | <i>p</i> |
| (Intercept)                              | 3.60             | 3.12 – 4.08     | <0.001   |
| <i>log_time</i>                          | 0.85             | 0.76 – 0.93     | <0.001   |
| <i>df\$NatureCode</i>                    | 0.00             | -0.00 – 0.01    | 0.254    |
| <i>df\$AnnualWage</i>                    | 0.00             | 0.00 – 0.00     | <0.001   |
| <i>df\$IsDispute</i>                     | 0.77             | 0.61 – 0.93     | <0.001   |
| Observations                             | 1000             |                 |          |
| R <sup>2</sup> / R <sup>2</sup> adjusted | 0.511 / 0.509    |                 |          |

**Table A.1** Results of Regression Analysis of Claim Costs

Although the analysis was able to identify claim duration and dispute as important factors contributing to the total cost of a claim, the model also shows that variability in duration and disputation explain only about 50 percent of the variability in claim cost. Even when additional factors are added to the model and are shown to be statistically significant, the model does not increase in explanatory power. This is largely due to factors that are difficult to measure such as accuracy of reporting and trading partner strategies for reporting and paying indemnity claims.

<sup>3</sup> Tests for collinearity resulted in *VIF* values of < 1.5 for each independent variable, indicating that collinearity was not a problem.

<sup>4</sup> The precise interpretation of the coefficient is  $(e^{0.77})-1=1.16$ .

<sup>5</sup> There exists bias when using exponential transformation to interpret coefficients of log-transformed data, but the statistical significance of the variable remains.