Cost Allocation Methods for Workers Compensation

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Abstract

With the recent growth of alternative risk financing for workers compensation, in retrospectively rated insurance programs, high deductible insurance programs, self-insurance trusts, captives, and other insurance programs, cost allocation methods for workers compensation funding is an increasingly important, if not overlooked, subject matter. This paper presents a cost allocation methodology for workers compensation, and will develop different approaches for allocation.

Due to the heightened awareness of workers compensation and safety during the past decade, many cost containment programs, legislation changes, and medical cost containment programs have been initiated. Workers compensation chargeback programs can be one important tool in the containment of workers compensation costs. Given this development, the allocation of those costs have become crucial management issues for business. The interaction of OSHA statistics and workers compensation losses will be discussed, as both sets of statistics are important in the management of workers compensation costs.

The benefit of this paper is to document different techniques for cost allocation, to show the pros and cons of the various methods, and to explore the ramifications for cost allocation upon loss control techniques.

Biography

George Levine is a senior consultant in the Hartford, Connecticut office of KPMG Peat Marwick, LLP. He holds a Bachelors of Science Degree in Economics from the Wharton School of the University of Pennsylvania, and a Masters in Business Administration from the University of Connecticut. George is a Fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries. He is a past member of the American Academy of Actuaries Committee on Property and Liability Issues, and currently serves on the Casualty Actuarial Society's Editorial Committee for the Proceedings. George has authored a discussion of a paper in the Casualty Actuarial Society Proceedings titled "An Analysis of Excess Loss Development" and participated in the 1985 Discussion Paper Program.

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1. Introduction

During the early 1990s, the cost of workers compensation became an important competitive issue to United States industry. Together with health insurance, the costs of workers compensation became a competitive millstone for many U.S. businesses. For example, it comprises upward of 20 percent of the total wage bill of Detroit auto makers, as opposed to 8 percent for their Japanese counterparts. The role of the actuary in assisting in the control of workers compensation costs became increasingly important, whether it was to price benefit changes, assist in the design of retrospective rating plans, price assigned risk plan charges, or in the allocation of costs. The downward trend of workers compensation costs during the last four years was aided by effective cost allocation plans. It is increasingly important for the actuary to understand cost allocation systems if the actuary is to remain a "player" in the arena of workers compensation.

In this paper, the methodology of one such plan will be outlined, which allocates costs for the prospective funding period to organizational units. The costs for the reserves (prior funding periods) will be discussed below, but these costs are not the focus of this paper. The technique will be critiqued, considering seven goals of an allocation system. Next, important features of a loss control plan will be presented, and the manner in which a cost allocation plan supports those desirable features will be supported. The rationale for

OSHA safety statistics, and how those statistics relate to workers compensation statistics will be presented. Finally, an allocation system to the "micro" level will be presented.

2. Purposes of an Allocation System

The Casualty Actuarial Society's Statement of Principles Regarding Property and Casualty Insurance Ratemaking provides four principles and eighteen considerations relating to ratemaking. For a cost allocation system for funding, many of these principles and considerations are important in any actuarial ratemaking methodology. According to Fritz[2], there are six uses of a cost allocation system which are listed below, accompanied by the relevant ratemaking consideration or principle from the Statement of Principles.

Uses of an Allocation System	Consideration or Principle
1. To distribute costs fairly	**No unfair discrimination**
2. To ensure each unit pays its own way	**Homogeneity**
3. To subsidize smaller units	**Individual Risk Rating**
4. To focus attention on loss control	None
5. To stabilize budgeting for units	**Credibility**
6. To provide a management tool	None

The absence of a ratemaking consideration or principle which matches with the use of an allocation system illustrates the historical lack of involvement for actuaries in the management of workers compensation. The statement of principles does suggest that the actuary has a key role in the interaction with other disciplines such as underwriting, marketing, law, claims, and finance. Management and loss control can be added to that list, as cost allocation can be a significant motivator to the management of workers compensation costs. For management, the setting and realization of annual cost goals can provide incentives to control costs. Sending messages regarding rewards and penalties can also be an important tool in workers compensation. It is the informed actuarial judgment, the eighteenth consideration in a ratemaking system, that is important in a cost allocation methodology.

Another consideration in selecting a cost allocation methodology is the match between the corporate structure and the projection methodology chosen. For example, a decentralized corporate structure, with each individual unit a profit center designed to stand on its own, might suggest a cost allocation scheme designed for more loss sensitivity. On the other hand, a centralized corporate structure might call for more smoothing of individual business units' loss experience, as there would not be a great need for differing funding by unit.

3. Projection Group Technique

The following system can be used to allocate costs on a "macro" level, i.e. to the larger organization units. First, the technique will be presented, and the manner in which the ratemaking considerations impact the technique will be discussed. Next, how closely the technique achieves the desirable features will be presented, along with the conflicts inherent in any allocation system.

Methodology Description

Exhibit 1 presents a projection group technique, which combines four business units into one projection group for funding purposes. This paper defines projection group as a group of data collected together solely for the purpose of developing a funding level. Certain actuarial characteristics such as homogeneity, suggested by the ratemaking principles discussed above, help determine the composition of such a group, made up of several business units. In addition, a business unit is defined as a unit in an organization which exists, such as a profit center or a major division.

The methodology can be described as a ratemaking methodology based on a five year weighted average by business unit, but with overall rates controlled by the combination into one projection group.

Each individual business unit's rates and funding are presented on Exhibit 1, Sheets 1 through 4. The following describes the procedure for the allocation method.

Step 1. Develop individual business unit data funding, no trend

The following is a brief description of the mechanics of determining the funding level for business unit one, Low Exposure Groups. Here, business units judged to perform low exposure labor, such as light manufacturing, are combined. The other business units funding levels are determined in a similar manner. In this example, funding is determined for **all** of the business units at a $500,000 retention level. Although retentions of $100,000, $50,000, $50,000 and $250,000 are used for business units 1 through 4, these are actuarial internal mechanisms to introduce stability for the units. Ultimately, all of the units are funded to a $500,000 level.

Business Unit 1, Exhibit 1, Sheet 1

(For the purposes of this paper, the term division and business unit are used interchangeably).

1. Exposure Unit

Column (2) shows the standard workers compensation exposure unit, payroll, for the past six years, gathered from internal data and insurance company/third party administrators (TPA) audits.

2. Exposure Index

Column (3) shows the exposure index to place payroll on current level for the past six years. The source for this information can be internal company wage rate records, or Standard Industry Code (SIC) wage rate records from the US Department of Labor.

3. Incurred Losses

Column (5) shows the incurred losses for the past six years. These incurred losses are unlimited.

4. Loss Development Factor

Column (6) displays the loss development factor, derived from historical or industry loss development. Loss development can be on any level, i.e. by business unit or larger unit. In this example, loss development has been accumulated and estimated by business unit, with loss development factors the same by business unit.

5. Benefit Level Factor

Column (7) displays the benefit level, derived from NCCI benefit level history by state within business unit. Because the state composition differs by business unit, the benefit level factors in this example differ by business unit.

6. Trend Factor

The trend factor, Column (8), can be derived from industry or projection group experience. The trend is derived after the business units have been combined into a projection group. For now, the trend is set equal to 1.000.

7. Adjusted Losses

Developed, on-benefit level, and trended losses (for now, trend equal to 1.000) are displayed in Column (9).

8. Losses in Excess of Division Retention

Individual losses which are developed, on-level, and trended in excess of the retention are shown in Column (10). Individual loss runs are necessary for this column. The limited losses are shown in Column (11), as column (9) minus column (10). Note that the division retention is $100,000.

Some actuaries may propose an alternative of limiting losses to retentions as a first step, with loss development and trend as subsequent steps. This would be appropriate, as long as any losses exceeding the retentions after application of excess development and trend

are deducted.

9. Limited Loss Rate

Column (11) divided by column (4) produce the limited loss rate, displayed in Column (12).

Step 2. Select Loss Trend Factor, for Projection Group

After similar data compilations for business groups 2 through 4, developed and on-benefit level losses and rates are developed and summed on the projection group page, Exhibit 2, Sheet 1, Column (12). A review of the loss rates show a 3% increasing trend; this trend can also be selected based on industry statistics. For workers compensation, a separation of this exhibit into indemnity and medical components might be an improvement. Once the trend is selected, the trend rates are selected for all other groups as well. For this exercise, it was determined that a common trend rate was appropriate for all the business units. Another possibility could be to select different trends for the divisions, and then summing in the overall projection group.

Step 3. Select Projection Group Loss Rate

On line (13), a selected projection group loss rate for all divisions has been selected as $32.00. It is through the projection group selected loss rate that the actuary exercises the

control over the funding level; the remaining steps are to allocate the loss funding level back to business unit. Once the individual units' losses are determined based on the five year weighted average basis and credibility weighted (discussed below), these losses are summed on line (16). The "balance" factor, or off-balance factor as used in some actuarial literature, is the selected projection group losses divided by the sum of the division losses, line (17). This balance factor is then applied to the individual business unit losses on line (20) of each business unit's sheet (discussed below) to sum to the desired funding level.

Step 4. Determine Loss Funding by Business Unit

The individual business units' trended losses and rates are shown on Exhibit 3. The following are the calculations to determine final funding by business unit, with the review of the exhibits' figures beginning from Line (13).

1. 5 Year Weighted Average Limited Loss Rate

The sum of Column (11) divided by column (4) for the past five years produces the 5 year weighted average limited loss rate, displayed in Line (13). Five years is used to introduce stability.

2. Increased Limits Factor to $500,000

The increased limits factor on line (14) is derived from NCCI Excess Loss Factors, or determined based on internal company studies. This brings the loss rate from a $100,000 to $500,000 level on line (15), through multiplying the limited loss rate on line (13).

3. Projected Group Loss Rate Limited to $500,000

Line (16) displays the selected Projected Group Loss Rate from Exhibit 3, Sheet 1. This is the expected loss rate to which the complement of the credibility weight, determined on line (17), will be applied.

4. Credibility Weight

Line (17) displays the credibility weight for the division, determined by the formula of [line (24)/$100,000]^.5, with line (24) representing projected payroll.

5. Credibility Weighted Loss Rate

Line (18) displays the credibility weighted loss rate for the division, determined by weighting the division loss rate by the credibility weight, and the complement of the credibility by the projection group loss rate.

6. Losses Before Balance Factor

The business unit's losses before the balance factor are displayed on Line (19), as the product of line (18) and the projected payroll, line (24).

7. Final Loss Rate

The business unit's final loss rate is determined on line (21) as the product of line (19) and the balance factor, line (20), as produced on the projection group's summary sheet, line (16).

8. Final Funding Determination

Lines (22) through (29) determine the funding levels after the actuarially determined loss rates of line (21). Note that the variable expense loading, for self-insurance fees, second-

injury fund charges, state taxes, assigned risk charges, boards and bureaus charges, and loss conversion fees, normally associated with retrospective rating plans, are shown on line (22). Fixed expenses and excess premiums, associated with claims handling fees, brokers fees, actuarial fees, and purchase insurance in excess of the $500,000 retention, are displayed on line (27).

Critique of the Methodology

According to Fritz, six desirable features of any allocation system are simplicity, fairness, flexibility, accurate and readily available data, mechanization, and loss sensitivity. Another issue is to what extent the ratemaking considerations from the Statement of Principles Regarding Property and Casualty Ratemaking are accommodated. The following assesses how the projection group methodology fares with those goals.

Simplicity

This methodology, although simple enough to apply with modern spreadsheet technology, is daunting to the non-actuarial world. To follow the numerous steps describe above is relatively time-consuming for the layperson. Most actuaries would find the methodology rather straightforward, especially when the assumptions are well documented.

Fairness

The methodology utilizes the own business unit's own experience to the extent possible through credibility considerations. Some might complain that other units' experience, if worse than that business unit's experience, unfairly influences the funding level. In that case, higher credibility could be allocated to a business unit's allocation; at the extreme, 100% credibility could be assigned and one could move away from the projection group methodology towards a division standing on its own. Changing the division's retention level could also be a method to introduce more sensitivity if desired, to get away from the use of the industry increased limits factors.

A commonly overlooked issue of fairness, which is discussed below in the "micro" allocation level, is the use of relatively "old" data. In the rapidly changing organizational structures of the modern organization, the retention of data five years mature for the assessment of divisional charges could be perceived as unfair. It is the use of this mature data in rapidly changing organizations, which although may be actuarially "sound", is fundamentally flawed, especially when used for performance measurement. Even data two years old can be viewed as stale. The lack of "real-time" data, combined with a changing organization, could be perceived as a significant flaw of this approach.

Flexibility

This approach is extremely flexible, with mechanization tools. Retention levels can be changed, credibility formulas may be adjusted, and groupings of business units' data within projection groups can be rearranged to reestimate funding levels. The use of a projection group allows the necessary actuarial control to be provided over the funding level.

Accurate and Readily Available Data

The use of many data base management systems allows for readily available data on a quarterly basis. The accuracy of the data is mostly in the control of the insurance company, insured, and third party administrator.

Mechanization

The system is mechanized easily through spreadsheets, and is determined after one or two iterations for trend. One might wish to save prior versions before trend selections are made for later review.

Loss Sensitivity

The approach under certain circumstances can be made to produce funding levels not sensitive to actual loss experience, as the loss limitations, credibility, and projection group approach can make any changes to the funding level based on loss differences practically imperceptible. For example, a low loss limitation, low credibility, and inclusion in a larger projection group can reduce sensitivity to loss experience. This insensitivity can be adjusted through the micro allocation methods described below.

Actuarial Ratemaking Considerations

From an actuarial perspective, the methodology accommodates many of the actuarial considerations from the Statement of Principles. The determination of the exposure unit, the data organization, homogeneity and credibility considerations, loss development and trends, catastrophe considerations, individual risk rating, investment and other income, and actuarial judgment are ten considerations well accounted for in this methodology. Additional considerations to risk, and operational changes by business unit are opportunities for improvement for the methodology.

4. Workers Compensation Chargeback System

Although a cost allocation system for workers compensation can be actuarially sound, from a loss control perspective it can be rather ineffective. The use of mature data can be considered a good predictor of future costs, but irrelevant to the rapidly changing modern organization. For that reason, a more real-time allocation system can be employed, to implement a system more weighted to current data. Many of the data base management systems developed by the insurance industry can be used to extract the data. The cost allocation system proposed here would be to take the cost allocation on a business unit level, and develop a system to allocate those costs on a "micro", or more detailed level. Exhibits 1 through 3 from above define annual funding for a major business unit. Below, funding on a more timely basis, by month, to a lower level is described, which is defined here as a chargeback system. Both the projection group approach and the chargeback system are prospective methods, although the base periods will be different as shown below. The following describes the chargeback system approach; first, a brief description of OSHA statistics is provided to demonstrate how this approach relates to the OSHA statistics.

OSHA Incidence and Severity Rates

The US Bureau of Labor Statistics publishes statistics on occupational injuries and illnesses. Two common OSHA statistics are incidence rates and severity rates. An incidence rate is defined as the number of injuries and illnesses per 100 full-time workers, and is calculated as:

(N/EH) x 200,000, where

N=	Number of injuries and illnesses
EH=	Total hours worked by all employees during the calendar year
200,000=	Base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

A severity rate is defined as the number of days away from work per 100 full-time workers, similarly as follows:

(S/EH) x 200,000, where

S=	Number of days away from work
EH=	Total hours worked by all employees during the calendar year
200,000=	Base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

These two statistics seem to correspond to the frequency and severity statistics of insurance companies. The two important differences are that the severity statistic for OSHA lacks financial figures, and often indicates different trends from insurance industry information. Additionally, these statistics are published annually by the Bureau of Labor Statistics, but most companies publish them internally monthly to be made available for senior management review. It should be noted there are often differences between insurance industry and OSHA claim definitions. However, these statistics are publicly available and are important benchmarking statistics for many organizations. The IBNR nature of claims is also not available for these statistics; these injuries are simply recorded as they are reported. A detailed explanation of the OSHA statistics is provided in the Appendix.

Workers Compensation Chargeback System

Due to the rapidly available OSHA statistics, it is important to develop a system to allocate costs to a more microcosmic level on a timely basis. Here, the annual funding is "charged back" to very fine business units, which are called "site codes", on a monthly basis. One could simply allocate a fixed cost (1/12 of the annual cost) each month, but incentives to understand or manage losses might be lost. For this example, the objective is to allocate the annual $527,140 business unit 4 charge to the two "site codes" which comprise the business unit, for a monthly charge. In many organizations, responsibility

levels are much smaller than the business unit levels described here for financial purposes.

The methodology illustrated on Exhibit 4 is to compute a rolling calendar year average of workers compensation losses and lost-time injury counts to allocate the costs to a lower level. Its advantages are the responsiveness of the charges to actual experience, its simplicity, and the flexibility within the organization. New site codes could easily be accommodated. In this example, a six-month rolling average is utilized. This system is significantly skewed towards a reward/penalty type experience rating approach; it is conceivable that a smaller unit could be allocated all costs, if no other unit incurred losses over a time period. It fits well with the overall actuarial goal, where the costs have been determined on a basis accommodating actuarial principles. With a modern risk management data base system, this method can be easily adapted. The methodology does not meet many of the actuarial considerations from the ratemaking principles, such as homogeneity and credibility, and could be judged as unfair and too sensitive to large losses.

It should be noted that the author was part of a cross-functional team of cost accountants, plant managers, risk managers, and health and safety professionals which designed this chargeback system. The team debated whether OSHA statistics should be included as part of the chargeback system; however, the final conclusion was that OSHA statistics were only an indirect measure of workers compensation costs.

5. Conclusion

This paper has demonstrated a sound actuarial methodology to allocate costs within an organization on both macro and micro levels. The approach has the advantage to be actuarially sound, while accommodating loss control and other organizational goals. This area can be researched further in the future, to provide other areas where actuaries can apply expertise in growing areas.

Additional research into areas such as allocation of expenses, large loss capacity by division and in total, and credibility are suggested by the projection group methodology.

Bibliography

[1] Angelina, Michael E. "Allocating Risk Financing Costs", Casualty Loss Reserve Seminar, September 19, 1995.

[2] Fritz, Carol. "Allocating Risk Financing Costs", Casualty Loss Reserve Seminar, September 19, 1995.

[3] Senge, Peter M. The Fifth Discipline: The Art & Practice of The Learning Organization. Currency Doubleday, 1990, New York, p. 326.

Appendix

OSHA Statistics

A statistical tool which can be used to verify the injury/illness trends for the costs allocation are OSHA statistics. By law, Occupational Safety and Health Act of 1970, American industrial and commercial facilities are required to keep statistics regarding the number of occupational injuries and illnesses. There are some recordkeeping exemptions for small employers and certain type of defined commercial establishments but suffice to say that the vast majority of locations keep the OSHA/Bureau of Labor Statistics (BLS) injury/illness records.

There are specific definitions and instructions regarding the recordkeeping requirements and it is not the intent of this paper to make readers experts in recording occupational injuries and illness. There are however several basic concepts that may help in the analysis of the loss prevention programs and the impact of such programs on the number and severity of occupational injuries.

The OSHA recordkeeping requirements require occupational illnesses be recorded or "logged" into the OSHA records or "log" at the facility. In addition, a separate, more detailed document regarding the illness is also required. This second document is essentially the same document used to initiate a workers' compensation claim.

Occupational injuries are handled differently in that the relative severity of the injury has to be considered before the injury is recorded. To be a recordable injury, the injury has to require more than first aid treatment. Any injuries resulting in loss of consciousness, job change or job restrictions or days away from work are recorded. OSHA does not address who provides the treatment but rather the type of treatment provided. In workers' compensation data bases the fact that treatment is provided by an in plant EMT rather than a hospital emergency room is important as one generates a cost and subsequent file and one does not. The same issue does not apply in the OSHA recordkeeping decision model as the issue is what type of treatment is provided, not where and/or by whom. As with the occupational illness cases, the injuries are recorded or "logged" with more detailed information recorded on a separate form. In many jurisdictions the separate form used to record additional data regarding the injury is the same form used to report a workers' compensation claim.

OSHA frequency rates are based on the number of cases recorded. Comparison with workers' compensation frequency data can be made. However, some caution has to be taken as the definitions in different jurisdictions determine what type injuries or illnesses are considered job related for workers' compensation benefits. Examples where there are major differences include sports injuries; they typically not recordable under OSHA requirements but in some jurisdictions may be compensable under workers

compensation; parking lot injuries (may not be recordable under OSHA/BLS guidelines, may be compensable under workers' compensation statutes), hearing loss (extent and whether active retired employee may affect recording outcome) and even some occupational illnesses which may not be recognized in certain jurisdictions as an occupational disease for workers' compensation benefits.

While frequency comparisons may not produce a one to one relationship, they can produce some comparative trend illnesses assuming the number of cases is large enough to make such comparisons effective and differences based on definitions are understood and considered in the analysis. Not every case which results in a workers' compensation claim will be recorded as an OSHA injury and the likewise not every OSHA recordable case will be a workers' compensation case. Loss prevention and loss control programs that reduce the workers' compensation costs should also have a positive impact on the OSHA rates.

OSHA measures severity in terms of the number of days the employee is away from work or the number of days the employee is restricted. While there may be some correlation with severity measurement based on dollars, the definitions in the various jurisdictions have to be considered in any comparisons. An example is scarring awards. One jurisdiction had a scarring award which paid out indemnity benefits for injuries which often were treated in in-plant clinics and may not have been OSHA recordable. If they

were recordable under the OSHA recordkeeping system they did not result in lost time or restrictions and would not be considered severe but would result indemnity payments which would make it a more severe case in the traditional workers' compensation statistics.

The number of cases and number of days are then used to generate rates which facilitate comparisons, either internal and/or external. The key indices include the Total Recordable Rate, the Days Away From Work Incidence Rate, the Lost Workday Incidence Rate, the Days Away From Work Severity Rate and the Lost Workdays Severity Rate; the rates are calculated as follows:

(N/EH) * 200,000 = Rate where EH equals the actual hours worked

If N is the total number of injuries and illness, the rate is the Total Recordable Incidence Rate (TRIR)

If N is the number of cases resulting in Days Away From Work, the rate is the Days Away From Work Incidence Rate (DAFWIR)

If N is the number of cases resulting in days away from work and/or days with restricted work, the rate is the Lost Workday Incidence Rate (LDIR)

If N is the number of total number of days employees lose as the result of occupational injuries and illnesses, the rate is the Days Away From Work Severity Rate (DAFWSR)

If N is the number of days employees are away from work and/or prevented from performing all of their regular work, the rate is the Lost Workday Severity Rate (LDSR)

The 200,000 is used in the calculation to normalize the rates to 100 employees. The 200,000 is based on 100 employees working 40 hours a week for 50 weeks of the year.

A representative number of employees annually submit their safety performance statistics to BLS where rates based on SIC (Standard Industrial Classification) Codes are published. The rates enable comparisons with other similar industries based on the SIC. In addition the BLS data enables comparisons with facilities of various sizes. In addition BLS publishes information regarding quartile performance so that comparisons can be made with other facilities/companies with the same SIC code.

In many companies the safety statistics are tracked with workers' compensation data. Over time comparisons can be established; however, because of difference in definitions and interpretations in the various jurisdictions make one on one trending difficult. Suffice to say that trends in reducing the frequency and severity of occupational injuries and illnesses using the OSHA definition should also result in measurable reduction in the workers' compensation costs. Indeed OSHA recognizes this relationship and uses state workers' compensation data to focus their inspection activities as they believe that those

employers/facilities with the highest number of workers' compensation claims are the same employers with deficient safety and health programs.

Use of the OSHA injury and illness rates may provide another tool for evaluating the effectiveness of loss prevention and loss control programs and as a means of allocating costs provided the user understands the similarities and differences which are inherent to comparisons involving workers' compensation claim data and OSHA incident data.

Exhibit 1
Sheet 1

Funding for Fund Year 7/95-96
Division 1 Funding Development

11/09/95

Projection Group: 1
Division Name: Business Unit 1
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $100,000 (10)	$100,000 Limited Adjusted Losses & Expenses (11)	$100,000 Limited Loss & Expense Rate (12)
7/88	29,547	1.223	36,136	442648	1.188	0.960	1.000	505,015	114,502	390,513	10.81
7/89	30,055	1.186	35,645	449763	1.227	0.959	1.000	529,205	84,731	444,474	12.47
7/90	33,275	1.137	37,834	599309	1.168	0.958	1.000	670,278	14,926	655,352	17.32
7/91	43,000	1.101	47,343	563439	1.333	0.955	1.000	717,116	110,003	607,113	12.82
7/92	53,000	1.068	56,604	831382	1.711	0.965	1.000	1,372,138	35,335	1,336,803	23.62
7/93	63,000	1.045	65,835	679250	2.270	0.997	1.000	1,537,503	0	1,537,503	23.35
Total	251,877		279,397	3,565,791				5,331,258	359,499	4,971,758	17.79

(13)	5 Year Weighted Avg Limited Loss Rate:	18.83
(14)	Increased Limits Factor to $500,000:	1.150
(15)	Divisional Loss Rate at $500,000:	21.66
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.806
(18)	Credibility Weighted Loss Rate:	23.66
(19)	Losses Before Balance Factor	1,538,006
(20)	Balance Factor:	1.156
(21)	7/95 Loss Rate:	27.35
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	29.234
(24)	7/95 Projected Exposures:	65,000
(25)	7/95 Losses & Variable Expenses:	1,900,185
(26)	7/95 Discounted Losses & Var Expenses:	1,393,976
(27)	7/95 Fixed Expenses & Excess Premiums:	170,151
(28)	7/95 Total Undiscounted Accrual:	2,070,336
(29)	7/95 Total Discounted Accrual:	1,564,127

Exhibit 1
Sheet 2

Funding for Fund Year 7/95-96 — 11/09/95

Projection Group: 1
Division Name: Business Unit 2
Exposure Base: Payroll (000s)

Division 2 Funding Development

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $50,000 (10)	$50,000 Limited Adjusted Losses & Expenses (11)	$50,000 Limited Loss & Expense Rate (12)
7/88	4,464	1.223	5,459	375040	1.077	1.180	1.000	476,543	32,592	443,951	81.32
7/89	5,358	1.186	6,355	291568	1.122	1.115	1.000	364,826	50,100	314,725	49.53
7/90	4,513	1.137	5,131	512128	1.191	1.098	1.000	669,963	113,524	556,439	108.44
7/91	5,000	1.101	5,505	300807	1.301	1.087	1.000	425,476	6,578	418,898	76.09
7/92	8,038	1.068	8,585	318074	1.492	1.065	1.000	505,413	21,504	483,909	56.37
7/93	6,773	1.045	7,078	137217	1.801	1.047	1.000	258,792	0	258,792	36.56
Total	34,146		38,113	1,934,834				2,701,012	224,299	2,476,714	64.98

(13)	5 Year Weighted Avg Limited Loss Rate:	62.25
(14)	Increased Limits Factor to $500,000:	1.200
(15)	Divisional Loss Rate at $500,000:	74.70
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.265
(18)	Credibility Weighted Loss Rate:	43.30
(19)	Losses Before Balance Factor	303,088
(20)	Balance Factor:	1.156
(21)	7/95 Loss Rate:	50.042
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	53.494
(24)	7/95 Projected Exposures:	7,000
(25)	7/95 Losses & Variable Expenses:	374,461
(26)	7/95 Discounted Losses & Var Expenses:	274,705
(27)	7/95 Fixed Expenses & Excess Premiums:	143,122
(28)	7/95 Total Undiscounted Accrual:	517,583
(29)	7/95 Total Discounted Accrual:	417,827

Exhibit 1
Sheet 3

Funding for Fund Year 7/95-96 — 11/09/95
Division 3 Funding Development

Projection Group: 1
Division Name: Business Unit 3
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $50,000 (10)	$50,000 Limited Adjusted Losses & Expenses (11)	$50,000 Limited Loss & Expense Rate (12)
7/88	12,963	1.223	15,854	180075	1.077	1.042	1.000	202,086	0	202,086	12.75
7/89	15,938	1.186	18,902	255691	1.122	1.084	1.000	310,984	31,191	279,793	14.80
7/90	20,677	1.137	23,510	150669	1.191	1.067	1.000	191,470	56,442	135,028	5.74
7/91	14,236	1.101	15,674	92276	1.301	1.054	1.000	126,534	0	126,534	8.07
7/92	18,571	1.068	19,834	132779	1.492	1.045	1.000	207,021	15,920	191,101	9.64
7/93	14,611	1.045	15,268	180532	1.801	1.036	1.000	336,843	37,069	299,774	19.63
Total	96,996		109,042	992,022				1,374,938	140,622	1,234,315	11.32

(13)	5 Year Weighted Avg Limited Loss Rate:	11.08
(14)	Increased Limits Factor to $500,000:	1.200
(15)	Divisional Loss Rate at $500,000:	13.29
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.434
(18)	Credibility Weighted Loss Rate:	23.88
(19)	Losses Before Balance Factor	450,095
(20)	Balance Factor:	1.156
(21)	7/95 Loss Rate:	27.596
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	29.501
(24)	7/95 Projected Exposures:	18,850
(25)	7/95 Losses & Variable Expenses:	556,085
(26)	7/95 Discounted Losses & Var Expenses:	407,944
(27)	7/95 Fixed Expenses & Excess Premiums:	66,052
(28)	7/95 Total Undiscounted Accrual:	622,137
(29)	7/95 Total Discounted Accrual:	473,996

Exhibit 1
Sheet 4

Funding for Fund Year 7/95-96
Division 4 Funding Development

11/09/95

Projection Group: 1
Division Name: Business Unit 4
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $250,000 (10)	$250,000 Limited Adjusted Losses & Expenses (11)	$250,000 Limited Loss & Expense Rate (12)
7/88	6,245	1.223	7,638	389479	1.077	1.226	1.000	514,269	99,907	414,362	54.25
7/89	7,967	1.186	9,449	506020	1.122	1.137	1.000	645,537	0	645,537	68.32
7/90	8,827	1.137	10,036	757448	1.191	1.117	1.000	1,007,669	182,363	825,306	82.23
7/91	8,887	1.101	7,583	538425	1.301	1.105	1.000	774,042	87,837	686,205	90.50
7/92	9,504	1.068	10,150	433598	1.492	1.079	1.000	698,036	47,826	650,210	64.06
7/93	7,306	1.045	7,635	510875	1.801	1.058	1.000	973,451	416,910	556,541	72.90
Total	46,736		52,490	3,135,845				4,613,003	834,842	3,778,161	71.98

(13)	5 Year Weighted Avg Limited Loss Rate:	75.00
(14)	Increased Limits Factor to $500,000:	1.025
(15)	Divisional Loss Rate at $500,000:	76.87
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.434
(18)	Credibility Weighted Loss Rate:	51.48
(19)	Losses Before Balance Factor	485,214
(20)	Balance Factor:	1.156
(21)	7/95 Loss Rate:	59.499
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	63.605
(24)	7/95 Projected Exposures:	9,425
(25)	7/95 Losses & Variable Expenses:	599,475
(26)	7/95 Discounted Losses & Var Expenses:	439,775
(27)	7/95 Fixed Expenses & Excess Premiums:	78,604
(28)	7/95 Total Undiscounted Accrual:	678,079
(29)	7/95 Total Discounted Accrual:	518,379

Exhibit 2
Sheet 1

Funding for Fund Year 7/95-96 — 11/09/95

Projection Group: 1
Projection Group Funding Development

Type of Exposure: Low Exposure Groups
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $500,000 (10)	$500,000 Limited Adjusted Losses & Expenses (11)	$500,000 Limited Loss & Expense Rate (12)
7/88	*53,219*	*1.174*	*65,087*	*1,387,242*	*1.176*	*1.045*	*1.000*	*1,697,913*	0	1,697,913	26.09
7/89	*59,318*	*1.153*	*70,351*	*1,503,042*	*1.212*	*1.024*	*1.000*	*1,850,552*	0	1,850,552	26.30
7/90	*67,292*	*1.131*	*76,511*	*2,019,554*	*1.214*	*1.015*	*1.000*	*2,539,380*	0	2,539,380	33.19
7/91	*69,123*	*1.098*	*76,104*	*1,494,947*	*1.322*	*1.007*	*1.000*	*2,043,168*	0	2,043,168	26.85
7/92	*89,113*	*1.071*	*95,173*	*1,715,833*	*1.555*	*1.024*	*1.000*	*2,782,608*	0	2,782,608	29.24
7/93	*91,690*	*1.045*	*95,816*	*1,507,874*	*1.689*	*1.015*	*1.000*	*3,106,589*	166,910	2,939,679	30.68
Total	429,755		479,042	9,628,492				14,020,210	166,910	13,853,299	28.92

(2) Payroll from Company records
(3) On-Level Exposure Factors from Standard Industry Code (SIC) Information
(4) (2)x(3)
(5) From 3rd party adminstrator
(6) Loss Development Factor from development history
(7) Weighted average of trend factors
(8) From Trend Study by Projection Group
(9) Weighted average of benefit factors

(13)	Selected Projection Group Loss Rate	32.00
(14)	Total Exposures for all Divisions	*100,275*
(15)	Total Losses for All Divisions, Projection Group	*3,208,800*
(16)	Total Losses for All Divisions, Division Formula	*2,776,403*
(17)	Balance Factor	*1.156*

Exhibit 2
Sheet 2

Funding for Fund Year 7/95-96 11/09/95
Projection Group Funding Development

Projection Group: 1
Type of Exposure: Low Exposure Groups
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $500,000 (10)	$500,000 Limited Adjusted Losses & Expenses (11)	$500,000 Limited Loss & Expense Rate (12)
7/88	53,219	1.174	65,087	1,387,242	1.176	1.045	1.230	2,088,219	0	2,088,219	32.08
7/89	59,318	1.153	70,351	1,503,042	1.212	1.024	1.194	2,209,655	0	2,209,655	31.41
7/90	67,292	1.131	76,511	2,019,554	1.214	1.015	1.159	2,943,837	0	2,943,837	38.48
7/91	69,123	1.098	76,104	1,494,947	1.322	1.007	1.126	2,299,604	0	2,299,604	30.22
7/92	89,113	1.071	95,173	1,715,833	1.555	1.024	1.093	3,040,631	0	3,040,631	31.95
7/93	91,690	1.045	95,816	1,507,874	1.689	1.015	1.061	3,295,781	207,525	3,088,255	32.23
Total	429,755		479,042	9,628,492				15,877,726	207,525	15,670,201	32.71

(2) Payroll from Company records
(3) On-Level Exposure Factors from Standard Industry Code (SIC) Information
(4) (2)x(3)
(5) From 3rd party adminstrator
(6) Loss Development Factor from development history
(7) Weighted average of trend factors
(8) From Trend Study by Projection Group
(9) Weighted average of benefit factors

(13)	Selected Projection Group Loss Rate	32.00
(14)	Total Exposures for all Divisions	100,275
(15)	Total Losses for All Divisions, Projection Group	3,208,800
(16)	Total Losses for All Divisions, Division Formula	2,988,122
(17)	Balance Factor	1.074

Exhibit 3
Sheet 1

Funding for Fund Year 7/95-96
Division 1 Funding Development

11/09/95

Projection Group: 1
Division Name: Business Unit 1
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $100,000 (10)	$100,000 Limited Adjusted Losses & Expenses (11)	$100,000 Limited Loss & Expense Rate (12)
7/88	29,547	1.223	36,136	442648	1.188	0.960	1.230	621,105	114,502	506,603	14.02
7/89	30,055	1.186	35,645	449763	1.227	0.959	1.194	631,899	84,731	547,168	15.35
7/90	33,275	1.137	37,834	599309	1.168	0.958	1.159	777,036	14,926	762,110	20.14
7/91	43,000	1.101	47,343	563439	1.333	0.955	1.126	807,120	110,003	697,117	14.72
7/92	53,000	1.068	56,604	831382	1.711	0.965	1.093	1,499,373	35,335	1,464,037	25.86
7/93	63,000	1.045	65,835	679250	2.270	0.997	1.061	1,631,137	0	1,631,137	24.78
Total	251,877		279,397	3,565,791				5,967,870	359,499	5,608,172	20.07

(13)	5 Year Weighted Avg Limited Loss Rate:	20.97
(14)	Increased Limits Factor to $500,000:	1.150
(15)	Divisional Loss Rate at $500,000:	24.12
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.806
(18)	Credibility Weighted Loss Rate:	25.64
(19)	Losses Before Balance Factor	1,666,911
(20)	Balance Factor:	1.074
(21)	7/95 Loss Rate:	27.54
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	29.439
(24)	7/95 Projected Exposures:	65,000
(25)	7/95 Losses & Variable Expenses:	1,913,526
(26)	7/95 Discounted Losses & Var Expenses:	1,403,763
(27)	7/95 Fixed Expenses & Excess Premiums:	170,151
(28)	7/95 Total Undiscounted Accrual:	2,083,677
(29)	7/95 Total Discounted Accrual:	1,573,914

Exhibit 3
Sheet 2

Funding for Fund Year 7/95-96
Division 2 Funding Development

11/09/95

Projection Group: 1
Division Name: Business Unit 2
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $50,000 (10)	$50,000 Limited Adjusted Losses & Expenses (11)	$50,000 Limited Loss & Expense Rate (12)
7/88	4,464	1.223	5,459	375040	1.077	1.180	1.230	586,087	32,592	553,495	101.38
7/89	5,358	1.186	6,355	291568	1.122	1.115	1.194	435,621	50,100	385,521	60.67
7/90	4,513	1.137	5,131	512128	1.191	1.098	1.159	776,671	113,524	663,146	129.24
7/91	5,000	1.101	5,505	300807	1.301	1.087	1.126	478,877	6,578	472,299	85.79
7/92	8,038	1.068	8,585	318074	1.492	1.065	1.093	552,279	21,504	530,775	61.83
7/93	6,773	1.045	7,078	137217	1.801	1.047	1.061	274,553	0	274,553	38.79
Total	34,146		38,113	1,934,834				3,104,087	224,299	2,879,788	75.56

(13)	5 Year Weighted Avg Limited Loss Rate:	71.24
(14)	Increased Limits Factor to $500,000:	1.200
(15)	Divisional Loss Rate at $500,000:	85.49
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.265
(18)	Credibility Weighted Loss Rate:	46.15
(19)	Losses Before Balance Factor	323,066
(20)	Balance Factor:	1.074
(21)	7/95 Loss Rate:	49.561
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	52.980
(24)	7/95 Projected Exposures:	7,000
(25)	7/95 Losses & Variable Expenses:	370,863
(26)	7/95 Discounted Losses & Var Expenses:	272,065
(27)	7/95 Fixed Expenses & Excess Premiums:	143,122
(28)	7/95 Total Undiscounted Accrual:	513,985
(29)	7/95 Total Discounted Accrual:	415,187

Exhibit 3
Sheet 3

Funding for Fund Year 7/95-96 — 11/09/95

Projection Group: 1
Division Name: Business Unit 3
Exposure Base: Payroll (000s)
Division 3 Funding Development

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $50,000 (10)	$50,000 Limited Adjusted Losses & Expenses (11)	$50,000 Limited Loss & Expense Rate (12)
7/88	12,963	1.223	15,854	180075	1.077	1.042	1.230	248,541	0	248,541	15.68
7/89	15,938	1.186	18,902	255691	1.122	1.084	1.194	371,331	31,191	340,140	17.99
7/90	20,677	1.137	23,510	150669	1.191	1.067	1.159	221,966	56,442	165,524	7.04
7/91	14,236	1.101	15,674	92276	1.301	1.054	1.126	142,415	0	142,415	9.09
7/92	18,571	1.068	19,834	132779	1.492	1.045	1.093	226,217	15,920	210,297	10.60
7/93	14,611	1.045	15,268	180532	1.801	1.036	1.061	357,357	37,069	320,288	20.98
Total	96,996		109,042	992,022				1,567,827	140,622	1,427,204	13.09

(13)	5 Year Weighted Avg Limited Loss Rate:	12.65
(14)	Increased Limits Factor to $500,000.	1.200
(15)	Divisional Loss Rate at $500,000:	15.18
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.434
(18)	Credibility Weighted Loss Rate:	24.70
(19)	Losses Before Balance Factor	465,527
(20)	Balance Factor:	1.074
(21)	7/95 Loss Rate:	26.520
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	28.350
(24)	7/95 Projected Exposures:	18,850
(25)	7/95 Losses & Variable Expenses:	534,400
(26)	7/95 Discounted Losses & Var Expenses:	392,036
(27)	7/95 Fixed Expenses & Excess Premiums:	66,052
(28)	7/95 Total Undiscounted Accrual:	600,452
(29)	7/95 Total Discounted Accrual:	458,088

Exhibit 3
Sheet 4

Funding for Fund Year 7/95-96
Division 4 Funding Development

11/09/95

Projection Group: 1
Division Name: Business Unit 4
Exposure Base: Payroll (000s)

Policy Year Beginning (1)	Exposure (2)	Exposure Index (3)	Adjusted Exposure (4)	Incurred Losses (5)	Loss Development Factor (6)	Benefit Level Factor (7)	Loss Trend (8)	Adjusted Losses (9)	Losses & Expenses Excess of $250,000 (10)	$250,000 Limited Adjusted Losses & Expenses (11)	$250,000 Limited Loss & Expense Rate (12)
7/88	6,245	1.223	7,638	389479	1.077	1.226	1.230	632,486	99,907	532,579	69.73
7/89	7,967	1.186	9,449	506020	1.122	1.137	1.194	770,805	0	770,805	81.58
7/90	8,827	1.137	10,036	757448	1.191	1.117	1.159	1,168,164	182,363	985,801	98.22
7/91	6,887	1.101	7,583	538425	1.301	1.105	1.126	871,192	87,837	783,354	103.31
7/92	9,504	1.068	10,150	433598	1.492	1.079	1.093	762,762	47,826	714,937	70.44
7/93	7,306	1.045	7,635	510875	1.801	1.058	1.061	1,032,734	416,910	615,824	80.66
Total	46,736		52,490	3,135,845				5,238,143	834,842	4,403,300	83.89

(13)	5 Year Weighted Avg Limited Loss Rate:	86.30
(14)	Increased Limits Factor to $500,000:	1.025
(15)	Divisional Loss Rate at $500,000:	88.46
(16)	Proj Group Loss Rate Limited to $500,000:	32.000
(17)	Credibility Weight:	0.434
(18)	Credibility Weighted Loss Rate:	56.51
(19)	Losses Before Balance Factor	532,618
(20)	Balance Factor:	1.074
(21)	7/95 Loss Rate:	60.685
(22)	7/95 Variable Expense Factor:	1.069
(23)	7/95 Accrual Rate:	64.872
(24)	7/95 Projected Exposures:	9,425
(25)	7/95 Losses & Variable Expenses:	611,417
(26)	7/95 Discounted Losses & Var Expenses:	448,536
(27)	7/95 Fixed Expenses & Excess Premiums:	78,604
(28)	7/95 Total Undiscounted Accrual:	690,021
(29)	7/95 Total Discounted Accrual:	527,140

11/9/95

Exhibit 4

Workers Compensation Chargeback Business Unit 4

Chargeback of : 43,928 (Monthly)
527,140 (Yearly)

Rolling Six Month Average Ending	Site Code 1 Incurred Losses	# of Lost-Time Claims	Losses Weight	# of Lost-Time Claims Weight	50/50 Weight	Chargeback	Site Code 2 Incurred Losses	# of Lost-Time Claims	Losses Weight	# of Lost-Time Claims Weight	50/50 Weight	Chargeback	Total Division Chargeback
Jul-95	81,670	5	0.657	0.396	0.526	23,115	42,684	8	0.343	0.604	0.474	20,814	43,928
Aug-95	69,480	2	0.650	0.284	0.467	20,517	37,361	6	0.350	0.716	0.533	23,412	43,928
Sep-95	38,427	5	0.628	0.348	0.488	21,436	21,568	9	0.372	0.652	0.512	22,492	43,928
Oct-95	30,864	2	0.551	0.210	0.381	16,715	25,110	7	0.449	0.790	0.619	27,213	43,928
Nov-95	65,127	1	0.738	0.140	0.439	19,286	23,104	5	0.262	0.860	0.561	24,642	43,928
Dec-95	76,137	1	0.565	0.267	0.416	18,261	58,711	3	0.435	0.733	0.584	25,667	43,928
Jan-96	69,477	3	0.635	0.236	0.437	19,185	51,322	9	0.365	0.762	0.563	24,743	43,928
Feb-96	93,602	4	0.963	0.452	0.707	31,069	3,618	5	0.037	0.548	0.293	12,859	43,928
Mar-96	18,967	4	0.329	0.768	0.548	24,090	38,691	1	0.671	0.232	0.452	19,838	43,928
Apr-96	34,375	5	0.269	0.572	0.421	18,490	93,241	3	0.731	0.428	0.579	25,439	43,928
May-96	76,378	0	0.809	0.030	0.419	18,412	18,071	9	0.191	0.970	0.581	25,516	43,928
Jun-96	36,081	5	0.294	0.398	0.346	15,188	86,651	7	0.708	0.602	0.654	28,740	43,928
													527,140