CHOICE NO-FAULT, ACTUARIAL COSTING METHODS

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Abstract

Choice no-fault plans are popular options with state legislatures considering reforms to the private passenger automobile insurance system. Such plans offer the insured an opportunity to choose the level of coverage needed not only for first party injuries, but also for third party liability. Such plans are generally part of broader reform measures, which often include medical fee schedules, utilization or peer review of medical costs, anti-fraud provisions, limitations on the right of recovery under tort for drivers without financial responsibility and optional residual liability coverage. This paper will focus on the issues and mechanics involved in deriving reasonable cost estimates for choice no-fault plans and other such reform measures, and describe considerations the actuary should address in such costing exercises.

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BACKGROUND

The affordability of private passenger automobile insurance premiums has been of concern to consumers and regulators alike for many years. In the early 1970's, tort reform plans such as no-fault were proposed as a method for providing comparable benefits to the insured public at a lower cost. The relative success and/or failure of no-fault statutes enacted in that decade and subsequent years is now and again the subject of debate. Consequently, a new variation on the no-fault model has been proposed in several jurisdictions in the early 1990's, namely a choice no-fault plan.

A theoretical choice no-fault plan was first proposed by Professor Jeffrey O'Connell of the University of Virginia Law School. Hybrids of his model are often referred to as "O'Connell Plans." The thrust of a choice no-fault plan is allowing the consumer to choose between two mechanisms for the compensation of injuries sustained in an automobile accident, tort versus no-fault. In a choice no-fault environment, a consumer choosing the no-fault option gives up the right to sue others for injuries sustained in exchange for restrictions on being sued by others. The choice occurs at the time of selecting coverage and applies throughout the policy term. Once an

accident occurs, the choice made at time of application (or renewal) governs the manner in which injuries may be compensated. Typically, the same coverage choice must apply to all vehicles in a household.

Under a choice no-fault plan, the driver that has selected the tort option has full tort rights against other tort electors, but may be restricted from suing no-fault electors. One variation of choice no-fault plans precludes a tort elector from suing no-fault electors, and is referred to as "pure" choice no-fault. In such instances, what remedy does the tort driver have? Typically, the plan will allow recovery of noneconomic losses, but only under the context of a first party "connector" coverage, which behaves like an extension of the uninsured motor vehicle coverage. Another variation of choice no-fault plans puts no restrictions on a tort elector's ability to sue no-fault electors. Typically, a risk exchange mechanism is proposed to equitably allocate premiums among insurers with disproportionate shares of no-fault versus tort electors.

Choice no-fault plans currently exist in the states of New Jersey, Pennsylvania and Kentucky. The Kentucky plan is the oldest. Since more than 99% of insureds have the no-fault option, however, Kentucky does not provide a good model for studying the cost impact of choice no-fault retrospectively. Both New Jersey and Kentucky have risk exchange mechanisms that allow for the redistribution of premiums to insurers with higher proportions of no-fault electors compared with industry averages.

The Pennsylvania choice no-fault statute (Act 6) has neither a connector coverage nor a risk exchange mechanism. As a result, companies with a disproportionate share of no-fault electors are at a financial disadvantage. No-fault electors are given rate reductions for choosing the no-fault coverage, however the company's exposure has not been reduced accordingly, since no-fault electors can still be sued in tort. The self-imposed restriction on suing for recovery of noneconomic losses by no-fault electors serves to lower the costs for insurers with higher relative proportions of tort electors.

The no-fault choice typically involves minimum first party personal injury protection (PIP) coverage for medical, wage loss, funeral and essential services for the named insured and all household residents. The bulk of the current costs for both bodily injury liability (BI) and uninsured motorist (UM) under a tort environment are shifted to the PIP coverage. Cost savings result as noneconomic losses are removed from the system. On the other hand, new costs will enter the system, serving to offset such savings. The new costs include medical and wage loss claims sustained in single car accidents heretofore not reimbursed under a third party liability system.

Typically, auto reform measures include a number of potential cost saving provisions in addition to choice no-fault. However, the choice no-fault mechanism in and of itself will usually provide the bulk of the savings in auto reform measures.

COMMON FEATURES

Rate Reductions

The most common feature of most choice no-fault plans is a mandated rate reduction for no-fault electors. This may be a proscribed percentage applicable to certain coverages or to the overall rate level To justify the rate rollbacks, the right of recovery of noneconomic losses in a tort environment is restricted. Most often, this restriction applies only for injuries sustained in non-serious automobile accidents. Tort rights are rarely eliminated altogether due to constitutional concerns. As we will discuss, the definition of "serious" can have a profound impact on the savings to be expected.

Minimum limits are generally proscribed for limits relating to medical, wage loss, replacement services and death benefits. In addition, an aggregate limit generally applies for all benefits payable due to a single occurrence. However, if the injuries sustained are deemed serious, no-fault electors retain all rights to pursue recovery of noneconomic losses, such as pain and suffering, under the tort liability system.

In all cases, including non-serious injuries, no-fault electors retain tort rights for recovery of economic losses. Statutes often preclude duplicate recovery of economic benefits compensated under PIP from the tortfeasor's BI coverage, however, it is

difficult for an insurer to verify that specific recoveries have actually occurred, and if so, how much the claimant had recovered. The most restrictive (and therefore more effective) statutes addressing duplicate recoveries specifically disallow the pleading, proving or entering into evidence any economic losses payable under first party coverages. In other words, the plaintiff cannot include amounts already compensated in a plea for recovery under the tort system.

Out of State Coverage

Without exception, a no-fault elector remains liable for injuries caused when the accident occurs while travelling out of state. Similarly, there is no shield from tort liability if the no-fault elector intentionally causes injuries or if the injuries are sustained while the driver is involved in a criminal act. Many times, the reform measures include a provision such that a no-fault elector remains liable in tort for injuries caused when driving under the influence of alcohol or drugs.

Default Choice

One of the more important provisions in choice no-fault plans is the administrative procedure should the insured fail to make a choice between the tort and no-fault options. The reason this default provision is important is because the experience in New Jersey and Pennsylvania demonstrates the default option heavily influences the

coverage choices. In fact, more than three quarters of all insureds either choose the default option or make no choice at all. Moreover, the default is important because coverage automatically provided drivers from out of state will generally be the default option. That is, a choice no-fault plan in Pennsylvania with a tort default option would have implications for vehicles registered in states surrounding Pennsylvania, when the accident occurs in Pennsylvania.

Risk Exchange or Connector Coverage

The most important feature in the administration of choice no-fault plans is the mechanism for compensating the injuries of tort electors caused by a no-fault elector, and the equitable distribution of premium among insurers. There are three common ways for compensating such injuries.

The connector coverage is, in effect, an extension of the UM coverage. Injuries of a tort elector caused by a no-fault elector are compensated by the first party connector coverage, similar to the manner in which UM claims are handled currently. The tort elector may therefore recover noneconomic losses in tort for injuries caused by no-fault electors, but within the context of a first party tort coverage. The increased cost to the tort elector for the connector coverage is offset dollar for dollar by a reduction in exposure under the third party (BI) liability coverage. The reduction in BI costs arises from the self-imposed restriction on pursuing tort recovery by no-fault electors.

This mechanism has been proposed in several states considering a choice no-fault plan, but has yet to be implemented.

A risk exchange mechanism is used instead of the connector coverage when the choice no-fault plan places no restriction on the ability of a tort elector to sue a no-fault elector for noneconomic losses. A no-fault elector waives the right to sue (under certain circumstances) for recovery of noneconomic damages, but has no built-in safeguard from being sued. When a connector coverage mechanism is not used, there may be a disparity in the total premium dollars collected compared with the exposure to loss for individual insurers. This arises when the relative share of tort versus no-fault electors differs from one insurer to the next. A no-fault elector's premium will generally be lower than that of a tort elector (assumed to be 30% lower in Table 1), but the exposure to loss is not. Hence, an external risk exchange mechanism is designed to compensate those insurers with disproportionately more no-fault electors compared with all other insurers. Their exposure is higher than that of a company with a greater than average share of tort electors, but less premium is collected.

Table 1

Risk Exchange Example

		Industry	Co. A	Co. B
1)	Cars Insured	1,000,000	20,000	20,000
2)	# Choosing No-Fault	750,000	13,000	17,000
3)	% Choosing No-Fault	75%	65%	85%
4)	# Cars Over/Under Average		- 2,000	+ 2,000
5)	Average No-Fault Premium	$ 250	$ 260	$ 240
6)	Charge (Return) to Company (4) x (5) x 30%		156,000	-144,000

Since Company A has a lower percentage of no-fault insureds compared with industry averages, the risk exchange mechanism transfers $156,000 to its benefit. On the other hand, Company B must contribute $144,000 to the Risk Exchange because it has a higher proportion of no-fault insureds. A risk exchange mechanism is an important feature for maintaining a competitive marketplace, otherwise, insurers have a disincentive to have their insureds make the no-fault choice.

The third mechanism for handling the compensation of injuries to a tort elector caused by a no-fault elector is no mechanism at all. Tort electors may still sue no-fault electors for recovery of noneconomic losses, but there is no mechanism for redistributing the disproportionate share of premiums among companies. The assumption is that all companies will have an equal relative share of tort versus no-fault electors. Unfortunately, such an assumption is wishful thinking, and financial harm may result to companies with higher than expected share of tort versus no-fault electors. In the case of the Assigned Risk Plan in Pennsylvania upon implementing the reforms stipulated by Act 6, underestimating the share of no-fault (referred to in Table 2 as limited tort) electors resulted in BI premiums much lower than needed to cover expected losses:

Table 2

Impact of AIPSO 8/6/90 Rate Change due to Act 6 - Bodily Injury

Risk Type	Dist. of Premium	Tort Election	Rate Change	Distribution of Insureds Expected	Actual
Clean	45%	Limited	- 51.5%	25%	58%
		Full Tort	- 24.6	75	42
Other	55	Limited	- 30.0	25	58
		Full Tort	0	75	42
Premium Effect				- 18.2%	- 27.7%

Because the Assigned Risk Plan expected only 25% of its insureds would choose the full tort option when 58% actually did (the limited tort option was the default), the premium impact of lowering BI rates was much more than expected.

OTHER PROVISIONS

Pedestrians

No-fault electors typically remain liable for injuries sustained by pedestrians and bicyclists from households with no motor vehicle. Pedestrians and bicyclists from households with an insured motor vehicle have access to the PIP coverage on that vehicle, however, if no such policy exists, the only avenue for recovery is the tort system.

Uninsured Motorists

Choice no-fault plans often contain restrictions on the recovery of noneconomic losses by uninsured motorists. Most states require some form of first party or third party liability insurance coverage to demonstrate financial responsibility. Motorists choosing not to purchase required coverage are disobeying the law, hence, the theory is that they effectively waive the right to recover noneconomic losses in tort. This same result can be achieved by simply making no-fault coverage the default choice. Again, should the injuries sustained by the uninsured driver be serious, the tort restriction often will not apply. Similarly if the injuries of the uninsured driver were caused intentionally, no tort restriction would apply. Keep in mind, however, that most policies would preclude liability coverage for intentionally caused injuries, hence those costs are probably not in the insurance system now, nor would they be in the future.

Medical Fee Schedules

Reimbursement of medical losses under the BI, PIP and UM coverages can be tied to some percentage of a specified medical fee schedule, such as workers compensation, Medicare or a Blue Cross/Blue Shield system. Often times, peer review or utilization review is also required; this is seen as preventative in nature, such that claimants do not "run up" the economic losses sustained by repeated visits to physicians, chiropractors and physical therapists.

Anti-Stacking of Uninsured and Underinsured Motor Vehicle Coverages

Stacking of limits for the uninsured and underinsured (UIM) motor vehicle coverages is allowed in a large number of states. Anti-stacking measures can reduce costs for the affected coverages by more than 20%.

Anti-Fraud Measures

A variety of measures, including mandatory reporting to a central authority, and coordination with law enforcement officials, are advanced to remove fraudulent claims from the system. Such provisions often times duplicate efforts currently used by insurers and thus may have little measurable cost savings for specific insurers. Estimates of the impact to the industry as a whole are even more difficult to derive, since the effectiveness of current measures is unknown, and the actual amount of fraud is also unknown.

No-fault property damage liability (PD)

Tort liability for property damage liability may be restricted in a manner similar to bodily injury liability. Cost savings are realized as costs are shifted to a collision coverage where deductibles apply.

Optional residual BI and UM/UIM coverages

Premiums can be lowered if the mandated minimum coverages are reduced. Making certain elements of the current required coverages optional can serve to lower an individual's premium, but have little impact on underlying exposure to liability.

PRICING CONSIDERATIONS

A number of considerations must be addressed in pricing the impact of choice no-fault plans and other attendant reform provisions. Any costing exercise must use data that is specific to the particular jurisdiction for which reform legislation is proposed. That is, the impact of a reform provision in one state may be significantly different in a neighboring state. Most reform legislation will focus on liability costs, and have little or no impact on physical damage costs.

The more pertinent pricing considerations in the cost analysis of choice no-fault plans include the adequacy of pre-existing rates, limits of the first party PIP coverage, the type of tort threshold, the expected distribution of tort versus no-fault electors, the expected percentage of the licensed population driving uninsured (and expected shifts due to choice no-fault), the mix of tort versus no-fault electors by rating factor (i.e., class, territory, etc.), the preclusion of duplicate recoveries, the applicability to vehicles

other than private passenger type vehicles, and the current compensation system in effect (i.e. tort, add-on, no-fault). Each of these considerations is discussed in more detail.

1. Adequacy of pre-existing rates

Most reform measures include mandated rate reductions. Generally, no consideration is given to the adequacy of pre-existing rates for individual companies. In the course of implementing such reforms, rate freezes sometimes accompany the mandated reductions such that insurers are not allowed to increase rates just prior to the effective date of the reforms. The fundamental problem with rate freezes is they may lock in inadequate rates; mandated rate reductions assume application to adequate rates.

The adequacy of pre-existing rates is a critical issue for many companies. Generally, there is a provision in the legislation or regulatory interpretation that will allow companies to make filings for extraordinary circumstances when the mandated rate reductions may impair solvency. Nevertheless, should the mandated rate reductions exceed reasonable cost estimates of the true impact on costs, the end result is generally a lower return for insurers.

2. Limits of first party coverage

The first party coverage will generally include both medical and wage loss benefits with both internal as well as aggregate coverage limits. The PIP coverage may also include benefits for funeral, essential services and survivor benefits. In pricing the coverage, some judgments may have to be made regarding the expected distribution of no-fault electors purchasing basic limits versus higher limits of coverage.

If the reform measures include a reduction in the minimum limits required for first party coverage (if the current system is already an add-on or tort environment), it is reasonable to expect that a certain proportion of the insured population will choose the (lower) minimum limits. The costing analysis must recognize that there will be an impact on the level of uncompensated economic losses to be paid under the BI and UM coverages. That is, lower limits of first party coverage will mean more dollars sought under the at-fault drivers BI coverage.

Consider a hypothetical example where the minimum first party medical coverage limits are lowered from $10,000 to $5,000. The premium impact of choosing the lower limit is estimated to be -16%. The portion of total dollars paid under the PIP coverage for medical losses is estimated at 70%. Further, it is assumed that 75% of insureds currently have the minimum $10,000 limit, and that all would choose coverage at the new $5,000 limit. The cost impact on the PIP coverage is therefore

-8.4% due solely to the change in limits (-.16 x .70 x .75).

However, some of those claim dollars in the layer of loss from $5,000 to $10,000 would shift to the BI and UM coverages. Not all costs would shift, because only a certain percentage of accidents are deemed the fault of the other driver. Assuming that 40% of accidents with injuries to a driver are deemed the fault of the other driver, the BI losses are expected to increase 1.6%, all else being equal:

Table 3

(1)	Hypothetical PIP Loss Cost	$ 70.25
(2)	PIP Cost Savings due to Lower ($5,000) Limit	8.4%
(3)	Expected % of Accidents not at fault	40%
(4)	Average PIP loss cost shifted to BI (1) x (2) x (3)	$ 2.36
(5)	Hypothetical BI Loss Cost	148.10
(6)	% Increase in BI Loss Cost (4) / (5)	+ 1.6%

Actually, BI costs may increase by an amount greater than 1.6%, because recovery under BI generally involves noneconomic losses in addition to economic losses.

3. Type of tort threshold

Choice no-fault plans generally do not preclude exposure to tort liability altogether. Rather, a verbal tort threshold is commonly used that allows the recovery of noneconomic losses in tort for serious injuries. The definition of serious injury will have a significant impact on the expected dollars to be paid out of the BI and UM coverages. Typically, the verbal threshold is fashioned after the language in the New

York and Michigan statutes, which have had verbal thresholds for many years.

The tort threshold in the state of Michigan defines serious injuries as those involving death, dismemberment or serious impairment of body function. The interpretation of the threshold can be quite different from one jurisdiction to the next, based upon judicial and jury attitudes regarding what constitutes serious impairment of body function. Nonetheless, the Michigan verbal threshold is widely regarded as being the most restrictive, that is, allowing the fewest claims to be eligible for recovery under tort.

The next most restrictive is the New York verbal threshold, which defines serious injuries as those involving:

- Death;
- Dismemberment;
- Significant disfigurement;
- Fracture;
- Loss of fetus;
- Permanent loss of use of an organ, body member, body function or body system;
- Permanent limitation of use of an organ or body member;
- Significant limitation of use of body function or body system; or,

- Temporary injury or impairment limiting normal activity for more than 90 days of the first 180 days immediately following date of occurrence.

Judgment is often required to estimate the percentage of injury claims that would correspond with the definition of serious. The most definitive source for information on the extent of claimant injuries is available from closed claim studies conducted by the Insurance Research Council[1] (formerly AIRAC - the All-Industry Research Advisory Council). Periodically, closed claim studies are conducted by insurers and the results tabulated and analyzed by the Insurance Research Council. In the 1989 study, claim counts and their values were compiled in 17 categories by extent of injury. From the description of the injury (i.e. fatality, permanent brain injury, and so forth), reasonable judgments may be made as to the propensity of such claims being deemed serious.

Using representative data from the 1989 closed claim study (shown in Exhibit 1), serious claims according to a strict application of a Michigan-type threshold are in the range of 9 to 17% of all claims, depending on the type of tort or no-fault law currently in effect. A fair amount of judgment must be used in interpreting the distribution of claims by injury category. The actuary must consider the legal environment in the jurisdiction for which the costing exercise is conducted, because patterns of attorney representation and judicial interpretations vary from one area to the next. Despite grouping all tort states together for illustrative purposes in Exhibit

1, conclusions for any given state should focus primarily on data specific to that state.

As a practical matter, this is probably the lower limit regarding expected percentage of BI claims remaining under the verbal threshold, because, injury claims not deemed serious can still result in BI loss payments (i.e., recovery of uncompensated economic losses). Furthermore, claims occurring out-of-state will be unaffected by the threshold. Hence, the primary usefulness of using this data is to segregate the serious BI claims from all others. In the examples that follow the end of this section, we will develop the estimates of new BI frequency considering all such categories of claims.

The non-serious claims according to a New York-type tort threshold constitute 60% to 75% of all claims, depending on the type of tort/no-fault law in effect. The New York threshold is more liberal than that of Michigan, allowing recovery of noneconomic losses for all fractures, and for injuries that cause temporary impairment for 90 days of 180 following the date of the accident. Many claimants with a serious laceration, back sprain/strain or neck sprain/strain are able to demonstrate such impairment. Since the sprain/strain injuries constitute the bulk of all BI claims, it is clear the New York threshold allows for recovery of noneconomic losses more often than the Michigan threshold.

Besides the data from the Insurance Research Council studies, we can examine the BI frequency data for the industry just before and just after the implementation of no-

fault in Michigan and New York. The primary source of industry frequency data for private passenger automobile is the Fast Track data published by the National Association of Independent Insurers (NAII) and the Insurance Services Office (ISO). Unfortunately, the Fast Track data compilation began in 1975 and the Michigan no-fault law was enacted in 1973.

Other publicly available sources include data submitted by individual companies in response to data calls, or as provided as evidence in rate hearings. Using data from Michigan, it appears the change in BI frequency subsequent to the implementation of no-fault was approximately -85%. Note that this does not imply that 15% of claims were deemed serious by the verbal threshold because out-of-state claims were unaffected by the tort threshold. However, the 15% estimate is very close to the percentage of serious claims, because BI claims for uncompensated economic losses are virtually nonexistent due to the unlimited medical and generous wage loss benefits in Michigan.

For years, the Michigan threshold was interpreted very consistently because the determination of "serious" was a matter of law, to be decided by judges, rather than a matter of fact to be determined by juries. In 1989, a Michigan Appellate Court decision reversed the determination process, allowing juries to determine whether claims were serious or not. Three years subsequent to the court decision, the increase in the BI frequency exceeded the increase in PIP frequency by 7%. Clearly, juries

were more liberal than judges in allowing recovery of noneconomic losses. Just recently (early 1993), the threshold determination in Michigan has reverted back to the judiciary.

4. Expected distribution of tort versus no-fault electors

The expected number of insureds choosing tort versus no-fault will depend on what default choice is specified in the legislation. The experience in New Jersey demonstrates that 80% or more of insureds will choose whatever option is the default. When New Jersey first implemented a choice no-fault plan, insureds were offered a choice between a $200 and $1,500 medical cost threshold for eligibility to recover noneconomic losses under tort. The default was the $200 threshold, and approximately 80% chose this option. Choosing the lower monetary threshold of $200 effectively was the choice of a full tort coverage, because just about every injury from a motor vehicle accident would involve medical costs of more than $200. Effective 1/1/89, New Jersey modified its law, abolishing the monetary threshold for a verbal threshold, while still allowing insureds to choose between full tort and limited tort coverage, but the default choice was changed to the limited tort option. Subsequently, 80% to 90% of New Jersey motorists selected (or had it selected by default) the limited tort option.

An unusual aspect of choice no-fault is that ideally, each insurer would like its

policyholders to choose the full tort coverage and have all drivers insured elsewhere choose the no-fault option. This would serve to maximize premium and minimize the exposure to loss. However, it is unreasonable to expect that all insureds will make the same choice.

An insurer's overall expected premium level will be affected by the distribution of its insureds between the two options. The overall expected loss level however will be affected by the distribution of all insureds. For a choice no-fault plan with no provision for handling mismatches between the two, the impact on collected premiums can be significant. Without a risk exchange mechanism, the end result of such a situation is considered a "cost of doing business" in that jurisdiction. On the other hand, those companies with a higher share of tort electors compared with the industry average may realize a windfall.

5. Expected Uninsured Population

The number of licensed drivers without insurance may have a bearing on the costing of the no-fault elector's premium, especially if there are restrictions on the ability of uninsured motorists to recover noneconomic losses under tort. Furthermore, the issue of whether previously uninsured drivers may enter the insurance system due to the availability of a lower cost no-fault coverage must be addressed. Fewer motorists without financial responsibility will result in lower UM costs for all drivers, but there

will be an adverse impact on accident frequency. That is, previously uninsured drivers generally have a higher accident frequency expectation than the average of all insured drivers. Therefore, the aggregate expected accident frequency should increase, such that average rates will need to be adjusted accordingly. Insurers may be able to handle this situation via underwriting rules but may be restricted in doing so in certain jurisdictions.

The analysis of appropriate rating relativities by driver class, territory, limits and other rating variables, will need to take into account the distribution of tort versus no-fault electors (to the extent such rating factors are considered for the liability coverages). Otherwise, disproportionate shares in one territory versus another, or one particular class (i.e. youthful operators) may skew the otherwise indicated rating relativities for the liability coverages. Furthermore, some may argue that higher rated territories, classes, and vehicles will tend to purchase the more affordable no-fault coverage. However, it should be recognized that current insureds in lower rated territories, classes, etc. may also want to lower premiums via the no-fault coverage.

7. Preclusion of duplicate recoveries

The preclusion of recovering under tort any benefits paid under the first party PIP coverage will have an impact on the pricing of the BI and UM coverages. Measuring the impact of the current situation regarding duplicate recoveries may not be at all

straightforward, because there have been no definitive studies to date regarding the availability of recoveries from collateral sources. Furthermore, the preclusion of duplicate recoveries is often a provision in the current law. Hence, reform measures attempting to strengthen the provision may serve to eliminate fewer dollars than otherwise expected.

The one source that seems most likely to involve duplicate recoveries under the automobile insurance system is from workers compensation (WC). Because WC benefits are strictly primary to any other source, and since the benefits involve no deductible or copayments, the propensity for duplicate recoveries is higher than for other sources. From a survey conducted by the Insurance Research Council, 2.3% of automobile injury claimants indicated some payment for their injuries from workers compensation. While the survey did not indicate whether duplicate recovery was sought from the auto insurer, it seems likely that certain claimants did attempt to recover again. More than 3% of survey respondents indicated recoveries from government sources, such as Medicare. Since government sources are almost always secondary to a personal auto policy, it is unlikely there is much duplicate recovery there.

8. Applicability to vehicles other than private passenger type vehicles

The pricing for the no-fault coverages will be affected by whether liability will exist

for injuries to a driver or occupant of a non-private passenger type vehicle (motorcycles, commercial, off-road vehicles) caused by a private passenger vehicle.

9. Current System

The impact of a choice no-fault plan on costs is dependent upon the current system in effect for compensating injuries from automobile accidents. The three primary systems used in the United States are tort, no-fault or an add-on system. Tort systems generally allow suits to recover damages (both economic and noneconomic) in tort, without restriction. Add-on statutes require motorists to purchase a first party medical and/or wage loss benefit coverage to partially offset the need for pursuing tort recovery. However, these laws are extremely limited in their effectiveness, because there are no restrictions placed on an individual's right to pursue recovery of noneconomic damages in tort.

No-fault systems also require motorists to purchase a first party medical/wage loss benefit coverage, but the right to recover noneconomic damages is restricted. In most no-fault jurisdictions, a claimant's medical costs must exceed some dollar threshold (generally less than $1,000) prior to being able to pursue tort recovery of noneconomic damages. Since the first party personal injury protection benefit covers first dollar medical costs far in excess of the tort threshold, there is an incentive for claimants to "build up" a claim so that medical costs exceed the tort threshold, thus

making them eligible to recover noneconomic damages in tort. The other type of threshold relates not to monetary damages, but to a verbal description of damages, as discussed earlier.

What follows are specific issues that deserve consideration in costing exercises related to estimating the impact of a choice no-fault plan in each type of jurisdiction. For the purpose of presentation, we examine a variety of possible situations, all of which presume the choice no-fault system will be limited by incorporating some type of tort threshold:

Tort State Example

The largest expected cost reductions of a choice no-fault plan are realized when the current system for compensating injuries is the unrestricted tort system. This is not unexpected since you would logically expect such a system has a higher proportion of total losses attributable to noneconomic damages. The effectiveness of the plan is dictated in large part by the tort threshold. For the purpose of this example, and those that follow, we will assume that a New York type threshold applies and that the connector coverage will not apply. Individual companies would be very interested in knowing whether a risk exchange mechanism would exist or not. In the context of this example, it is irrelevant because we presume one insurer providing coverage. That

is, the dynamics of mismatches between insurers in the share of tort versus no-fault electors is outside the scope of this paper.

First, we must estimate the current liability costs of the system. This can be accomplished either by using an individual company's data, or using some industry benchmark costs, such as Fast Track data. Since the Fast Track data do not include the medical payments UM or UIM coverages, estimates of the costs must be made generally as a percentage of the BI costs, using other sources. Projections of the costs should be made to the midpoint of the period for which rates will apply under the new system.

Secondly, estimates of the new PIP coverage frequency and severity must be made. Several methods may be used to derive a frequency estimate, and a judgmental selection made from the various indications. Hypothetical data are presented in Exhibit 3 to illustrate the process. The first method uses the medical payments frequency as the starting point, adjusting it for PIP claims that will involve wage loss, replacement services and death benefits. The second method uses the BI frequency as the starting point, adjusting it to remove claims involving no economic damages. A second adjustment comes from the 1979 AIRAC study[2], using the estimated percentage of PIP claims ineligible for recovery under tort (primarily because the PIP insured was at fault). Working backwards, the PIP frequency is derived by dividing the otherwise applicable BI frequency by this percentage, which will vary from one

state to the next, depending on the type of negligence law in effect (i.e. pure comparative, 50/50 type, 51/49 and contributory negligence). The third method uses the PD frequency as the starting point, adjusting it for the expected ratio of PIP to PD claims. This ratio can be derived from observations in current no-fault states.

Derivation of the PIP claim severity can be derived by examining PIP severities in other states with similar benefit provisions. Adjustments may be required to adjust the severity for differences in benefits and limits provided. Data from the AIRAC study is somewhat useful, however, data is compiled on a claimant basis, not on an occurrence basis. For the sake of this example, we will assume a proposed $50,000 aggregate limit applicable to the new PIP coverage, select a $4,500 average claim severity, and trend it to the midpoint of the year in which choice no-fault will be effective.

Now that the cost parameters have been developed, the components of the BI, UM and UIM coverages affected by choice no-fault must be developed. Generally, the components will be out-of-state claims, serious claims, claims involving injuries to uninsured motorists, residual liability claims and all other (i.e., non-serious) claims.

The first category of liability claims are those occurring out-of-state, and are unaffected by the tort threshold. For a typical state, 5% of liability claims occur out of state. That percentage is much lower in states such as California, Alaska and

Hawaii, but much higher in the New England region, for obvious reasons. Since the types of out-of-state accidents will encompass serious and non-serious claims, assume the relative claim severity is equal that for all current claims.

The relative number and average claim severity for the second category (serious claims) may be estimated based upon the threshold. Assuming a New York type threshold will apply, 25% of all current BI and UM claims are deemed serious. Furthermore, the claim severity is estimated at 2.2 times that for all BI claims (see Exhibit 1).

The third category involves residual liability claims, recognizing that liability will still exist for injuries to pedestrians, bicyclists, and perhaps motorcyclists and commercial vehicles (depending on the language of the reform law). Since most injured pedestrians and bicyclists will be from households with a motor vehicle, the number of BI claims arising should be fairly small (estimated at 0.5% in our example). However, the propensity of accidents involving injuries to the motorcyclists and commercial vehicles is more common. Unfortunately, reliable studies are not available which indicate the number of accidents caused by private passenger vehicles resulting in injuries to operators of non-private passenger vehicles. For the sake of the example, we assume it to be 4% of all liability claims.

Furthermore, the reform legislation may include provisions such that motorists driving

under the influence of alcohol or drugs remain liable in tort for noneconomic damages, despite the coverage election. So a third element to the residual liability category could be for these situations. According to estimates, 7% of accidents involve alcohol impairment of some kind. In a costing exercise, the actuary should consider the language of the reform law, as to whether a conviction is required for liability to remain, or whether a more lenient standard applies. For the purpose of this exercise, we assume that 3.5% of current liability claims would remain as residual liability due to this provision. Hence, the total residual liability category would constitute 8% of all current liability claims. Since claims in this category may involve alcohol impairment, but not satisfy the definition of serious, we judgmentally select a 20% higher severity than average.

Injuries involving uninsured motorists will depend on the expected percentage of the population operating motor vehicles without financial responsibility. This category is important, because reform legislation often times puts restrictions on the ability of uninsured motorists to recover noneconomic losses. Estimates of the uninsured population may be derived by examining ratios of UM to BI claim frequencies. A ratio of .10 implies that 9.1% (.10/1.10) of motor vehicles have no liability coverage, and this is the estimate incorporated into this example. The average claim severity for this category is assumed to be the same as that for all remaining claims in the all other category.

Before deriving the remaining component by subtraction, consider the overlap between all four categories heretofore mentioned. That is, out-of-state claims may be serious, injuries to an uninsured driver may be caused by an insured driving under the influence of alcohol, and so on. Therefore, the indicated distribution of claims in each category is normalized to remove possible overlap.

Now that the current and expected future costs have been derived, we conduct three alternate calculations of the expected reduction in overall costs, with different assumptions regarding the distribution of the insured population choosing the tort versus no-fault coverage. The costs savings that accrue from two sources:

- the removal of noneconomic losses on non-serious claims. From Exhibit 1, the average BI payment for non-serious claims is $3,274, while the average economic loss payment was only $1,315, hence we estimate only 60% of the costs for non-serious claims will be removed from the system, but only to the extent that all insureds choose the no-fault option.

- the removal of noneconomic losses on non-serious claims involving injuries to uninsured motorists. Note these savings will accrue to all insureds, be they tort or no-fault electors.

In addition, while not a cost reduction overall, a portion of the economic losses

heretofore reimbursed under the BI and UM coverages will now be compensated under PIP. A thorny issue arises when trying to estimate the amount of dollars to be shifted from BI to PIP. That is, what percentage of economic loss payments made under the BI coverage currently are duplicated under the first party medical payments coverage? If there is no duplication, then significant dollars will be shifted, however the opposite is true as well. Since most companies do not attempt to subrogate medical payments claims (it is too costly), it is difficult to estimate, first of all, what duplication is already occurring. Secondly, an estimate of how much duplication may exist under the new system between BI and PIP (notwithstanding provisions precluding such duplication) is required. The author believes that duplication is occurring, but has no reliable estimates as to the amount or extent of such duplication. For the purpose of this exercise, we estimate that 50% of economic loss payments made under the BI and UM coverages will be shifted to the PIP coverage, the remaining 50% being economic losses uncompensated by PIP due to limits ($50,000 in our example).

Table 4

Economic Losses Shifted from BI and UM to PIP Coverage

Component	Econ. Loss as % of Total Payment	% Shifted to PIP Coverage	Impact on BI, UM Claim Severity
Out-of-State	41.2%	0%	0%
Serious	42.1	50	-21
Residual	41.0	50	-21
Uninsured	40.2	0	0
Other	40.2	50	-20

Since the PIP coverage is irrelevant for out-of-state claims, and because uninsured motorists have no PIP coverage, no dollars are shifted from BI. For the other three categories, these adjustments to the BI and UM claim severities are relevant only to the extent that insureds choose the no-fault option, but savings on the BI coverage will accrue to both tort and no-fault electors.

The percentage savings for tort electors is greater than that for no-fault electors for two reasons. First, the tort elector is presumed to continue to purchase medical payments coverage, but the PIP coverage purchased by no-fault electors costs more. Secondly, the no-fault electors' self-imposed restriction on pursuing recovery of noneconomic losses for non-serious injuries against tort electors produces a significant reduction in exposure for tort electors. The savings for the system as a whole is maximized as all insureds choose the no-fault option:

Table 5

Impact of Choice No-Fault

	% Change in Liability Costs		
Dist. of Insured Population	Tort Insured	No-Fault Insured	Total
75% Tort / 25% No-Fault	- 5.5%	- 3.5%	- 5.0%
50% Tort / 50% No-Fault	- 10.1	- 5.9	- 8.0
25% Tort / 75% No-Fault	- 25.7	- 8.3	- 9.9

Prior to using these cost reduction estimates as the impact on premiums, the actuary

should consider that fixed expenses will have a moderating influence on the expected reduction in premiums due to choice no-fault. Corresponding adjustments should be made prior to arriving at conclusions as to overall rate levels.

Conversion from an Add-On System

The impact of a choice no-fault plan on auto liability costs will be similar to that for tort states, but less in percentage savings, as certain injury claims paid in full by the first party PIP coverage result in no attempt to recover noneconomic losses under BI. As seen in Exhibit 1, the percentage of current claims deemed serious (using a New York threshold) is slightly higher than that for tort states, .26 versus .239. The noneconomic losses portion of non-serious injury payments appears to be a somewhat higher percentage (62%) than that for tort states (60%).

Typically, the current PIP frequency will be unchanged, but there may be cost shifting due to changes in underlying PIP limits. The actuary should take care to recognize that if the minimum limits are increased, BI costs should be reduced by the dollars of uncompensated economic losses that exceeded previous limits of the first party coverage. At the same time, as insureds choose a tort option, the exposure to BI for both tort and no-fault electors will increase. Hence, converting to a choice no-fault system from an add-on system will have a variety of influences on BI frequency,

depending on changes in PIP limits. Otherwise, the process of estimating system costs before and after implementing a choice system is very similar to that already described for a tort system.

Conversion from a No-Fault System

The effect of converting a current no-fault system to a choice no-fault system will follow a similar process as that described for tort and add-on states. However, the impact on BI frequency should be much more pronounced as claims otherwise ineligible for recovery under tort may now be pursued. The PIP frequency should be unchanged, unless the benefits payable by the coverage are changed.

Medical Fee Schedules

Imposition of medical fee schedules for medical costs incurred as the result of motor vehicle accidents is a very popular provision included in reform legislation to the private passenger automobile insurance system. Typically, the fee schedule used would be fashioned after Medicare, workers compensation, or a Blue Cross/Blue Shield schedule. The impact on medical costs can be significant, with expected savings in the range of 20% to 35%.

The Pennsylvania system for controlling medical costs uses the Medicare fee schedule increased by 10%. Peer review of health care providers serves as an administrative check that medical bills submitted are not excessive. While the administrative costs are relatively small compared with expected savings, the extra cost should nonetheless be reflected in any costing exercise.

Derivation of cost impacts due to medical fee schedules can make use of information published by the U. S. Government[3] (unfortunately there is sometimes a considerable lag in data availability). Preliminary estimates of 1989 hospital and physician charges to the Medicare system indicate that only 51% of allowed hospital charges and 78% of physician charges were reimbursed by Medicare, or a weighted average of 57%. Using a fee schedule at 110% of Medicare, all else being equal, could be expected to lower medical costs in the automobile insurance system by more than 30%. However, all else is hardly ever equal.

Invariably, there are exceptions to the rules, such as for emergency care by certified trauma centers. Given that many auto accidents involve such care, due consideration should be given to such exceptions in costing analyses. Furthermore, it is not always clear whether care rendered outside the state of vehicle registration is bound by the medical fee schedule. For example, if a Pennsylvania resident is injured and receives care in a New Jersey facility, it is not always clear whether the New Jersey health care provider must abide by Pennsylvania's guidelines.

The medical fee schedules promulgated by the director of labor and industrial relations (or other relevant governing body for workers compensation) are another popular benchmark for controlling medical costs. Deriving cost estimates of superimposing the WC medical fee schedule is somewhat more indirect than for a Medicare fee schedule. An approach this author has found to provide reasonable cost estimates is to examine the medical partial pure premiums for certain driver classes (7219 - truckmen NOC and 7380 - Drivers NOC). Derivation of the medical partial pure premium requires an estimate of the number of medical claims (typically, the NCCI includes only medical dollars paid, but no claim counts) paid. Using a multiple (three or four times) of the serious and non-serious WC claims (where serious is defined by the NCCI) as a surrogate, reasonable estimates can be made of the average medical costs associated with drivers. Assuming the majority of medical payments for driver classes results from automobile accidents, we can compare the severities with those for private passenger vehicles. A couple of adjustments to the WC data are required, however, to reflect the fact that WC medical losses are unlimited while medical losses paid by a personal auto policy are limited by policy limits (and sometimes deductibles). After making appropriate adjustments to the WC data, the average ratio of WC medical severity to private passenger auto medical severity (for like time periods) produces a reasonable estimate of the cost impact of the WC fee schedule. The author has found the WC medical fee schedules may result in lower medical costs for the automobile insurance system by 20% to 30%.

With any medical fee schedule, care provider's billing practices may be adjusted to maximize income. Without discussing this issue in-depth, the author warns readers to recognize that such "slippage" will likely occur with the implementation of any medical fee schedule, so the derivation of cost impact estimates should contain a certain dose of conservatism.

SUMMARY

We have shown the estimated impact of choice no-fault plans and other common reforms on auto liability insurance costs. A pure choice no-fault plan provides more savings relative to a plan with a tort threshold, but given the political and economic realities of the marketplace in the United States, a choice no-fault plan with a strong verbal threshold provides the best opportunity for premium savings. Other provisions commonly included in tort reform initiatives for automobile insurance hold the prospect for significant costs savings as well. In all cases, the adequacy of pre-existing rates should be factored into any premium adjustment accompanying such reforms.

References

1 All-Industry Research Advisory Council, *Compensation For Automobile Injuries in the United States*, 1989

2 All-Industry Research Advisory Council, *Automobile Injuries and Their Compensation in the United States*, 1979

3 *Statistical Abstract of the United States*, 1991, Table No. 147

Economic Loss and Total Payments by Type of Injury – BI Claimants

Category of Loss	Assumed Distribution of Serious Claims: Michigan Threshold % of Claimants	Michigan Threshold % of Payments	New York Threshold % of Claimants	New York Threshold % of Payments	All States # of Claims	All States Ave. Econ Loss	All States Ave. BI Pymt	Tort States # of Claims	Tort States Ave. Econ Loss	Tort States Ave. BI Pymt	No-Fault States (excl. FL, MI, NY) # of Claims	No-Fault States Ave. Econ Loss	No-Fault States Ave. BI Pymt	Add-On States # of Claims	Add-On States Ave. Econ Loss	Add-On States Ave. BI Pymt
(1)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)	(5a)	(5b)	(5c)	(6a)	(6b)	(6c)
Fatality	100%	100%	100%	100%	159	$26,188	$35,321	62	$23,877	$37,445	35	$23,621	$30,393	29	$237,386	$47,154
Perm Brain Injury	100%	100%	100%	100%	73	22,414	40,891	23	28,043	47,294	21	17,328	34,607	14	213,996	24,825
Paralysis/Paresis	100%	100%	100%	100%	37	17,579	32,460	17	17,698	35,422	2	0	22,500	9	147,183	32,650
Loss of Body Part	100%	100%	100%	100%	28	22,883	51,805	12	36,796	54,238	5	7,900	28,416	7	127,395	38,428
Loss of Sense(s)	100%	100%	100%	100%	56	5,678	19,740	24	5,098	19,942	12	8,059	17,218	9	91,761	21,233
Internal Organ Injury	100%	100%	100%	100%	218	10,640	24,027	98	10,319	20,070	51	11,373	28,598	51	18,930	22,240
Fracture, Weight Bearing Bone	100%	100%	100%	100%	706	9,418	25,247	259	10,250	26,007	144	12,181	28,193	146	23,901	22,777
Scarring/Perm. disfig.	100%	100%	100%	100%	696	3,290	13,265	264	4,010	13,908	147	3,054	12,893	123	4,261	14,221
Other Fracture	0%	0%	100%	100%	742	3,845	12,512	297	4,830	13,144	150	2,572	11,996	159	4,343	10,763
Concussion	0%	0%	100%	100%	875	3,062	8,165	376	3,279	7,498	210	3,386	10,296	168	3,425	6,082
Serious Laceration	0%	0%	50%	60%	146	2,513	8,310	74	2,361	7,958	27	3,301	11,527	28	8,765	4,677
Back Sprain/Strain	5%	6%	25%	30%	9,136	2,197	5,852	5,087	2,186	5,348	1,439	2,340	7,661	2,104	2,866	5,257
Neck Sprain/Strain	2%	3%	5%	8%	4,506	1,093	3,007	2,842	983	2,541	355	1,700	6,328	1,191	1,168	2,601
Other Sprain/Strain	0%	0%	5%	8%	747	903	2,712	463	719	2,259	63	2,796	6,997	197	834	2,126
TMJ Dysfunction	0%	0%	0%	0%	14	3,338	16,100	3	242	2,015	4	2,595	15,462	2	6,167	14,503
Minor Lacerations	0%	0%	0%	0%	2,312	385	1,060	1,525	391	990	114	616	2,671	621	347	774
Other Injury	0%	0%	0%	0%	869	1,865	4,967	580	1,391	3,068	76	5,769	14,932	172	6,934	3,849
No Injury	0%	0%	0%	0%	206	100	326	147	87	343	4	73	75	55	148	299
Total					21,526	$2,454	$6,429	12,153	$2,158	$5,237	2,859	$3,484	$10,173	5,085	$2,175	$5,421
Michigan Threshold																
Serious					2,520	7,945	19,154	1,070	7,911	18,094	496	8,729	20,818	517	7,880	18,182
Ratio to Total					0.117	3.238	2.979	0.088	3.666	3.455	0.174	2.505	2.046	0.102	3.623	3.354
Non-Serious					19,006	1,726	4,742	11,083	1,602	3,996	2,363	2,383	7,938	4,568	1,472	3,834
Ratio to Total					0.883	0.703	0.738	0.912	0.743	0.763	0.826	0.684	0.780	0.898	0.677	0.707
New York Threshold																
Serious					6,210	4,970	12,725	2,906	4,838	11,484	1,171	5,404	14,733	1,324	4,648	11,235
Ratio to Total					0.288	2.026	1.979	0.239	2.242	2.193	0.410	1.551	1.448	0.260	2.137	2.072
Non-Serious					15,316	1,433	3,876	9,247	1,315	3,274	1,688	2,153	7,008	3,761	1,235	3,201
Ratio to Total					0.712	0.584	0.603	0.761	0.610	0.625	0.590	0.618	0.689	0.740	0.568	0.590

Column

(1) Losses as categorized in 1987 AIRAC closed claim study

(2) Assumptions regarding number of claims eligible under definition of "serious" and dollars associated with those claims, for illustrative purposes only. Note these assumptions will vary from one state to the next, depending on the judicial environment and propensity of attorney involvement.

(3) – (6) Per detailed data in AIRAC study. Note the average economic loss figure in Column (b) is the average economic loss payment. The total serious and non-serious categories on the bottom of the exhibit are weighted averages using the percentages in Col (2a) and (2b) as weights for Michigan and Col (2c) and (2d) for New York.

EXHIBIT I

Development of Current Liability Costs

Tort State Example

Coverage	Cost and Frequency data as of 12/31/92 Freq	Claim Sev.	Selected Annual Trend Freq	Claim Sev.	Trended to 7/1/94 (2) x [1 + (3)]**2 Freq	Claim Sev.
	(1)	(2a)	(2b)	(3a)	(3b)	(4)	(5)
BI	0.01200	7,000	0.0%	7.0%	0.01200	8,014
PD	0.04300	1,500	-2.5%	4.0%	0.04088	1,622
Medical	0.01800	2,000	-2.0%	5.0%	0.01729	2,205
UM	0.00120	7,000	0.0%	7.0%	0.00120	8,014
UIM	0.00007	21,000	0.0%	7.0%	0.00007	24,043

Coverage	Selected Freq	Claim Sev.	Loss Cost (6a) x (6b)	Assumed Exposure	Claim Counts (6a) x (7)
	(6a)	(6b)	(6c)	(7)	(8)
BI	0.01200	8,010	96.12	1,000,000	12,000
PD	0.04088	1,620	66.23	1,000,000	40,880
Medical	0.01729	2,200	38.04	700,000	12,103
UM	0.00120	8,010	9.61	1,000,000	1,200
UIM	0.00007	24,040	1.68	1,000,000	70
PIP	0.0185	4,842	89.58	1,000,000	18,500

Notes: All data values are hypothetical

Claim severity is total limits and includes allocated loss adjustment expenses

Assume UM and UIM are mandatory coverages, but 70% of insureds purchase Medical Payments coverage

PIP frequency and severity from Exhibits 3 and 4, respectively

Derivation of PIP Claim Frequency

Tort State Example

Method I – Derivation from Medical Payments coverage component

1)	Selected Medical Payments Frequency	0.0173
2)	% of BI claims involving medical losses only	0.866
3)	% of BI claims with no economic losses	0.920
4)	Estimated PIP frequency [(1) / (2)] x (3)	0.0184

Method II – Derivation from BI coverage

1)	Selected BI Frequency	0.0120
2)	% involving no economic damages	8.0%
3)	Adjusted BI Frequency (1) x [1–(2)]	0.0110
4)	% of PIP claims ineligible for recovery under tort	33%
5)	Estimated PIP Frequency (3) / [1 – (4)]	0.0165

Method III – Based on PIP to PD relationship in other No–Fault States

	State	PIP Freq	PD Freq	Ratio of PIP to PD
1)	FL	0.0167	0.0364	0.459
	NY	0.0207	0.0484	0.428

2)	Selected Ratio of PIP to PD	0.43
3)	Selected PD Frequency	0.0430
4)	Estimated PIP Frequency (2) x (3)	0.0185

Derivation of PIP Claim Severity

Tort State Example

1) Fast Track Data as of 2nd quarter 1993 -- PIP Average Claim Costs

State	Year Ending Average Claim Cost	Notes on PIP Coverage Limits
Michigan	$8,510	Unlimited Medical
New Jersey	5,614	$250,000
New York	4,446	$50,000
Colorado	4,698	$50,000
Minnesota	3,571	$20,000, stacking possible, deductibles
Florida	3,740	$10,000, optional wage loss, deductibles

2) Selected severity for Proposed $50,000 Limit 4,500

3) Trend Factor @ 5% annually to 7/1/94 1.0759

4) Trended Severity 4,842

Components of Liability Loss Costs

Tort State Example

		Distribution of Claims				Claim Severity	
						Relative	By
Coverage	Components	Indicated	Normalized	Selected	Counts	to Total	Component
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BI	Out of State	5.0%	5.0%	5.0%	600	1.000	$8,010
	Serious	25.0%	23.8%	24.0%	2,880	2.200	17,622
	Residual	8.0%	5.7%	5.5%	660	1.200	9,612
	Uninsured	9.1%	6.0%	6.0%	720	0.544	4,354
	Other		59.6%	59.5%	7,140	0.544	4,354
	Total		100.0%	100.0%	12,000		8,010
PIP					18,500		4,842
UM	Out of State	5.0%	5.0%	5.0%	60	1.000	8,010
	Serious	25.0%	23.8%	24.0%	288	2.200	17,622
	Residual	8.0%	5.7%	5.5%	66	1.200	9,612
	Other		65.6%	65.5%	786	0.544	4,354
	Total		100.0%	100.0%	1,200		8,010
UIM	Out of State	5.0%	5.0%	5.0%	4	1.000	24,040
	Serious	45.0%	42.8%	43.0%	30	1.500	36,060
	Residual	8.0%	4.2%	4.0%	3	1.200	28,848
	Other		48.1%	48.0%	34	0.535	12,871
	Total		100.0%	100.0%	70		24,040

Column

(4) Col (3) x [1 – Sum of all prior Col (4)], for example, the residual BI component: 5.7% = .057 = .08 x [1 – .05 – .238]

(5) Col (4) rounded to the nearest 0.5%

(6) Total from Exhibit 2, Col (8), allocation by component according to Col (5)

(8) Total from Exhibit 2, Col (6b), allocation by component according to Col (7)

Impact of Choice No–Fault
Tort State Example

% Tort	75%
% No–Fault	25%

Coverage (1)	Average Current Tort Costs (2)	Estimated Costs Under Choice No–Fault: Tort Insured (3)	Estimated Costs Under Choice No–Fault: No–Fault Insured (4)	Estimated Costs Under Choice No–Fault: Average (5)	% Change from Present: Tort Insured (6)	% Change from Present: No–Fault Insured (7)	% Change from Present: Total (8)
BI	$96.12	$85.03	$71.05	$81.54	−11.5%	−26.1%	−15.2%
PD	66.23	66.23	66.23	66.23	0.0%	0.0%	0.0%
Medical/PIP	38.04	38.04	58.60	43.18	0.0%	54.1%	13.5%
UM	9.61	9.14	7.09	8.63	−4.9%	−26.3%	−10.2%
UIM	1.68	1.62	1.38	1.56	−3.8%	−18.1%	−7.4%
Liability	$211.68	$200.06	$204.34	$201.13	−5.5%	−3.5%	−5.0%

Column	
*	It is assumed the tort elector will continue to purchase medical payments coverage
(2)	From Exhibit 2, Col (6c))
(3)	Exh 6, Sheet 2, Col (7) / (1,000,000 x 0.75)
(4)	Exh 6, Sheet 2, Col (8) / (1,000,000 x 0.25
(5)	Col(3) x 0.75 + Col (4) x 0.25
(6)	Col (3)/Col (2) − 1
(7)	Col (4)/Col (2) − 1
(8)	Col (5)/Col (2) − 1

Estimated Liability Costs Under Choice No-Fault

Tort State Example

Coverage	Category	% of Insured Population Selecting		Claim Counts				Total Claim Counts			Claim Severity		Total Cost (000's)		
				Damages to Tort Insured, caused by:		Damages to NF Insured, caused by:									
		Tort	No-Fault	NF Insured	Tort Insured	NF Insured	Tort Insured	Tort Insured	NF Insured	Total	Tort Insured	NF Insured	Tort Insured	NF Insured	Total
(1a)	(1b)	(2)	(3)	(4a)	(4b)	(4c)	(4d)	(5a)	(5b)	(5c)	(6a)	(6b)	(7)	(8)	(9)
BI	Serious	75%	25%	540	1,620	180	540	2,160	720	2,880	$16,697	$16,697	$36,065	$12,022	$48,087
	Uninsured				540	180		540	180	720	1,755	1,755	948	316	1,263
	Out of State				450	150		450	150	600	8,010	8,010	3,605	1,202	4,806
	Residual				495	165		495	165	660	9,107	9,107	4,508	1,503	6,011
	Other			1,339	4,016	446	1,339	5,355	1,785	7,140	4,136	1,524	18,650	2,720	21,370
	Total							9,000	3,000	12,000			63,776	17,762	81,537
PD								30,660	10,220	40,880	1,620	1,620	49,669	16,556	66,226
PIP									3,026	3,026		4,842		14,651	14,651
UM	Serious				216		72	216	72	288	16,697	16,697	3,607	1,202	4,809
	Out of State				45		15	45	15	60	8,010	8,010	360	120	481
	Residual				50		17	50	17	66	9,107	9,107	451	150	601
	Other				590		197	590	197	786	4,136	1,524	2,438	299	2,737
	Total				900		300	900	300	1,200			6,856	1,772	8,628
UIM	Serious			6	17	2	6	23	8	30	34,167	34,167	769	256	1,025
	Out of State			1	2	0	1	3	1	4	24,040	24,040	72	24	96
	Residual			1	2	0	1	2	1	3	27,333	27,333	62	21	82
	Other			6	19	2	6	26	9	34	12,227	5,148	312	44	356
	Total			13	40	4	13	53	18	71			1,214	345	1,559
Total Liability								40,613	16,564	57,177			$121,515	$51,085	$172,600

Column

(2),(3) Assumed mix of insured population between full and no-fault electors

(4a),(4c) Col (2) x Col (3) x Exhibit 5, Col (6)

(4b) Col (2) x Col (2) x Exhibit 5, Col (6) for Serious and Other; Col (2) x Exhibit 5, Col (6) for Uninsured, Out of State and Residual

(4d) Col (3) x Col (3) x Exhibit 5, Col (6) for Serious and Other; Col (3) x Exhibit 5, Col (6) for Uninsured, Out of State and Residual

(5a) Col (4b) + (4d)

(5b) Col (4a) + (4c)

(5c) Col (5a) + (5b)

(6a) Claim severities from Exhibit 5, Col (8), with adjustments. For the BI – Uninsured category, the claim severity is adjusted downward by 60% to remove noneconomic losses. For the serious and residual categories, the adjustment is [1 – .21 x Col (3)], to reflect the transfer of economic losses from BI to PIP. For the Other category the adjustment is [1 – .20 x Col (3)].

(6b) Col (6a), except for the Other category, which is (6a) – [Exhibit 5, Col (8) x .60]

(7) [(4b) x (6a) + (4d) x (6b)] / 1,000, except for UM/UIM which is [(5a) x (6a)] / 1,000

(8) [(4a) x (6a) + (4c) x (6b)] / 1,000, except for UM/UIM which is [(5b) x (6b)] / 1,000

Impact of Choice No–Fault
Tort State Example

% Tort	50%
% No–Fault	50%

Coverage (1)	Average Current Tort Costs (2)	Estimated Costs Under Choice No–Fault: Tort Insured (3)	Estimated Costs Under Choice No–Fault: No–Fault Insured (4)	Estimated Costs Under Choice No–Fault: Average (5)	% Change from Present: Tort Insured (6)	% Change from Present: No–Fault Insured (7)	% Change from Present: Total (8)
BI	$96.12	$75.82	$66.49	$71.16	−21.1%	−30.8%	−26.0%
PD	66.23	66.23	66.23	66.23	0.0%	0.0%	0.0%
Medical/PIP	38.04	38.04	58.60	48.32	0.0%	54.1%	27.0%
UM	9.61	8.67	6.62	7.64	−9.8%	−31.2%	−20.5%
UIM	1.68	1.54	1.32	1.43	−8.7%	−21.7%	−15.2%
Liability	$211.68	$190.29	$199.26	$194.77	−10.1%	−5.9%	−8.0%

Column

* It is assumed the tort elector will continue to purchase medical payments coverage

(2) From Exhibit 2, Col (6c)

(3) Exh 6, Sheet 4, Col (7) / (1,000,000 x 0.50)

(4) Exh 6, Sheet 4, Col (8) / (1,000,000 x 0.50

(5) Col(3) x 0.50 + Col (4) x 0.50

(6) Col (3)/Col (2) − 1

(7) Col (4)/Col (2) − 1

(8) Col (5)/Col (2) − 1

Estimated Liability Costs Under Choice No-Fault

Tort State Example

		% of Insured Population Selecting		Claim Counts											
				Damages to Tort Insured, caused by:		Damages to NF Insured, caused by:		Total Claim Counts			Claim Severity		Total Cost (000's)		
Coverage	Category	Tort	No-Fault	NF Insured	Tort Insured	NF Insured	Tort Insured	Tort Insured	NF Insured	Total	Tort Insured	NF Insured	Tort Insured	NF Insured	Total
(1a)	(1b)	(2)	(3)	(4a)	(4b)	(4c)	(4d)	(5a)	(5b)	(5c)	(6a)	(6b)	(7)	(8)	(9)
BI	Serious	50%	50%	720	720	720	720	1,440	1,440	2,880	$15,772	$15,772	$22,711	$22,711	$45,422
	Uninsured				360	360		360	360	720	1,755	1,755	632	632	1,263
	Out of State				300	300		300	300	600	8,010	8,010	2,403	2,403	4,806
	Residual				330	330		330	330	660	8,603	8,603	2,839	2,839	5,678
	Other			1,785	1,785	1,785	1,785	3,570	3,570	7,140	3,918	1,306	9,325	4,663	13,988
	Total							6,000	6,000	12,000			37,910	33,247	71,157
PD								20,440	20,440	40,880	1,620	1,620	33,113	33,113	66,226
PIP									6,052	6,052		4,842		29,301	29,301
UM	Serious				144		144	144	144	288	15,772	15,772	2,271	2,271	4,542
	Out of State				30		30	30	30	60	8,010	8,010	240	240	481
	Residual				33		33	33	33	66	8,603	8,603	284	284	568
	Other				393		393	393	393	786	3,918	1,306	1,540	513	2,053
	Total				600		600	600	600	1,200			4,335	3,309	7,644
UIM	Serious			8	8	8	8	15	15	30	32,274	32,274	484	484	968
	Out of State			1	1	1	1	2	2	4	24,040	24,040	48	48	96
	Residual			1	1	1	1	2	2	3	25,819	25,819	39	39	77
	Other			9	9	9	9	17	17	34	11,584	5,148	197	88	284
	Total			18	18	18	18	36	36	71			768	658	1,426
Total Liability								27,076	33,127	60,203			$76,126	$99,629	$175,754

Column

(2),(3) Assumed mix of insured population between full and no-fault electors

(4a),(4c) Col (2) x Col (3) x Exhibit 5, Col (6)

(4b) Col (2) x Col (2) x Exhibit 5, Col (6) for Serious and Other; Col (2) x Exhibit 5, Col (6) for Uninsured, Out of State and Residual

(4d) Col (3) x Col (3) x Exhibit 5, Col (6) for Serious and Other; Col (3) x Exhibit 5, Col (6) for Uninsured, Out of State and Residual

(5a) Col (4b) + (4d)

(5b) Col (4a) + (4c)

(5c) Col (5a) + (5b)

(6a) Claim severities from Exhibit 5, Col (8), with adjustments. For the BI – Uninsured category, the claim severity is adjusted downward by 60% to remove noneconomic losses. For the serious and residual categories, the adjustment is [1 – .21 x Col (3)], to reflect the transfer of economic losses from BI to PIP. For the Other category the adjustment is [1 – .20 x Col (3)].

(6b) Col (6a), except for the Other category, which is (6a) – [Exhibit 5, Col (8) x .60]

(7) [(4b) x (6a) + (4d) x (6b)] / 1,000, except for UM/UIM which is [(5a) x (6a)] / 1,000

(8) [(4a) x (6a) + (4c) x (6b)] / 1,000, except for UM/UIM which is [(5b) x (6b)] / 1,000

Impact of Choice No–Fault
Tort State Example

% Tort	25%
% No–Fault	75%

Coverage (1)	Average Current Tort Costs (2)	Estimated Costs Under Choice No–Fault: Tort Insured (3)	Estimated Costs Under Choice No–Fault: No–Fault Insured (4)	Estimated Costs Under Choice No–Fault: Average (5)	% Change from Present: Tort Insured (6)	% Change from Present: No–Fault Insured (7)	% Change from Present: Total (8)
BI	$96.12	$66.61	$61.94	$63.11	–30.7%	–35.6%	–34.3%
PD	66.23	66.23	66.23	66.23	0.0%	0.0%	0.0%
Medical/PIP	38.04	38.04	58.60	53.46	0.0%	54.1%	40.5%
UM	9.61	8.20	6.15	6.66	–14.7%	–36.1%	–30.7%
UIM	1.68	1.45	1.26	1.30	–13.7%	–25.4%	–22.5%
Liability	$211.68	$180.52	$194.17	$190.76	–14.7%	–8.3%	–9.9%

Column	
*	It is assumed the tort elector will continue to purchase medical payments coverage
(2)	From Exhibit 2, Col (6c))
(3)	Exh 6, Sheet 6, Col (7) / (1,000.000 x 0.25)
(4)	Exh 6, Sheet 6, Col (8) / (1,000.000 x 0.75
(5)	Col(3) x 0.25 + Col (4) x 0.75
(6)	Col (3)/Col (2) – 1
(7)	Col (4)/Col (2) – 1
(8)	Col (5)/Col (2) – 1

Estimated Liability Costs Under Choice No–Fault

Tort State Example

Coverage	Category	% of Insured Population Selecting		Claim Counts: Damages to Tort Insured, caused by:		Claim Counts: Damages to NF Insured, caused by:		Total Claim Counts			Claim Severity		Total Cost (000's)		
		Tort	No–Fault	NF Insured	Tort Insured	NF Insured	Tort Insured	Tort Insured	NF Insured	Total	Tort Insured	NF Insured	Tort Insured	NF Insured	Total
(1a)	(1b)	(2)	(3)	(4a)	(4b)	(4c)	(4d)	(5a)	(5b)	(5c)	(6a)	(6b)	(7)	(8)	(9)
BI	Serious	25%	75%	540	180	1,620	540	720	2,160	2,880	$14,847	$14,847	$10,690	$32,069	$42,758
	Uninsured				180	540		180	540	720	1,755	1,755	316	948	1,263
	Out of State				150	450		150	450	600	8,010	8,010	1,202	3,605	4,806
	Residual				165	495		165	495	660	8,098	8,098	1,336	4,009	5,345
	Other			1,339	446	4,016	1,339	1,785	5,355	7,140	3,700	1,088	3,108	5,828	8,937
	Total							3,000	9,000	12,000			16,651	46,457	63,109
PD								10,220	30,660	40,880	1,620	1,620	16,556	49,669	66,226
PIP									9,077	9,077		4,842		43,952	43,952
UM	Serious				72		216	72	216	288	14,847	14,847	1,069	3,207	4,276
	Out of State				15		45	15	45	60	8,010	8,010	120	360	481
	Residual				17		50	17	50	66	8,098	8,098	134	401	534
	Other				197		590	197	590	786	3,700	1,088	727	642	1,369
	Total				300		900	300	900	1,200			2,050	4,610	6,660
UIM	Serious			6	2	17	6	8	23	30	30,381	30,381	228	684	911
	Out of State			1	0	2	1	1	3	4	24,040	24,040	24	72	96
	Residual			1	0	2	1	1	2	3	24,304	24,304	18	55	73
	Other			6	2	19	6	9	26	34	10,940	5,148	93	131	224
	Total			13	4	40	13	18	53	71			363	942	1,305
Total Liability								13,538	49,691	63,228			$35,621	$145,630	$181,251

Column

(2),(3) Assumed mix of insured population between full and no–fault electors

(4a),(4c) Col (2) x Col (3) x Exhibit 5, Col (6)

(4b) Col (2) x Col (2) x Exhibit 5, Col (6) for Serious and Other; Col (2) x Exhibt 5, Col (6) for Uninsured, Out of State and Residual

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(8) [(4a) x (6a) + (4c) x (6b)] / 1,000, except for UM/UIM which is [(5b) x (6b)] / 1,000