Unmetered Premiums Subsidize Overuse of Automobile Transportation

By Patrick Butler

VOTER APPROVAL OF CALIFORNIA'S PROPOSITION 103 in 1988 signaled strong consumer rejection of the current automobile insurance pricing system. Nevertheless, insurers are refusing to admit that this stinging rebuke indicates a need for fundamental change. Shortly after the election, Terry Tyrpin, assistant general counsel for the National Association of Independent Insurers (NAII), protested that, "One thing we should not do is allow ourselves to accept the full, or even the major responsibility for containing insurance costs. . . . We cannot tell motorists to drive less." Tyrpin went on to suggest that in order to reduce insurance costs, society "may need to build better public transportation systems and create incentives to use them."

The industry has yet to comment on what happened to automobile insurance when ridership on public transportation in California rose dramatically—128,000 more rider-trips daily for several weeks on the Bay Area Rapid Transit—after the October 1989 earthquake. The NAII statement clearly assumes that insurers' costs would be less if motorists would cut down on car use. It tacitly admits, however, that the industry practice of charging fixed premiums in advance gives the individual motorist no economic incentive to drive less.

It is generally recognized that unmetered provision of a good or service leads to overuse. In 1968, Columbia University Economics Professor William Vickrey concluded "that the manner in which premiums are computed and paid fails miserably to bring home to the automobile user the costs he imposes in a manner that will appropriately influence his decisions." In the 1980s, the overuse of automobile transportation has prompted increasing concern about its effect on the environment. The search for workable disincentives has focused, for lack of alternatives, on gasoline surcharges, more toll roads, and restriction on car access to cities.

In fact, millions of cars are already driven very little. Of vehicles available to households in the United States, excluding motorcycles, 8% (8.3 million in 1977) are driven less than 1,000 miles annually, and 20% (21 million) are driven less than 3,000 miles per year. On the other hand, while the average mileage for cars is approximately 10,000 miles per year, about 7 million cars are driven more than 23,000 miles annually. Older cars average fewer miles, and produce fewer insurance claims. However, according to U.S. Department of Transportation data (1977), 1 million newer cars, one to three years old and probably bought for reliability, are also driven very sparingly—less than 1,000 miles in a year.

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Car-Year Rates

How does the current system of premiums accommodate this very broad range in amount of exposure to risk of accidents? The fact that the ratio of men's to women's annual mileage (and, therefore, involvement in accidents) is about 2:1 at all ages is given crude recognition by setting prices according to the sex of one of the car's drivers—but this practice is restricted (illogically) to 20% of cars, generally those with younger, unmarried drivers.

For the 80% of cars assigned to the "adult" risk classes, for which pricing has always been unisex, broad classifications are defined by car-use categories such as "drive to work," "pleasure," and whether or not the policy covers more than one car. Some insurers "recognize" low mileage with a 15% discount class, based on unverifiable policy-holder (or agent) estimates that the car will be driven less than 7,500 or 8,000 miles in the coming year. Other insurers have given up the discount because, owing to price competition, it tends to be awarded to most customers.

Although the unisex "adult" class multipliers, which multiply the territorial base rates, typically range from 0.65 (farm use, multicar discount) to 1.50 (business use, single car), most cars are in the large "pleasure use" and "distance-to-work" classes, with mid-range multipliers. Actual distributions of insured cars by multiplier size show that more than nine out of ten cars are insured at multipliers within about 15% of the average multiplier (1.0, Figure 1). Therefore, most "adult" cars rated by insurers are in a price range defined by the size of token discounts and surcharges. Even if classification could somehow distinguish differences in annual mileage—which it cannot—the class differentials would not come close to matching the 100% difference between women's and men's average mileage.

Within the risk classes themselves, the premium paid typically shows little or no variation with the annual mileage the insured car has been driven. The result is a very large range in the per-mile insurance cost of operation to the owners (Table 1). Viewed another way, cars in the same class pay very different premium amounts for identical driving exposure, depending on how many years each car takes to accumulate that exposure. For example, cars driven 6,000 miles annually are charged nearly four times more premium for 24,000 miles of insurance protection than cars driven the 24,000 miles in one year.
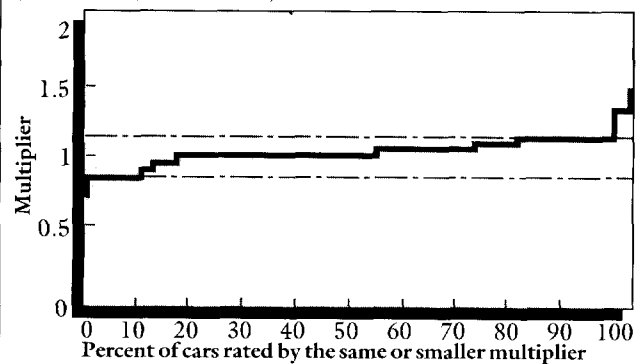
Mileage Determines Insurers' Costs

While premium charges are indifferent to the amount of driving done during the year, insurers' costs are not. During World War II, for example, gasoline rationing abruptly forced motorists to cut back their driving. Insurers implicitly acknowledged the relationship between mileage and costs when they responded by moving quickly to make the price of liability insurance vary with the gasoline allocation for the car. Later, claim frequency data substantiated the correlation between gasoline and insurance consumption.

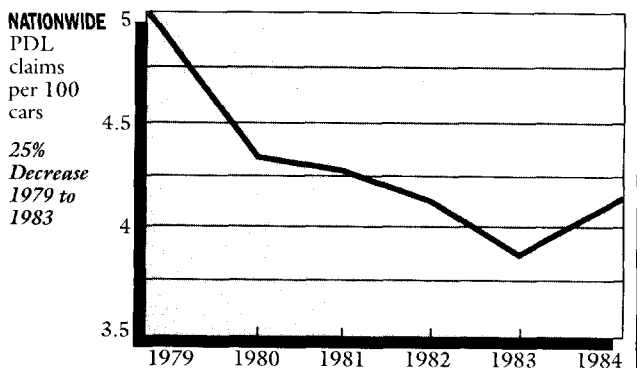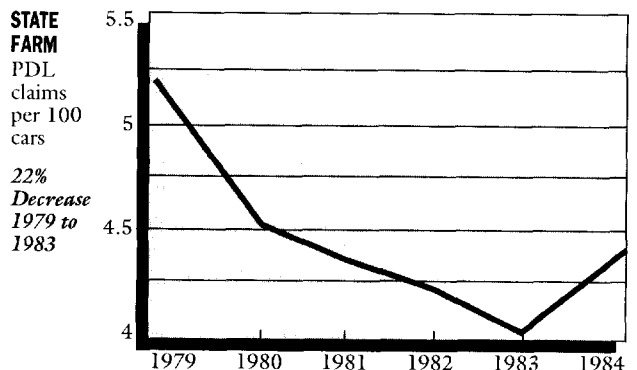Again, in 1973-74, temporary gasoline shortages

Figure 1

Typical Distribution of Adult Cars by Multiplier Size (State Farm, Penn. 1986)

Percent of cars rated by the same or smaller multiplier

Figure 2

Pennsylvania Accidents and Insurance Claims, 1979-1984

ACCIDENTS
Accidents per 100 vehicles

18% Decrease 1979 to 1983

STATE FARM
PDL claims per 100 cars

22% Decrease 1979 to 1983

NATIONWIDE
PDL claims per 100 cars

25% Decrease 1979 to 1983
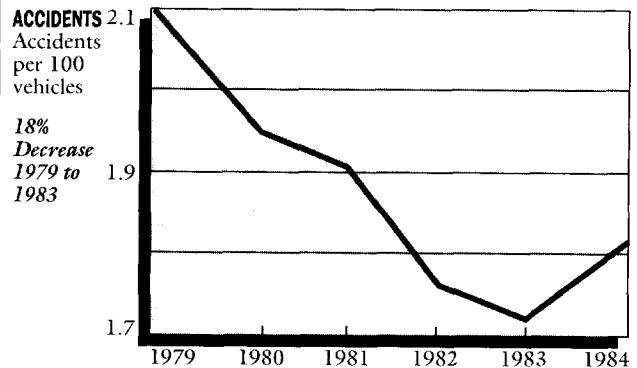
sharply reduced driving and accident claims. But there was no corresponding change in insurance costs for consumers. Premiums that anticipated a higher level of driving had already been collected. The Louisiana legislature and several insurance commissioners later tried, with only limited success, to retrieve refunds from the windfall profits reaped by insurers.

At a technical conference in 1982, Allstate Insurance's research vice president described how economic adversity for consumers allows the company to anticipate fewer claims:

[P]eople tend to do less pleasure driving when unemployment rises, cutting the accident rate. Similarly, as gasoline prices rise, miles driven falls, which again cuts the accident rate. In effect, both variables are surrogates for miles driven or exposure.

These economic effects were demonstrated in Pennsylvania from 1979 to 1983. The statewide averages for ac-

Cents-per-mile premiums would end systematic overcharging of lower-mileage drivers—predominantly low-income people, women, and older men.

cidents and claims decreased about 20% over a period of four years of declining prosperity and rising gasoline prices (Figure 2).

Because some people in hard-hit areas of the state cut their driving sharply to save gas money, the sudden decrease in claims must have produced windfall profits for their insurers. Since future premiums were based on past state average costs, however, after several years consumers across the state may have paid premiums set a few percent lower than otherwise as a result of fewer claims.

But what about the individuals who cut back drastically on their driving because of loss of work, illness, or other difficulties? Under the current system of car-year rates, economic reverses for individual customers can produce profitable cost decreases for insurers. These decreases help to keep cost levels down for all consumers, but provide no savings in premium for those who were in fact responsible for the lower costs. Moreover, what about the cars whose annual mileage is perennially below average for their risk class? It should be obvious that they perennially subsidize the costs of covering cars driven above the average mileage.

When times are good and gasoline prices are low, auto insurers anticipate increased driving and build the expected costs into their rate requests. In its 1986 request for approval of a rate increase in Pennsylvania, for example, Nationwide Insurance Company explained that: "As people spend more time on the road, they will have more accidents." In effect, insurers routinely insure themselves

at the expense of consumers against the future possibility that more driving will mean increased costs.

The consistent relationship between amount of driving and number of accidents is a fact kept well hidden from the public. Insurers make consumers feel responsible for premium increases by blaming "skyrocketing" increases in fraud, medical costs, and lawsuits. If consumers were told instead that premiums were rising because average driving had increased, many could logically object that "I'm not driving any more than I used to. Why should I have to pay more for insurance because others are raising the average?"

For California drivers, last October's earthquake accomplished what fixed premiums cannot provide sufficient incentive to do. Tens of thousands of motorists forsook their cars for public transportation when earthquake damage closed bridges and roads in the San Francisco Bay area. Because driving decreased, the number of accident claims will also decrease, thus lowering costs for automobile insurers. If individual premiums were cost based, the benefits of these cost savings would be passed along to the drivers responsible for them, but the system doesn't work that way. Instead, these drivers had to add the cost of transit fares to premiums already paid.

Remedy for Poor Economics

Any system that promotes such cost shifting and works contrary to public policy demands a genuine remedy. It is not necessary to add an insurance surcharge to gasoline prices in order to tie premiums to driving. Unlike gas-tax insurance, use of the mile as the unit of exposure for calculating premiums would be compatible with risk classifications such as territory and car value. Number of miles driven multiplied by the car's class rate—5 cents per mile, for example—would give the final premium for on-the-road coverages.

It is a favorite maxim of insurers that "competition lowers prices." But this is only half true. Insurance price competition lowers some people's prices by raising the prices for others. Insurers' refusal to use odometer miles as the objective record of the physical exposure of the car lets companies apply cost savings from women's lower average mileage to subsidize price competition for men's business.

Conversion to metered premiums is straightforward, as can be illustrated with present premiums that separate administrative expenses from territorial base prices by coverage (Table 2). Per-mile class rates can be obtained from the total car-year rates for the on-the-road coverages simply by assuming an average annual mileage for the cars in the territorial and use class.

For low-mileage drivers, the economic significance of car-mile premiums is clear (Table 3). The annual premium for the 3,000-mile car would decrease by more than half, while cars driven the class-average annual mileage would see no change in premium. The currently subsidized high-mileage cars would pay more. Their owners, however, would be as likely to complain publicly about having to

Effect of Car Mileage on Premium Cost—Car-Year Rates

Annual Mileage Driven	Sum of Base Car-Year Rates[a]		Class Multiplier[b]		Consumer's Cost	
					Premium	Cents-per-Mile
3,000	$347.6	×	.95	=	$330	11.0
6,000	$347.6	×	.95	=	$330	5.5
9,000	$347.6	×	1.10	=	$382	4.2
12,000	$347.6	×	1.10	=	$382	3.2
18,000	$347.6	×	1.10	=	$382	2.1
24,000	$347.6	×	1.10	=	$382	1.6

[a] State Farm Mutual Insurance Company, 1986, for Harrisburg, Pennsylvania (Territory 28), required coverages plus full comprehensive and $100 deductible collision coverage of a 1985 model, rating group 9 car.
[b] Adult, pleasure-use, single-car class. Discount (−0.15) applied for "low estimated future mileage."

Base Car-Year Rates—Insurance Services Office (ISO)

Pennsylvania 1986	Required Coverage				Physical Damage (1986 S-5 car)			
	Liability 15/30/5		First-Party Benefits	Uninsured Car UM		Comprehensive $100 Deductible	Collision $200 Deductible	Total of Fees and Base Prices
Statewide Expense Fee	$34	+	$10		+	$6	+	$20	=	$70
Harrisburg UM (fixed)				$22				=	$22
Base Rates	$136	+	$62		+	$16	+	$136	=	$350

Effect of Car Mileage on Premium Cost—Car-Mile Rates

Car Mileage, by Two Odometer Readings		Car-Mile Rate (Cents)[a]		Fixed Annual Charge[b]		Consumer's Cost	
						Premium	Cents-per-Mile
3,000	×	3.56	+	$86	=	$193	6.4
6,000	×	3.56	+	$86	=	$300	5.0
9,000	×	3.56	+	$86	=	$406	4.5
10,000	×	3.56	+	$86	=	$442[c]	4.4
12,000	×	3.56	+	$86	=	$513	4.3
18,000	×	3.56	+	$86	=	$727	4.0
24,000	×	3.56	+	$86	=	$940	3.9

[a] Sum of Harrisburg territory base prices for on-the-road coverages (Table 2: $136 + $62 + $22 + $136 = $356) times the multiplier (1.00) for the Adult Pleasure-Use class and divided by an assumed 10,000 annual mile average for cars in the class in the Harrisburg territory.
[b] Expense fees plus Comprehensive base car-year rate ($70 + $16).
[c] $442 is the same premium that is assessed currently for all annual mileages.

pay for the amount of insurance protection they use as to complain publicly about having to pay for the gasoline they use. Of course, the odometer would have to be read initially for new customers and thereafter for each billing, but competition among insurers would push development of convenient and efficient arrangements.

Objections that metering is impractical are groundless. No state bureaucracy helps utility companies read meters. Private garages already test and read odometers during safety inspections done at a nominal fee. Odometer mileage is currently the basis for money transactions such as warranty determination and resale value. Under existing law, odometer fraud is punishable by severe fines and jail.

Cents-per-mile premiums would end systematic overcharging of lower-mileage drivers—predominantly low-income people, women, and older men—and provide for the first time a valid statistical baseline for meaningful cost comparisons among territories and other risk classifications. Also, metered premiums would let consumers control their automobile insurance expenditures to the same extent they can now control their expenditures for gasoline. Furthermore, metered premiums would furnish strong economic incentives for decreased use of cars, while strengthening support for public transportation and environmental improvement.