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Auto Insurance Reform in Michigan

What Can the Data Tell Us?

Paul Heaton

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Legislators in Michigan recently proposed a suite of bills aiming to modify statewide regulations governing the provision of auto insurance. Sponsors argue that reforms are needed to address the high levels of uninsurance within the state and higher-than-average consumer automobile insurance premiums in Michigan relative to the rest of the country (see, for example, Michigan House Democrats, 2009). The proposed reforms include prohibitions on insurer use of credit, occupation, or educational history in rate setting; requirements that only at-fault drivers be subjected to rate increases after collisions; and additional oversight of the insurance industry. State consumer groups are also advancing a ballot initiative that would cut insurance premiums by 20 percent and substantially regulate future rate changes by insurers.

These policy proposals attempt to regulate the pricing of insurance products in order to control auto insurance costs for consumers. While additional price regulation provides one method for reforming Michigan's insurance system, it may not address the underlying causes of high premiums. Indeed, recent research by the RAND Institute for Civil Justice (Anderson, Heaton, and Carroll, 2010) suggests that automobile crash victim claiming behavior is an important underlying cause of high auto insurance costs in some states.

In this paper, we examine how auto crash victim claiming in Michigan differs from that in other states and consider how these differences might affect consumer auto insurance premiums. We show that the fact that premiums are higher in Michigan than in other states can be largely explained by higher levels of reimbursement provided to injury victims and their

medical providers. This pattern suggests that reforms that target claiming behavior may have considerable potential for lowering auto premiums in Michigan.

Michigan's Insurance System Is Both Unique and Relatively Expensive

Most U.S. states require drivers to purchase property damage and bodily injury liability (BI) coverage that compensates others harmed by the insured driver in crashes. A smaller number of states, including Michigan, also require motorists to purchase personal injury protection (PIP) insurance. Rather than compensating other drivers, PIP covers medical and other injury expenses for the driver who purchased the insurance and pays this driver regardless of whether he or she was at fault in the collision. These states, known as *no-fault states*, attempt to counterbalance the expanded coverage provided through PIP with rules limiting crash victims' ability to seek compensation through others' BI policies in less serious accidents.¹

Because of Michigan's no-fault requirements, insured drivers who are injured can seek payment from their own PIP insurer and may also be able to seek reimbursement from another driver's BI insurer. Michigan is unique among all states in requiring PIP coverage to be unlimited, providing a potentially generous source of reimbursement for medical expenses and lost wages in the event of an accident. Moreover, property damage is handled somewhat differently in Michigan than in other states. Most states mandate property damage coverage that pays for damage to other vehicles that occurs when an insured party is at fault in an accident; in Michigan, through optional collision policies, drivers' own insurers reimburse them for vehicle damage.

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¹ See Anderson, Heaton, and Carroll (2010) for a more detailed discussion of the intellectual and political history of no-fault auto insurance.

In 2007, average total auto insurance premiums in Michigan were 17% higher than those in the rest of the country.

However, the unique system of coverage in Michigan has not come without a price. Figure 1 demonstrates that, at the national level, claim payments per insured vehicle (insurer loss costs) under BI and PIP policies remained relatively stable between 2000 and 2006, but PIP costs in Michigan soared during this same period. In 2007, average total auto insurance premiums in Michigan were 17 percent higher than those in the rest of the country (\$928 versus \$795).² Since 2003, Michigan has consistently ranked among the top 15 states in premiums (III, undated). Moreover, the Insurance Research Council (2009) estimates that 17 percent of Michigan drivers failed to purchase mandatory auto insurance in 2007, a rate that placed it appreciably above the national average of 14 percent and ninth highest among states.

Why Does Auto Insurance Cost More in Michigan?

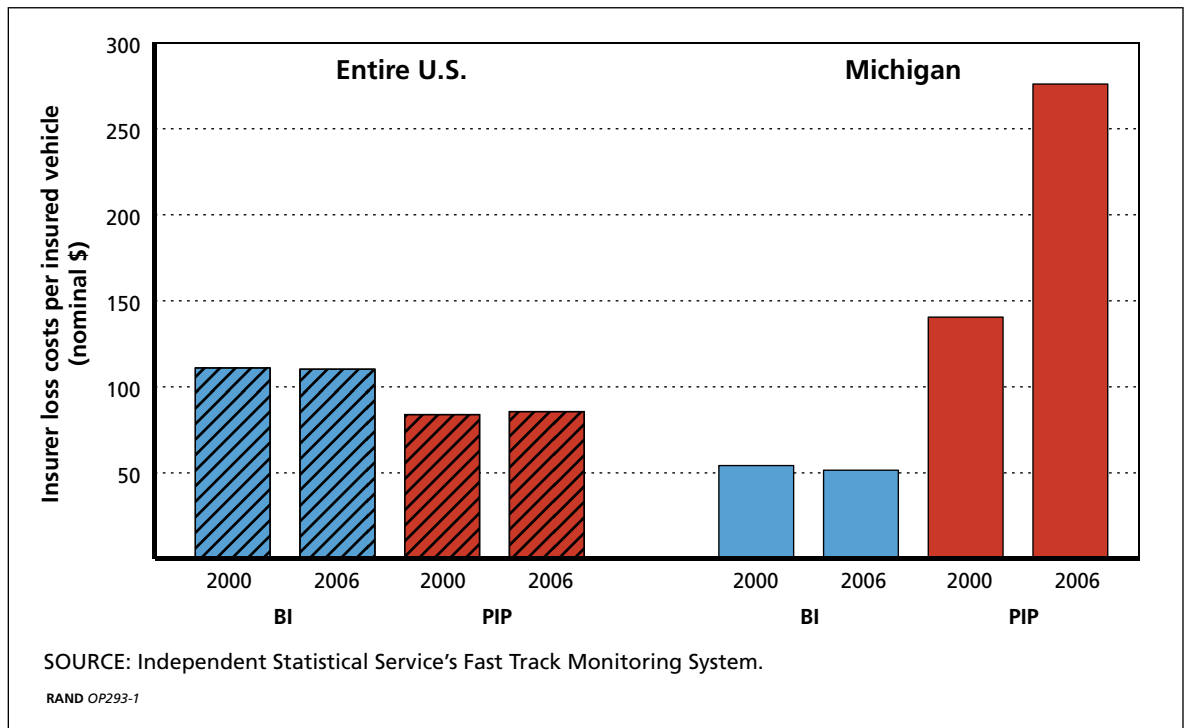
To assess the potential for reform proposals to rein in costs, it is useful to consider why premiums are higher in Michigan than in other states. Nationwide, roughly 40 percent of auto premiums collected by

insurers are used to compensate crash victims for property damage losses. A further 30 percent are used to pay for injury losses. The remaining 30 percent cover the administrative costs of insurers and insurer profits (III, undated). Higher costs in Michigan must reflect differences between that state and the rest of the nation on one or more of these three dimensions.

Property Damage Losses Are Unlikely to Explain Michigan’s Higher Costs

Existing data suggest that property damage losses in Michigan are likely to be equal to or lower than those in other states. For example, recent data collected from Michigan auto insurers through the Independent Statistical Service’s Fast Track Monitoring System (IRC, 2008b) indicate 369 annual property damage claims per 100,000 insured vehicles in that state, as compared with a national average of 385 per 100,000, implying that the Michigan accident rate was actually slightly lower than that of other states. Moreover, data from the General Estimates System (GES), an annual nationwide

**Figure 1
Changes in Insurer Loss Costs, by Coverage, 2000–2006**



² Because of time required to collect and compile information from multiple insurers, data on insurance premiums and losses are typically available with a lag of one or more years. In the discussion that follows, we primarily focus on data from 2007, the most recent available year for most data sources. Although ideally we would like to examine the functioning of auto insurance markets since the onset of the economic downturn, the data sets required for such an analysis are still in the development phase.

sample of crash records collected by the National Highway Traffic Safety Administration (2009), suggest that Michigan auto collisions are less severe than those in other states. As demonstrated in Figure 2, vehicles driven by Michigan residents involved in collisions were actually less likely to sustain substantial damage than vehicles driven by residents of other states. Moreover, data from the Bureau of Labor Statistics' 2008 Consumer Expenditure Survey indicate that consumer expenditures for auto repairs in Michigan track those of consumers in other states, suggesting that high prices for damage repairs are not the culprit explaining high premiums. Michigan's relatively expensive auto insurance premiums cannot be traced to higher property damage losses.

Michigan Auto Injury Victims Are Reimbursed by Auto Insurers for a Wider Range of Losses

Alternatively, injury costs may be higher in Michigan than in other states, and this difference may explain the state's higher premiums. To compare injury claiming patterns of drivers in Michigan to those of drivers

from other states, we turn to the Insurance Research Council's closed-claim database from 2007 (IRC, 2008a). This data set includes detailed information from a nationwide sample of more than 42,000 auto injury claims that insurers settled in 2007.

One way to compare injury costs in Michigan to those in other states is to develop a statistical model that predicts the expected costs for paying each Michigan claim, assuming cost profiles that mimic those we observe in the rest of the nation. By comparing actual claim payments to expected claim payments from the model, we can get a sense of whether claims are more or less expensive for insurers to settle in Michigan than in other places. We developed a model that explains claim costs as a function of 72 variables capturing claimant demographics (such as age, gender, and employment status), accident circumstances (such as location, number of vehicles, and damage severity), and reported injuries. Figure 3 demonstrates that, although we would expect an average auto insurance claim in Michigan to cost \$12,885 based on the injury and accident profiles of Michigan crash victims, actual average claim costs

Michigan's relatively expensive auto insurance premiums cannot be traced to higher property damage losses.

Figure 2
Automobile Damage Severity in Michigan Relative to Other States

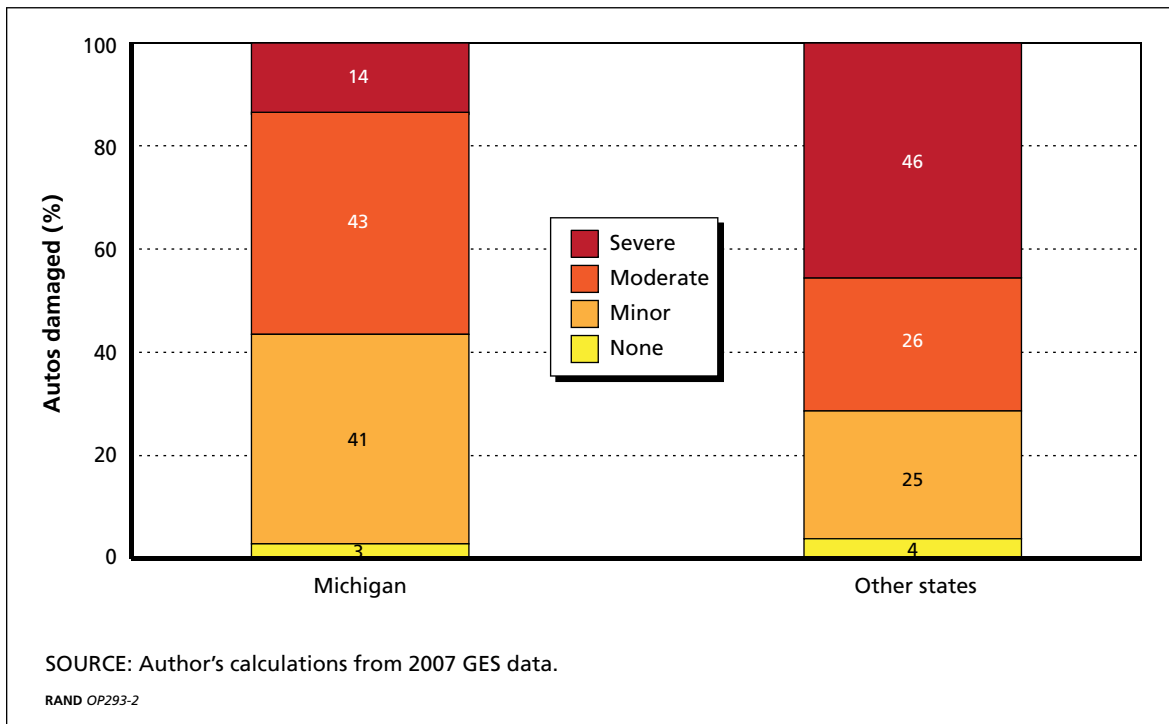
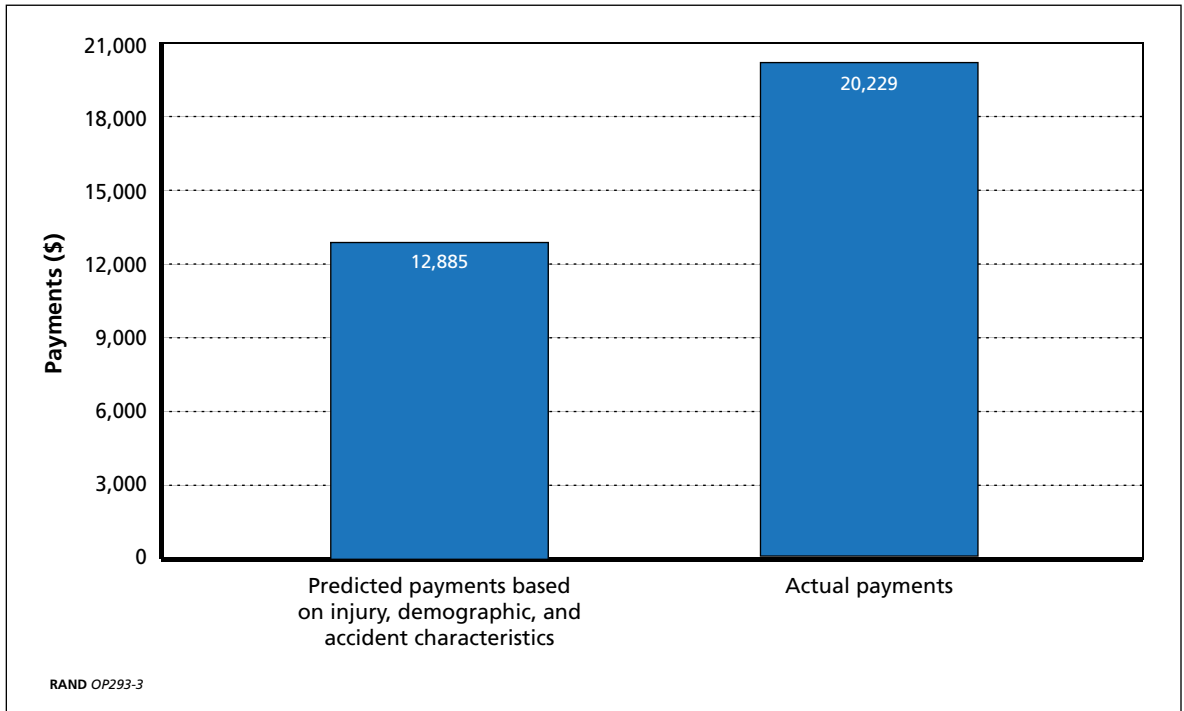


Figure 3
Actual Versus Predicted Injury Claim Payments in Michigan, 2007



The data suggest that it would cost an insurer 57% more to settle a claim from Michigan than it would to settle a claim from another state that involved similar crash circumstances, reported injuries, and claimant demographics.

were \$20,229. Put differently, the data suggest that it would cost an insurer 57 percent more to settle a claim from Michigan than it would to settle a claim from another state that involved similar crash circumstances, reported injuries, and claimant demographics. This pattern is corroborated in aggregated Fast Track data, which indicate that injury losses per insured vehicle in Michigan were 40 percent higher than in the United States as a whole in 2004, the most recent year of available data.³

Why are claim payments so much higher in Michigan? We examined the 2007 closed-claim data to compare the types of services that Michigan injury victims claimed with those of claimants from other areas. Although the share of claimants who obtain medical treatment following an auto injury is almost identical in Michigan (92.8 percent) to the share elsewhere (92.1 percent), the mix of services consumed by Michigan claimants differs substantially. As Table 1 demonstrates, after adjusting for accident and injury characteristics and claimant demographics, Michigan claimants are 19 percent more likely to claim reimbursement for a hospital

visit and 25 percent more likely to claim reimbursement for emergency-room use than are auto insurance claimants from other states. Michigan claimants also sought reimbursement for more X-rays and computed tomography (CT) scans than otherwise-similar claimants from other states, and they are more likely to purchase durable medical equipment and claim reimbursement for lost work. This higher incidence of claiming for relatively expensive services, such as hospital care, is unsurprising, given that many crash victims in Michigan are able to obtain reimbursement through their own PIP policies, which cover some losses not typically covered by other forms of insurance and pay out regardless of driver fault. Interestingly, Michigan claimants are also less likely to submit claims for certain types of medical providers, including chiropractors, anesthesiologists, and alternative providers (such as acupuncturists and massage therapists). Overall, however, Michigan injury victims and their medical providers submit claims for reimbursement to auto insurers that are 24 percent larger in dollar terms than similar claims from other states. If we replicate the analysis described for Figure 2 but also control for these differences in claimed medical utilization and claimed losses, Michigan claim settlement costs no longer appear appreciably different from costs in other states.

³ Aggregate injury loss data are typically available with a substantial lag because more complicated injury claims often take several years to adjudicate. Such claims tend to be highly expensive and can therefore have an important impact on average costs per policy year.

Table 1
Adjusted Claim Rates in Michigan Versus Other States, 2007 (%)

Share of Claimants Seeking Reimbursement for	Other States	Michigan	Difference in Utilization (%)
Ambulance service	23.6	25.0	N.S.
Hospital visit	61.1	73.1	19
Overnight hospital stay	5.5	5.7	N.S.
Visit to other medical facility	19.4	18.9	N.S.
Doctor visit with			
Emergency-room physician	47.8	59.7	25
General practitioner	32.9	37.0	13
Chiropractor	33.3	22.7	-32
Physical therapist	18.4	19.2	N.S.
Orthopedist/osteopath	13.4	16.1	20
Radiologist	13.3	12.5	N.S.
Neurologist	5.1	7.0	36
Alternative medical provider	5.1	3.7	-29
Anesthesiologist	3.2	2.5	-21
Psychotherapist	0.7	1.2	72
Diagnostic tests			
X-ray	56.1	62.9	12
CT scan	13.2	18.3	38
MRI	17.7	19.2	N.S.
Other	9.8	11.9	N.S.
Purchase of durable medical equipment	3.1	4.2	36
Pharmacy costs	15.5	16.7	N.S.
Wage loss	17.7	24.8	40

NOTE: N.S. = the difference between Michigan and other states was not statistically significantly different from 0 at the 5% confidence level. MRI = magnetic resonance imaging.

Simple calculations suggest that a substantial fraction of the higher cost of auto insurance in Michigan can be explained by these higher levels of reimbursement. If injury payments account for 30 percent of total premiums and injury payments are 57 percent higher in Michigan than in other states, other factors being equal, we would expect premiums in Michigan to be 17 percent higher than in other states. Seventeen percent was, in fact, the actual observed difference in premiums between Michigan and the rest of the nation in 2007. Although this analysis does not preclude the possibility that insurer profits or administrative costs in Michigan are higher than in other states (because property damage losses and injury severity appear lower than average in Michigan), at a minimum, it suggests that medical care is an important contributor to high premiums within the state.

Unfortunately, the data provide little guidance as to whether current patterns of treatment among auto injury claimants in Michigan are optimal. Auto injury victims in Michigan may be obtaining similar overall levels of medical care for their injuries to victims in other states, and they and their medical providers may simply be billing more of this treatment to auto insurers than to health insurers. In this case, the auto insurance system would be subsidizing the first-party medical insurance system in Michigan. Alternatively, injury victims may be obtaining more overall treatment than they would otherwise have received due to Michigan's more generous coverage requirements. Even in this case, it remains uncertain whether the benefits of such additional treatment in terms of improved health are large or small relative to costs. Moreover, it is ambiguous whether the addi-

Medical care is an important contributor to high premiums within the state.

tional treatment we observe primarily reflects decisions of patients or their physicians. Clearly, however, the fact that Michigan auto insurers pay for more treatment is likely to have a direct bearing on consumer auto insurance premiums.

Policy Implications

Although high consumer premiums can result from poorly functioning auto insurance markets, high premiums can also simply reflect more comprehensive coverage that is more expensive. In Michigan, injury victims and their medical providers take advantage of the generous coverage that auto insurers are required to offer under the state's no-fault system to seek reimbursement for a wider array of services than victims from other states. Our analysis suggests that these higher levels of claiming can largely explain the higher premiums faced by Michigan drivers. Because affordability has come to dominate the state's political debates over auto insurance, policymakers are currently seeking ways to reduce auto insurance costs for Michigan drivers. Unfortunately, many current reform proposals do little to alter the incentives faced by patients, physicians, and insurers who are considering the appropriate level of care for a given injury. Without changing incentives to consume care, it may be difficult to achieve long-term reductions in the cost of auto insurance in Michigan.

Fortunately, a number of policy options that can address treatment costs exist and have been successfully implemented in other states. Some states—most notably, New Jersey and New York—have introduced fee schedules for medical services provided through PIP as a means of managing the cost of care. Other possibilities that target claiming behavior include allowing Michigan policyholders to limit their PIP coverage, select a wider range of PIP deductibles, or more easily designate auto insurers as secondary to health or disability insurers in claim handling. By offering consumers a broader menu of choices, rather than mandating generous but expensive coverage, these reforms could allow individuals currently priced out of the auto insurance market to obtain affordable but less-comprehensive coverage and, at the same time, permit those who are satisfied with the current system to maintain their status quo. Such reform options merit consideration as Michigan stakeholders consider ways to reduce auto insurance costs in the state. ■

Appendix

Technical Notes for Figure 1

This figure was constructed using data from the Vehicle component of the 2007 GES database. Vehicles were matched to the driver's state of residence, based on the driver ZIP Code field. The sample includes 7,871 vehicles driven by Michigan residents and 61,728 vehicles driven by residents of other states. A Mann-Whitney test for equality of distribution between Michigan and other states rejects the null hypothesis that the samples were drawn from the same accident-severity distribution ($p = 0.00$).

Technical Notes for Figure 2

For Figure 2, we predicted claim costs using a Poisson regression model in which the dollar amount of reimbursed losses was modeled as a function of a set of control variables, which included variables capturing accident urban/rural location (five indicators), number of involved vehicles (three indicators), impact point (six indicators), impact severity (five indicators), overall injury severity (six indicators), insured-driver degree of fault; claimant gender, age and age squared, employment status, role (ten indicators), seat location (three indicators), and seatbelt use; and injury indicators for no injuries, fatality, minor cuts, lacerations, burns/scarring; neck, back, and other sprains/strains; knee, shoulder, disc, brain, temporomandibular joint (TMJ), and internal injury; and concussion, bone fracture, loss of body part, paralysis, sensory loss, psychological trauma, headache, pregnancy-related injury, and other injury. The unit of observation in this analysis was an injury claim, and 41,404 claims were used in the analysis. Using the estimated coefficients from the regression, we then predicted the payouts for the 634 observed claims from Michigan accidents to obtain the predicted average payout of \$12,885. We calculated the actual average payment to be \$20,229. The estimated robust standard error for the predicted payouts is \$2,310, indicating a statistically significant difference between predicted and actual claim payments for Michigan accidents.

By offering consumers a broader menu of choices, policy reforms could allow individuals currently priced out of the auto insurance market to obtain affordable but less-comprehensive coverage and, at the same time, permit those who are satisfied with the current system to maintain their status quo.

Technical Notes for Table 1

To generate the values in Table 1, for each type of treatment, we estimated a probit regression of a 0-1 indicator for whether a claimant reported using a particular type of treatment on an indicator for a Michigan claim and the set of control variables listed above for Figure 2. The estimated coefficient on the Michigan claim indicator measures the change in the probability of claiming a particular service that is associated with having a claim in Michigan versus another state. This estimate was added to observed claiming rates in order to construct the third column of the table. Each row of the table is based on a separate regression, and each regression employed 42,038 observations. Significance tests reported in the table are based on robust standard errors.

To calculate the difference in claimed losses between Michigan claimants and claimants from other states after adjusting for injury and other claim characteristics, we estimated a Poisson regression in which the dependent variable was the dollar value of claimed losses and the primary explanatory variable was an indicator for a claim for an accident that occurred in Michigan. We also controlled for the same covariates listed above for Figure 2. Sample size was 39,043. The estimated coefficient on the Michigan indicator was 0.217 (robust 95-percent confidence interval [CI] = 0.025 to 0.410), implying that Michigan claims were 24 percent larger than claims from other states.

To examine how controlling for treatment and claim costs affects our conclusions regarding differential costs in Michigan, we first estimated a Poisson model in which the total amount of reimbursement was modeled as a function of an indicator for a Michigan claim and the controls listed for Figure 2. Consistent with the findings reported in Figure 2, the estimated coefficient on the Michigan indicator in this regression was 0.461 (robust 95-percent CI = 0.268 to 0.653). After reestimating this model adding in covariates capturing the types of services claimed, the number of visits to different types of providers, reported costs for services, and total claimed losses, the estimated coefficient on the Michigan indicator variable was -0.024 (robust 95-percent CI = -0.239 to 0.192). Sample size for these regressions was 39,043.

Full results from all regressions are available from the author upon request.

References

Anderson, James M., Paul Heaton, and Stephen J. Carroll, *The U.S. Experience with No-Fault Automobile Insurance: A Retrospective*, Santa Monica, Calif.: RAND Corporation, MG-860-ICJ, 2010.

III—see Insurance Information Institute.

Insurance Research Council, *Auto Injury Insurance Claims: Countrywide Patterns in Treatment, Cost, and Compensation*, Malvern, Pa., January 2008a.

———, *Trends in Auto Injury Claims*, Malvern, Pa., January 2008b.

———, *Uninsured Motorists*, Malvern, Pa., January 2009.

Insurance Information Institute, “Auto Insurance,” undated Web page. As of December 15, 2009: <http://www.iii.org/media/facts/statsbyissue/auto/>

IRC—see Insurance Research Council.

Michigan House Democrats, “Reform Plan Holds Auto Insurance Companies Accountable,” press release, November 30, 2009. As of February 1, 2010: <http://www.housedems.com/news/article/reform-plan-holds-auto-insurance-companies-accountable/plan-would-end-unfair-practices-crack-down-on-price-gouging>

National Center for Statistics and Analysis, National Highway Traffic Safety Administration, *Traffic Safety Facts 2007: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System*, Washington, D.C., 2009.

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